

TREATMENT PLANT OPERATOR

# tpo™

DEDICATED TO MUNICIPAL WASTEWATER PROFESSIONALS

www.tpomag.com  
APRIL 2013

**A youth apprentice program  
in Green Bay, Wis.**

PAGE 38

**In My Words:  
A national  
biogas database**

PAGE 26

**Hearts and Minds:  
Earth Day tours  
in LaSalle, Ill.**

PAGE 22

## *No Less Than the Best*

**AN INDIRECT THERMAL BIOSOLIDS  
DRYING PROCESS PROVES OPTIMAL  
FOR EXETER TOWNSHIP**

PAGE 28

  
Exeter Township  
Water Quality Control  
& Biosolids

Paul Herb  
Plant Superintendent  
Exeter Township, Pa.





# YOUR STORIES OF FACT AND FICTION.



“ We didn't think there was a way to get an accurate DO reading without lots of calibration. But the new LDO sensor from Hach comes calibrated from the factory—simplifying my life, and giving me more accurate readings.”

At Hach, we are trying to re-think wastewater analysis. Help us bust common wastewater myths at: [bustingmyths.com](http://bustingmyths.com)



Be Right™



# INCREDIBLY POWERFUL AMAZINGLY EASY TO USE.

Make quick work of your Pump Station visits with the state-of-the-art Flygt technology. Now you can easily manage your Pump Stations using a highly intuitive touchscreen interface. With the dedicated pumping intelligence of Flygt APP 800 monitoring and control system, you have a complete overview - at the station, over the web or on your smartphone. Seamless integration to SCADA gives you full end-to-end control. So tap into the power of the most intuitive and integrated system available for water transport.

Inspired by you. Engineered by us.



DESIGN | FUNCTION | PERFORMANCE

# SONIC-PRO

HYBRID ULTRASONIC FLOWMETER



IP66  
NEMA 4X  
WASHDOWN  
CE  
ETL

Selectable Doppler or Transit Time  
Non-invasive Clamp-on Transducers  
Works with Clean or Dirty Fluids  
"Smart" External Communications

**ALL NEW! T-TRACK MOUNTING SYSTEM**  
Pipe Capacity of 0.5" to 100".  
NEMA 4x Quick Disconnects



## Blue-White

5300 Business Drive, Huntington Beach, CA 92649 USA  
714-893-8529 • fax: 714-894-9492

sales@blue-white.com • www.blue-white.com

## advertiser index

APRIL 2013

 Aerzen USA ..... 31	Hoffman and Lamson, Gardner Denver Products ..... 15
 AllMax Software, Inc. .... 47	<b>HUBER</b> TECHNOLOGY Huber Technology, Inc. .... 7
AMWELL, A Div. of McNish Corp. 20	 JDV Equipment Corporation ..... 37
 Analytical Technology, Inc. .... 21	 Keller America Inc. .... 19
 Ashbrook Simon-Hartley ..... 33	 Komline-Sanderson ..... 49
 Blue-White Industries ..... 4	LaMotte Company ..... 37
CEM Corporation ..... 23	<b>MISSION</b> Mission Communications ..... 41
Data Flow Systems, Inc. .... 23	 NAWT, Inc. .... 35, 49
 Dragon Products, Ltd. .... 13	<b>NETZSCH</b> NETZSCH Pumps North America, LLC ..... 25
DSI Dynamic ..... 39	 OVIVO OVIVO ..... 5
Environmental Dynamics International ..... 8	Precision Digital Corp ..... 9
 Flo Trend Systems, Inc. .... 4	s::can Measuring Systems, LLC 49
FlowWorks Inc. .... 49	Tetra Tech, Inc. .... 45
 a xylem brand Flygt - a Xylem Brand ..... 3	USABlueBook ..... 56
Greyline Instruments Inc. .... 25	 Vaughan Company, Inc. .... 55
 Hach Company ..... 2	Vogelsang ..... 20
	YSI Incorporated ..... 35
	CLASSIFIEDS ..... 49

## FLO TREND SYSTEMS, INC. Dewatering Made Simple



Roll-Off Sludge Mate®



Poly-Mate®



Low Profile Roll-Off



Call Now! **Flo Trend Systems Inc.**  
(713) 699-0152 • www.flotrend.com • sales@flotrend.com

## See Both Sides

Now there's a magazine for the drinking water side of the house. *Water System Operator™ (WSO)* — with the same emphasis on the people who make it all work. It's designed to help water operators:

- Receive recognition celebrate successes
- Learn new technologies and methods
- Advance in the profession
- Share best practices



Get your subscription at [wsomag.com](http://wsomag.com) — free to qualified professionals.



# The Ovivo Carrousel® System

## Rugged Solutions for Your Most Stringent Limits

The Ovivo Carrousel® System brings energy efficiency, automation, optimization, and exceptional performance all in a simple, long lasting, and easy-to-maintain system.

**Accept no substitutes.**

Ovivo would also like to congratulate the team at the Commerce Township Wastewater Treatment Plant for their continued accomplishments. Great Job, Guys! To see what a Carrousel® System is capable of, check out the Top Performer Plant article "Teaming with Technology" for details.



**Excell® Aerator II**



**Automatic  
Eliminat/R Gate™**



**Oculus™ Nutrient  
Control System**



**Simple Flow  
Sheets for Every  
Application**



## features

- 10** **TOP PERFORMER – PLANT: TEAMING WITH TECHNOLOGY**  
The staff in Commerce Township, Mich., uses old-fashioned persistence and ingenuity to make the most of a new BNR process with SCADA control.  
By Jim Force
- 16** **TOP PERFORMER – OPERATOR: QUIET COMPETENCE**  
Loxahatchee district's chief operator Gary McClure gets the job done consistently while spreading the credit to his managers and his team.  
By Jack Powell
- 22** **HEARTS AND MINDS: MY WATER GOES WHERE?**  
The treatment plant in LaSalle, Ill., brings environmental awareness to the public in conjunction with Earth Day.  
By Briana Jones
- 24** **GREENING THE PLANT: PRIME ATTRACTION**  
A solar array in Weslaco, Texas, helps the treatment plant run off the grid during the day and draws interest from academics and other municipalities.  
By Lisa Balcerak
- 26** **IN MY WORDS: THE BOOK ON BIOGAS**  
A national database sheds light on treatment plant digester methane and the role it plays in the nation's renewable energy initiatives.  
By Ted J. Rulseh
- 28** **TOP PERFORMER – BIOSOLIDS: NO LESS THAN THE BEST**  
A search for the optimum biosolids solution leads Exeter Township to an indirect thermal drying process that yields a Class A EQ product.  
By Ted J. Rulseh
- 34** **PLANTSCAPES: UNDERGROUND SUCCESS**  
An award-winning wastewater lift station project combines community appeal with a low-cost solution that benefits ratepayers.  
By Jeff Smith
- 36** **HOW WE DO IT: PRODUCTIVE FIX**  
A St. Louis treatment plant resolves pump station reliability issues with an eddy current high-power digital clutch controller.  
By Scottie Dayton
- 38** **ON HIS WAY**  
A youth apprenticeship with NEW Water in Green Bay gives Brandon Burton an excellent start toward a career in clean water.  
By Ted J. Rulseh

## COMING NEXT MONTH: MAY 2013

### Special Issue: Annual Company Directory

- Let's Be Clear: When Memory Walks Away
- Top Performer – Plant: Harpeth Valley Utilities District, Nashville, Tenn.
- Top Performer – Plant: FOG remedies in New Shoreham, R.I.
- Top Performer – Plant: Trickling filter innovation in Corning, N.Y.
- How We Do It: Knowledge preservation in Littleton/Englewood, Colo.
- Greening the Plant: Mechanical efficiency improvements in Freeport, Maine
- Hearts and Minds: Public education in Playas de Rosarito, Mexico
- PlantScapes: Japanese gardens in Forest Grove, Ore.
- In My Words: Keys to management and leadership



## departments

- 8** **LET'S BE CLEAR: THE FIRE CHIEF PROJECT**  
You're invited to join a long-term endeavor — one that aims to change the status of clean-water operators radically, permanently and for the better.  
By Ted J. Rulseh, Editor
- 42** **PRODUCT FOCUS: MONITORING AND INSTRUMENTATION**  
By Craig Mandli
- 47** **CASE STUDIES: MONITORING AND INSTRUMENTATION**  
By Scottie Dayton
- 50** **WORTH NOTING**  
People/Awards; Education; Calendar of Events
- 52** **PRODUCT NEWS**  
Product Spotlight: Microfiber Pile Cloth Media Removes Solids, Turbidity and Phosphorus  
By Ted J. Rulseh
- 54** **INDUSTRY NEWS**

### on the cover

A \$6 million investment in thermal drying technology all but eliminated landfilling of biosolids for Exeter Township, Pa., according to Paul Herb, wastewater treatment plant superintendent. The Class A EQ (exceptional quality) dried product quickly found favor with local farmers, who pay \$10 per ton for it. (Photography by Patrick Gensel)





Looking *for* **RELIABLE  
DEWATERING?**

*you* **FOUND  
THE SOLUTION**

## RoS3Q Inclined Screwpress

- **Efficient** and **reliable** operation
- **Minimum** operator attention
- **Simple** slow rotational design
- **Energy** efficient low hp motor
- **High performance** sludge dewatering
- **Compact** entirely enclosed machine
- **Stainless Steel** construction

See the **RoS3Q** running at  
[huberforum.net/RoS3Q](http://huberforum.net/RoS3Q)  
solutions@hhusa.net • 704.990.2055

### SOLUTIONS FOR:



SCREENING



GRIT



SLUDGE

**HUBER**  
TECHNOLOGY  
WASTE WATER Solutions



**ENVIRONMENTAL DYNAMICS INTERNATIONAL**

**Aeration for Life™**

Design  
Supply  
Install  
Maintain

**NOT JUST ANOTHER DIFFUSER COMPANY**

**Aeration for Life** delivers *total service* from concept to installation and maintenance.

Complete aeration solutions from EDI allow you to focus on your expertise. Let us worry about oxygen, mixing, and KW consumption.

With almost 40 years of experience, we've delivered over 6000 solutions in over 100 countries across 7 continents.

TO LEARN MORE PLEASE CALL OR VISIT  
877.334.2478 | [www.wastewater.com](http://www.wastewater.com)

Aeration for Life™

let's be clear

## The Fire Chief Project

YOU'RE INVITED TO JOIN A LONG-TERM ENDEAVOR — ONE THAT AIMS TO CHANGE THE STATUS OF CLEAN-WATER OPERATORS RADICALLY, PERMANENTLY AND FOR THE BETTER

By Ted J. Rulseh, Editor

**F**orgive me if you already know this story. At a town board meeting I attended years ago, a few people in the audience complained about what they saw as excessive spending for the volunteer fire department. The town chairman invited the fire chief to respond.



The chief rose and stood tall in his uniform pants, crisp white shirt and gold badge. He described the level of fire and rescue service his department provided. Then he added, "We have 36 volunteers, all fully trained and certified, and they're all EMTs. They're ready to risk their lives 365 days a year, around the clock, to help protect your homes and families. I think you're getting by real cheap with a real good service."

The discussion was over right there, and not just because the chief made a compelling case. It was also over because he was the fire chief, an authority all but immune to challenge. Could the local wastewater treatment plant manager have settled such an issue so quickly and decisively? I often wonder.

### EQUAL FOOTING?

With that idea in mind, I hereby introduce The Fire Chief Project. Humbly run from my blog at [www.tpomag.com](http://www.tpomag.com), it has a simple, long-term goal — to see a day when:

- Clean-water plant managers, superintendents and operators are held in the same esteem as the fire chief and firefighters.
- Boys and girls grow up wanting to be clean-water operators.

This means, above all, raising the profile of the profession — making sure the public understands the training and skills involved, the schooling, the licenses, the challenges, the dedication, the delicate mix of art and science that goes into any plant's operation and, above all, the importance of what the people and facilities do. After all, isn't clean water every bit as vital to a community as fire protection and emergency medical care?



DEDICATED TO MUNICIPAL WASTEWATER PROFESSIONALS

Published monthly by COLE Publishing, Inc.  
1720 Maple Lake Dam Rd., PO Box 220, Three Lakes, WI 54562

Call toll free 800-257-7222 / Outside of U.S. or Canada call 715-546-3346  
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: 715-546-3786

**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 treatment facilities. To subscribe, return the subscription card attached to each issue, visit [tpomag.com](http://tpomag.com) or call 800-257-7222.

Non-qualified 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 (715-546-3346); fax to 715-546-3786; or email [nicolel@colepublishing.com](mailto:nicolel@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 Nicole at [nicolel@colepublishing.com](mailto:nicolel@colepublishing.com).

**ADVERTISING RATES:** Call 800-994-7990 and ask for Phil or Kim. 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).

**REPRINTS AND BACK ISSUES:** Visit [www.tpomag.com](http://www.tpomag.com) for options and pricing. To order reprints, call Jeff Lane at 800-257-7222 (715-546-3346) or email [jeffl@colepublishing.com](mailto:jeffl@colepublishing.com). To order back issues, call Nicole at 800-257-7222 (715-546-3346) or email [nicolel@colepublishing.com](mailto:nicolel@colepublishing.com).

**CIRCULATION:** 76,492 copies per month.

© 2013 COLE PUBLISHING INC.

No part may be reproduced without permission of publisher.





## FAREWELL, LOW PROFILE

Now, I know a few things about clean-water operators, and one is that they didn't get into the profession for the glory. In general, they take pride in doing an essential job quietly and well. But there are a couple of compelling reasons to raise the profile.

First, treatment plants and infrastructure need attention. Water-quality requirements are getting stricter. Meeting them takes money, which the public these days is reluctant to let go of. No one wants taxes or rates to go up. The more respect and authority the profession has, the more likely the purse strings will be loosened.

Second, operators are about to retire in waves, and quality people are needed to replace them. That's why we need boys and girls

The Fire Chief Project has a simple, long-term goal: To see a day when clean-water plant managers, superintendents and operators are held in the same esteem as the fire chief and firefighters, and boys and girls grow up wanting to be clean-water operators.

(or high school kids anyway) to aspire to clean-water careers. They're more likely to do so if their image of the profession involves more than going to work in a dirty shirt and blue jeans.

## IT'S TIME TO SHARE

So, what's The Fire Chief Project about? It's about sharing. Here's how it works: You send me information about things you and your team members have done to elevate your facility and profession in the community. I'll post them on The Fire Chief Project blog — not just for others in the profession to read (that's all well and good, but it's preaching to the choir), but for others in the profession to replicate in their own communities.

Suppose someone reports on a clean-water operator who led a fish habitat project downstream from a plant outfall. Imagine the impact if a dozen, or 50, or 100 other operators then undertake similar projects in their receiving streams, and make sure they are well publicized locally.

Or suppose that a clean-water agency annually recognizes one or two of its operators for outstanding performance, and holds a meet-and-greet for them at the plant during Earth Week. Or that a plant team takes down an old, plain, beat-up sign at the plant entrance and installs a brand new one that proudly illustrates the end products of what the plant and its people do: clean water and healthy aquatic life.

## MUCH IN A NAME

The Fire Chief Project is also about using the right names and terminology. Let's face the fact that right now plants are more closely connected in citizen's minds with what comes in than with what goes out. And why wouldn't that be the case when so many facilities are called "wastewater treatment plants" and, much worse, "sewage plants"?

I hate euphemisms as much as anyone — I don't like using words that make something awful sound less so. But in this business, we more or less have euphemisms in reverse — we use language that makes something great sound unappealing. What's wrong with calling your facility a "clean-water" plant instead of whatever you call it now? Because that's precisely what it is, right? It's about clean water, isn't it?

One national industry association grasped this concept years ago: What used to be the Association of Metropolitan Sewerage Agencies is now the National Association of *Clean Water Agencies*. Isn't that much better?

## GET ON BOARD

Now, of course municipal professionals tend to be unassuming people and (a bit paradoxically) proud to be so. The prevailing attitude seems to be, "I do my job, I do it well. That's enough. My peers notice. If no one else does, so be it." They aren't in the business of talking themselves up.

That's fine and honorable — except that the preservation and advancement of water systems depends in part on the public's appreciation of what the industry does. So maybe it's time to kiss the low profile goodbye. Maybe the profile of clean-water plant manager belongs right up next to that of the fire chief, the police chief and the Public Works director.

Only members of the profession can make that happen.

Please embrace the Fire Chief Project. For the good of the industry, send your contributions to editor@tpomag.com, or give me a call at 877-953-3301. I promise to respond and to include them in the Fire Chief Project blog, and maybe even on the pages of *TPO*. Let's work together to

pull the industry up in the eyes of the people who pay the bills, and in the process, help move the industry forward. **tpo**

✓ New & Used Equipment ✓ Videos and Podcasts  
✓ Free Subscription ✓ Online Exclusives  
✓ Digital Editions **tpomag.com**

## Your vision is fine...



### It's your meters that need replacing

#### Four Down, Three to Go!

As you can see in the filter panel photo on the right, even operators lacking 20/20 vision can easily read the Trident X2's bright 1.2" LED display from across the room. Relieve sore eyes and replace your hard-to-read meters with a Trident X2 today!



### TRIDENT X2

- Largest 1/8 DIN display on the market (1.2", 30.5 mm)
- Process & Temperature inputs
- Sunlight Readable Display
- Relay & Analog Outputs
- 24 VDC Transmitter Power Supply
- NEMA 4X/IP65 Front

1-800-343-1001 • [www.predig.com/X2](http://www.predig.com/X2)

**PRECISION DIGITAL**





Tom Wood, operator II, checks the plant's UV disinfection system, supplied by Siemens Water Technologies. (Photography by Brian Masserman)

THE STAFF IN COMMERCE TOWNSHIP, MICH., USES OLD-FASHIONED PERSISTENCE AND INGENUITY TO MAKE THE MOST OF A NEW BNR PROCESS WITH SCADA CONTROL

# Teaming With *Technology*

By Jim Force

IN 2004, PLAGUED BY FILAMENTOUS GROWTH THAT THREATENED performance, the operators of the Commerce Township (Mich.) Wastewater Treatment Plant devised a makeshift chlorine dosing system using 55-gallon drums and manual measurement to get the plant back into compliance.

"The staff really stepped up," recalls Chris Coffey, who recently retired as superintendent and is now a consultant to the plant. "I've never been more proud of a group of guys. They worked around the clock for two weeks. It's an example of what this staff is willing to do."

That sense of dedication has helped the Commerce Township facility win Peak Performance Awards from the National Association of Clean Water Agencies (NACWA) for eight consecutive years, and is essential today as the plant adapts to a new biological nutrient removal system started up in 2010.

"Our overall concern is how we serve our clients," says Greg Knauf, who took over as superintendent last year. "We do whatever we can to maintain water quality standards and keep our customers happy."

Coffey adds, "Wastewater treatment is really about making changes to find and maintain the environment that allows the treatment process to work. It's attention to detail and it comes from our supervision on down through our staff."

## TOUGH ON NUTRIENTS

The plant is operated by the Oakland County Water Resources Commissioner's Office, which facilitates regional cooperation in infrastructure, environment and water quality and also operates the Walled Lake-Novi Wastewater Treatment Plant in Oakland County. The Commerce plant serves 29,000 people in Com-



The Commerce Township Wastewater Treatment Plant has received the Platinum Peak Performance Award from the National Association of Clean Water Agencies seven times.

# profile



## Commerce Township (Mich.) Wastewater Treatment Plant

BUILT:	1988, upgraded 1998, 2010
POPULATION SERVED:	29,400
FLOWS:	8.5 mgd design, 1.9 mgd average
TREATMENT PROCESS:	Activated sludge with biological nutrient removal and filtration
TREATMENT LEVEL:	Tertiary
RECEIVING STREAM:	Tributary of Seeley Drain
BIOSOLIDS:	Belt press dewatered, landfilled
ANNUAL BUDGET:	\$3.5 million
AWARDS:	NACWA Peak Performance Awards eight years running
WEBSITE:	<a href="http://www.commercetwp.com">www.commercetwp.com</a>
GPS COORDINATES:	Latitude: 42°32'02.13" N; Longitude: 83°27'27.81" W





LEFT: Chris Coffey, left, former plant superintendent and current consultant, with Greg Knauf, current plant superintendent. ABOVE: The Commerce Township team includes, on stairs, from left, Mike Gibbons and Tom Wood, operator II; John Aitken, operator I; Isaiah Johnson and Mike Severs, operator II; Adam Hopper, assistant superintendent; front row, Coffey and Knauf.



### Commerce Township Wastewater Treatment Plant PERMIT AND PERFORMANCE

	INFLUENT	EFFLUENT	PERMIT (monthly avg.)
<b>CBOD</b>	261 mg/L	0.04 mg/L	4 mg/L
<b>TSS</b>	229 mg/L	0.80 mg/L	20 mg/L
<b>Phosphorus</b>	5.62 mg/L	0.14 mg/L	0.5 mg/L
<b>Ammonia nitrogen</b>	29.22 mg/L	0.02 mg/L	0.2 mg/L (4-month rolling avg.)

Commerce Township and several neighboring communities. While design capacity is 8.5 mgd, the average daily flow is just under 2.0 mgd.

Wastewater is collected through a sprawling network of pressure and gravity-flow sewers and grinder stations. It flows into the plant through

Ovivo screens and into a PISTA grit removal system (Smith & Loveless).

From there, the water moves on to Ovivo Carrousel oxidation ditches and clarifiers for biological treatment and nutrient removal. The system uses rotor aerators and includes anaerobic and anoxic zones that enable the plant to meet stringent limits for phosphorus and nitrogen. These high standards (less than 0.2 mg/L P and 0.5 mg/L NH<sub>3</sub>) are driven by the sensitive nature of the receiving stream and the presence of the endangered redbreast sunfish.

After biological treatment, disc filters (Aqua-Aerobic Systems) further reduce suspended solids, and a UV unit (Siemens Water Technologies) disinfects the flow. Effluent discharges to a tributary of the Seeley Drain, which ultimately flows into the Rouge River.

Biosolids are stored and thickened by a belt press (Ashbrook) that delivers cake at about 15 percent solids. Outside contractors' trucks haul the cake to a landfill. The operation has neighbors close to the fence line, so the new system includes packed tower odor scrubbers. Two units are located in the headworks building, and another serves the solids processing area.

An elaborate SCADA system provides precise process control and off-site monitoring and response. "The system provides many benefits," says Knauf. "It's a hybrid system integrated by a local firm, Commerce Controls. It gives us information we never had before."

The remote alarm and operation capability also saves money. "Before, we couldn't make changes without sending an operator on a two-hour call out

(continued)



# Severe Duty Engineered



Mobile Water Transfer Pumps



Roll-off Vacuum Boxes



Centrifugal Pumps



Liquid Tight Roll-off Boxes



Agitators



Trash Pumps



De-Watering Baskets



Water Storage Tanks



Two Container Roll-off Trailers

## Dragon is here.

Ready inventories, convenient financing, and technical assistance – Dragon gives you what you need to solve challenges and succeed. We know your goal is about successful projects and advancing your business. Dragon is here to meet your goals. Make it happen.



Make it happen.

U.S. owned and operated. Founded in 1963.

1-800-231-8198

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



## EIGHT STRAIGHT

The Commerce Township Wastewater Treatment Plant is one of just a handful of facilities to have won a Peak Performance Award from the National Association of Clean Water Agencies (NACWA) for eight consecutive years.

The plant received a Silver award in 2004, when it had just a single permit violation; Gold awards in 2005-2008 for no violations; and Platinum awards since for five consecutive years or more of violation-free performance.

NACWA is involved in all facets of water quality protection. Its website calls the organization a key stakeholder in the legislative and regulatory arenas, holding collaborative relationships with members of Congress, Presidential administrations and the EPA. Peak Performance Awards recognize member agency facilities for outstanding compliance with their NPDES permit limits.

and Coffey. For one thing, the selector zones in the BNR system have eliminated filamentous growth. With the collections system spread out over several communities, and population only a little more than a third what the system is designed for, septicity and hydrogen sulfide in the influent wastewater promote undesirable bacteria.

Coffey notes that the team became skilled at dealing with filamentous growth back in 2004, with help from Dan Holmquist and Doug Hill of the

“Our overall concern is how we serve our clients. We do whatever we can to maintain water quality standards and keep our customers happy.”

### GREG KNAUF

Michigan Department of Environmental Quality. So far, there have been no such issues with the new system.

The SCADA control system gets high marks, as well. “For example, we once got a call at 3 a.m. showing a high level in the influent wet well,” says Knauf. “We then had an instrumentation failure, causing all the pumps to turn on and push solids out of the clarifier. The laptop controls we have now sure would have been a big help then.”



The Commerce Township staff members share diverse duties. Here, Mike Gibbons performs water testing in the lab. (Laboratory solutions from USABlueBook.)

to the site,” says Knauf. Now, operators can make changes remotely via laptop computers.

An on-site laboratory handles operational samples only. Reportable numbers are run at the Walled Lake-Novı treatment facility.

### BIG IMPROVEMENT

The upgraded plant offers several improvements over the previous operation, in the eyes of Knauf

Coffey observes, “SCADA is something we really needed. It has made an unbelievable difference in response time and control over the process.” In the old plant, the aerators were either off or on at a high or low setting. That promoted over-aeration and wasted energy.

“It drove DO levels way beyond what they needed to be,” says Coffey. “Now we can keep DO at levels necessary to nitrify, by setting the desired DO level in the SCADA system, and the system then uses variable-frequency drives to ramp the rotor speed up or down.”

### ENHANCED PROCESSES

Soda ash is another thing of the past. Before the BNR system, the plant would nitrify and use up alkalinity. “We’d get significant swings in alkalinity and pH,” Coffey says. “Operation wasn’t as stable as we would have liked. So we started using soda ash to maintain the proper pH in the mixed liquor. We did that for six or seven years, adding soda ash on a daily basis.”

Today, the BNR process stabilizes alkalinity. “We don’t have to lug bags of soda ash out to the system anymore,” says Knauf.

Increased sludge storage capacity is another positive. “We used to rely on a rotary drum thickener to prepare the biosolids before land application,” Knauf says. “We had 500,000 gallons of storage capacity — not a lot of flexibility there. We could get up to our eyeballs in solids.”

Obviously, that had implications on the treatment process, since the plant wasted up to 50,000 gallons of solids daily to maintain the proper cell residence time (CRT). The new solids handling train includes a second (redundant) belt press, which can be brought into service if solids volume warrants it.

Knauf and Coffey say the old plant ran well, but was nearing its hydraulic and organic loading capacity. “Our capacity was around 2.4 mgd, and we were running at 1.7 to 1.8 mgd,” says Coffey. “We had no emergency fallback, no place to divert any excess flow.”



“SCADA is something we really needed. It has made an unbelievable difference in response time and control over the process.”

**CHRIS COFFEY**

### CRT-DRIVEN

Some things don't change, even with a new process. In the case of Commerce Township, it's the operational team's approach to good performance. “Consistency is the key to effective wastewater treatment,” Coffey says. “You'll be successful if you establish a good environment for your process and then keep it the same.”

He and Knauf say the run of NACWA awards is due in large measure to the plant staff finding the right environment for the bugs to thrive. Their team members are Assistant Superintendent Adam Hopper; operators II Mike Severs, Tom Wood, Mike Gibbons and Isaiah Johnson; and operator I John Aitken.

The team worked diligently to find the best food-to-mass ratio and the best CRT to maintain. “We developed spreadsheets that allowed our operators to establish consistency and achieve the same ratios every day,” Knauf says.

After experimentation, a food-to-mass ratio of around 0.1 and a CRT of around 20 days seemed to yield the best treatment performance. “Our operators monitor the solids content in mixed liquor samples every day and plug it into the spreadsheet,” says Coffey. “That allows us to dial in the gallons of solids to waste every day. Once we're dialed in, we see good, consistent numbers on a daily basis.”

### DIFFERENT HATS

All the operators and managers at the Commerce Township treatment plant are involved in monitoring and control because this is a jack-of-all-trades shop. “We all wear different hats,” says Knauf. “We don't have different sections or staffs. Everybody does what needs to be done — lab work, maintenance, troubleshooting.”

There's both a drive for perfection and for problem-solving, as evidenced by a recent operator solution to a grease issue with the belt presses. “The grease fittings were hard to get to,” Knauf says. “So our operators devised a new system, running remote grease lines to the fittings.”

But they did it like a professional would — neatly, not messy with lines running all over the place. It looks good. We treat the place like it's our own. We're not only concerned with performance, but also how the place looks.” **tpo**



The on-site laboratory handles testing of samples related to process operations.

### more info:

**Aqua-Aerobic Systems Inc.**  
800/940-5008  
www.aqua-aerobic.com

**Ashbrook Simon-Hartley**  
800/362-9041  
www.as-h.com  
(See ad page 33)

**Ovivo**  
801/931-3000  
www.ovivowater.com  
(See ad page 5)

**Siemens Water Technologies Corp.**  
866/926-8420  
www.water.siemens.com

**Smith & Loveless, Inc.**  
800/898-9122  
www.smithandloveless.com

**USABlueBook**  
800/548-1234  
www.usabluebook.com  
(See ad page 56)



**Challenge the Revolution to lower your energy costs and carbon footprint for FREE!**

- FREE** Site Evaluation
- FREE** Delivery
- FREE** Start-up Service
- FREE** Operator Training
- FREE** Usage for 3 Months



**Sign up and take shipment before June 30, 2013.**

Register to qualify at:  
**HoffmanandLamson.com**

Subject to location, system and equipment qualification requirements. These promotional materials constitute only an invitation to request participation in the Revolution Challenge program and not an offer or promise of participation. Requesting parties' qualification for and participation in the program are determined exclusively by Gardner Denver in its sole discretion, and no guarantee, promise or assurance of qualification and/or participation is provided or implied.



# QUIET COMPETENCE

LOXAHATCHEE DISTRICT'S CHIEF OPERATOR GARY McCLURE GETS THE JOB DONE CONSISTENTLY WHILE SPREADING THE CREDIT TO HIS MANAGERS AND HIS TEAM

By Jack Powell

YOU'D NEVER KNOW IT FROM HIS QUIET VOICE AND THOUGHTFUL manner, but Gary McClure is a take-charge guy who keeps things working as they should at the Loxahatchee River Environmental Control District wastewater treatment facility in Jupiter, Fla. That includes leading by example, rolling up his sleeves, and seeing to it that people and equipment are top-notch.

Yet McClure, a nine-year plant veteran with three decades of water treatment experience, disdains accolades, even when he's called a hero for saving an employee's life (see sidebar). He stays focused on the task at hand.

"We've got an excellent management team and, as far as I'm concerned, the best operators and technicians in the business," says McClure, the plant's chief operator. "I'm just a guy down here on the ground level making sure everything gets done right."

He has taken that attitude since he started in 1975 at a new wastewater treatment plant in Boca Raton. A year later, he became certified as a water treatment plant operator, one of the first in the state to be licensed. For the next 25 years, McClure owned a package plant utility business for Gold Coast Utilities. Then he joined the Loxahatchee River District facility as an operator; he became chief operator five years ago.

## TRUE RECYCLING

"In this job, I supervise 18 people," says McClure. "Beyond that, I'm pretty much responsible for process control and plant maintenance. That takes in quite a bit."

Indeed. McClure and his team ensure the quality of the facility's effluent. The plant produces irrigation quality (IQ) water for reuse systems. Built in 1978, the plant takes all influent from Jupiter, Juno Beach and Tequesta and



Gary McClure, chief operator at the Loxahatchee River District, makes sure his team members have the resources they need to perform at their peak. (Photography by Gina Fontana)

processes about 90 percent of it back into the ecosystem, irrigating area golf courses, parks and residential communities.

"We preserve the drinking water supply by returning treated water to the environment," McClure says. "We recycle all our waste sludge to a pelletizing facility in Palm Beach, where it's bagged and sold as fertilizer. And we convert our wastewater and make IQ water out of it. We even recycle our own plastics, cans, boxes and so on."

## MANY CAPABILITIES

That's only part of the Loxahatchee River District story. McClure proudly calls it "a model system in South Florida." For one thing, it's divided into many divisions — collections, operations and construction — which handle pretty much everything related to wastewater treatment. For another, it's a multi-faceted organization involved in education and ecosystem protection.

Facilities include a training center at Burt Reynolds State Park, an environmental center offering educational programs for the public, and the Bush Wildlife Center, located in the district compound, which takes in injured animals (native species), rehabilitates them, and releases them back into the wild. The district also runs an independent lab that does marine biology and water quality research.

Situated on a 160-acre site that encompasses four reuse lakes and two containment (stabilization) ponds, the Loxahatchee River District collection system includes 650 low-pressure pumping units, 195 pumping stations, and 584,000 feet of major force mains serving a population of 55,000.

IQ Water is delivered through a network of reuse lines with more than 30 miles of 4- to 24-inch force mains. The recycled water is treated and disinfected to meet the exacting standards of the Florida Department of Environ-





# profile

Gary McClure,  
Loxahatchee River  
Environmental  
Control District,  
Jupiter, Fla.



ABOVE: Operator Ron King, left, and Gary McClure use a laser alignment tool (VibrAlign) to align the main blower drive coupling (Hoffman and Lamson, Gardner Denver Products). Alignment on high-speed blowers helps ensure long bearing life and efficient operation. BELOW: The Loxahatchee River Environmental Control District provides irrigation-quality water to surrounding golf courses. The Busch Wildlife Sanctuary is located on site.



**POSITION:**  
Chief operator

**EXPERIENCE:**  
30 years in water industry

**DUTIES:**  
Supervise 19 employees;  
responsible for process  
control and plant maintenance

**EDUCATION:**  
Two years technical training,  
Monroe (Mich.) Community  
College

**CERTIFICATIONS:**  
Class A wastewater operator;  
Class B water plant operator

**GOALS:**  
Continue to lead team and  
support the Loxahatchee  
River District

**GPS COORDINATES:**  
Latitude: 26°55'26.79" N;  
Longitude: 80°08'23.76" W





The Loxahatchee plant team includes, from left, Tom Cavanaugh, safety and compliance officer; David Sabin, GIS technician; Sheldon Primus, superintendent; Virgilio Manera, press operator; Joe Chung, IT technician; Jeff Kavney, plant electrician; Gary McClure; Carl Long, press operator; Jim Barrett and Ron King, operators; and Dan Luecht, shift lead operator.

## TO THE RESCUE

Gary McClure insists he's not a hero, but he has an award — and a grateful co-worker — to prove that he is.

In October 2010, McClure noticed a co-worker acting strangely, spraying a hose in the air and staggering around. He asked the man if he was OK, but got a blank stare.

Realizing something was wrong, McClure took the worker to a cool place, made sure he could breathe, and called 911. The man had suffered a seizure; McClure kept him breathing until the paramedics arrived.

That act of caring caused Plant Superintendent Sheldon Primus to nominate McClure for a heroism award from the Safety Council of Palm Beach. In March, he received the honor at the council's 14th annual Safety Awards & Luncheon — one of seven people cited as heroes.

McClure, of course, didn't think he was deserving. "I wish I had done something like pull someone out of a hole in the ground," he said at the time. But, as Primus reminded him, the men were working around a 12-by-100-foot clarifier, so if not for McClure, the employee easily could have fallen in.

mental Protection and the Public Health Department and has a moderate nitrogen level, beneficial to the grass it is used to water.

McClure, 60, commutes an hour from Fort Pierce, arrives about 6:30 every morning and works until 4 p.m. His duties include significant oversight responsibility: If he wanted to, he could spend most of his time at a computer. But he likes to get out in the field and work with the operators and make sure they're doing the job right and following safety protocols.

## HANDS-ON STYLE

Even during the hottest days of a Sunshine State summer, you'll find McClure making sure his team has what they need to do the job efficiently

and safely, and lending a hand when needed — a quality his operators appreciate. "Gary's great to work with," says Tom Cavanaugh, safety and compliance officer, who has been at the plant for four years. "Some bosses like to keep secrets to enhance their power. Not Gary. He'll share everything he knows with anyone, whether it's electrical, pumps, filters, you name it."

For example, during an expansion, the plant went from a pure-oxygen to a forced-air process and

became the first site in Florida to get prototype upflow filters (Schreiber) with a synthetic fiber media.

Treated effluent is moved through the filters by vertical turbine pumps (Gould/Layne Bowler). Each filter has an automatic backwash cycle: When the pressure reaches a certain level, the backwash is activated. The filters encompass a small footprint in proportion to the flow they treat.

"Gary learned all about our new synthetic-media filters and shared that knowledge with the operators," says Cavanaugh. "He really leads by example and makes our jobs easier."

As usual, McClure dismisses the praise and, in fact, turns it around. "In my opinion, we have the best operators in the business, as well as highly skilled computer specialists, a first-rate Collection and Construction Division, a superb engineering team, and highly skilled office personnel that tie it all together," he says. "We're a top-notch organization that sets the standard for the state when it comes to wastewater treatment."

"Some bosses like to keep secrets to enhance their power. Not Gary. He'll share everything he knows with anyone, whether it's electrical, pumps, filters, you name it."

**TOM CAVANAUGH**

## TRAINING AND EDUCATION

One reason is McClure's focus on training, including in-house programs to cross-train operators in maintenance and process control. Not many facilities in the state do that. "Operators need to know the entire system — how it works and how to repair it, particularly since we do 90 percent of our own maintenance," says McClure. "We want everyone to know how everything works and how to maintain all systems."

Loxahatchee River has a training facility built for that purpose. According to McClure, it's a testament to the priority the district puts on professional development. That also includes designating a significant portion of the budget for education and a commitment to stay at the cutting edge in the wastewater industry, McClure observes.

*(continued)*



# NON-FOULING LEVEL TRANSMITTER



The LevelRat by Keller America is specifically designed for use in wastewater applications, with a unique Kynar diaphragm that provides a non-stick surface with superior strength to eliminate bulky protective cages.

Each LevelRat is built to order in the U.S. with custom ranges and cable lengths, all in 3 business days. Combined with guaranteed lightning protection on 4-20mA models, the Keller LevelRat provides the best value in wastewater level measurement.

For information on the best Keller submersible for your application, contact a Keller representative.

## KELLERAMERICA

WWW.KELLERAMERICA.COM 877-253-5537 SALES@KELLERAMERICA.COM



# Pump Swap



Install a brand new Vogelsang Rotary Lobe Pump for the cost of rebuilding your Progressing Cavity Pump.

Plus, our Rotary Lobe Pumps are easy to maintain and can be rebuilt in an hour. Get a brand new pump while reducing your maintenance budget!

You can typically use your current baseplate, motor and coupling.



**VOGELSANG**  
ENGINEERED TO WORK

SLUDGE PUMPING

SLUDGE GRINDING

SLUDGE LYSING

(800) 984-9400 | [vogelsangusa.com](http://vogelsangusa.com) | [sales@vogelsangusa.com](mailto:sales@vogelsangusa.com)

## sustainable excellence

**Amwell-DuraMax Cast Stainless Steel Chain Products** provide high-strength, corrosion-resistant and abrasion-resistant chains, sprockets and equipment components for bar screens, grit collectors and rectangular collectors for all manufacturers, makes and models.

- Maximize performance, reliability and longevity
- Eliminate breakdowns, replacement costs and unscheduled maintenance outages
- 10 year chain and sprocket warranty
- Available for CS720S, CS715SS, H82 and H78 chains



**AMWELL**  
DIVISION OF MENISH CORPORATION

Ingenuity. Durability. Sustainability.

**DURAMAX**

[www.amwell-inc.com/duramax](http://www.amwell-inc.com/duramax)

As a result, operators have skills in welding, fabricating, mechanics and other specialties — they can do almost anything. If an operator is weak in a given area, management can send him to school or to training on site.

Training might cover using the SCADA system to control plant operations and systems, electronically filing Discharge Monitoring Reports (DMRs), and keeping tabs on computerized plant monitoring systems that allow state regulators to see what is happening in real time.

“We’re learning new things every day, and my learning curve is pretty steep,” McClure admits. “Even after all these years, there are still new things to learn. You can’t learn too much; you never get there.”

“We’re learning new things every day, and my learning curve is pretty steep. Even after all these years, there are still new things to learn. You can’t learn too much; you never get there.”

**GARY McCCLURE**

And things keep moving forward. Right now, the district is putting up telemetry towers that will enable all of its work trucks to have SCADA computers that tell them the status of the lift stations they’re servicing on any given day. That way they’ll know where the trouble spots are and will be able to respond in a timely manner. The facility uses a maintenance software system (Infor EAM MP2) that generates work orders for all the equipment.

### SAFETY AND AWARDS

Besides operating efficiently and effectively, the Loxahatchee River District treatment plant has an excellent safety record. A certificate shows 278,026 employee hours worked without a lost-time occupational injury or illness — extending from January 2009 to January 2011. The facility has racked up numerous awards for contributions to the water industry. They include:

- 2011 Florida Department of Environmental Protection Domestic Wastewater Treatment Plant Award for excellence in operations.
- 2011 WaterReuse Award from the WaterReuse Association for advancement of water reuse and innovative applications for reclaimed water.
- 2011 Florida Water Environment Association David W. York Award for Water Reuse System of the Year in the 5 to 15 mgd category.
- U.S. EPA 1995 National Award for Outstanding Wastewater Facility for innovative and safe wastewater treatment.
- 1995 Florida Water Environment Association Earle B. Phelps Award for Best Advanced Secondary Treatment.

The district has also won numerous awards for educating the public in ecosystems and conservation.

McClure, married 41 years with four kids and nine grandchildren, takes it all in stride. “I like the work here because it’s very rewarding knowing that I play a small part in protecting our local ecosystems and providing an invaluable service to the community,” he says. “We’re a team, and what we do requires a team effort. It requires diligence and requires everyone doing their job to the best of their ability. I try to help us do that.” tpo

### more info:

**Goulds Water Technology**  
866/325-4210  
[www.completewatersystems.com/brands/goulds](http://www.completewatersystems.com/brands/goulds)

**Hoffman and Lamson, Gardner Denver Products**  
[www.hoffmanandlamson.com](http://www.hoffmanandlamson.com)  
(See ad page 15)

**Infor Public Sector/Hansen Technologies**  
800/821-9316  
[www.infor.com](http://www.infor.com)

**Layne Bowler Pump Company Inc.**  
[www.laynebowler.com.tr](http://www.laynebowler.com.tr)

**Schreiber LLC**  
205/655-7466  
[www.schreiberwater.com](http://www.schreiberwater.com)

**VibrAlign, Inc.**  
800/394-3279  
[www.vibralign.com](http://www.vibralign.com)



# INTRODUCING THE ALL NEW Q46 SERIES

*an upgraded version of our proven Q45 Series*



**Our NEW Q46 Series monitoring systems are economical to purchase, economical to maintain, and provide long term accuracy and reliability for all your monitoring needs!**

Chlorine Dioxide  
Conductivity  
Dissolved Ammonia  
Dissolved Oxygen  
Dissolved Ozone

Dissolved Sulfide  
Fluoride  
Free Chlorine  
Hydrogen Peroxide  
Nitrate

Peracetic acid  
Potassium Permanganate  
pH/ORP  
Residual Sulfite  
Total Chlorine

**The Only Company to Trust When You Require  
the BEST in Water Quality Monitoring!**

**1-800-959-0299**

**[www.analyticaltechnology.com](http://www.analyticaltechnology.com)**

**ATi**  
Analytical Technology



# My Water Goes Where?

THE TREATMENT PLANT IN LASALLE, ILL., BRINGS ENVIRONMENTAL AWARENESS TO THE PUBLIC IN CONJUNCTION WITH EARTH DAY

By Briana Jones

The folks in LaSalle, Ill., are on the “green” bandwagon, bringing students and adults through the doors for wastewater treatment plant tours. While plant staff members have been providing tours for years, Earth Day tours were new last year at the new East Side Wastewater Treatment Plant (0.5 mgd design).

Sam McNeilly, LaSalle superintendent and director of Public Works, says, “We had a new treatment plant that we wanted to take people through.” Community leaders understand the importance of educating young people about water resources, says McNeilly. They’ve been working to increase attendance for plant tours.

## LOCAL SUPPORT

The East Side and LaSalle (3.3 mgd design) plants serve about 10,000 people. Helping to inform residents about the tours is the Little Vermilion Watershed Committee, made up of farmers and community leaders dedicated to keeping the river valley healthy.

“The committee was particularly active in setting up last year’s activities for the schools,” says McNeilly. “We also understand the importance of having this group and other environmental groups supporting our activities as we go forward.”



PHOTOS COURTESY OF SAM McNEILLY

Students and adults alike have taken part in Earth Day plant tours.

The committee holds routine meetings and educates the public on all aspects of the Little Vermilion River, the receiving stream for the East Side treatment plant. Tours of that plant on Earth Day enabled the group to show people how wastewater is processed and cleaned before release.

Kevin Daley, superintendent for both plants, adds, “For years, people had a misunderstanding about what a wastewater treatment facility could actually do. Nobody has ever stepped forward and come down to see what the plants are actually capable of.

“In a receiving stream like the Illinois River or the Little Vermilion River, people have the concept that the plants are dumping sewage into the water. In reality, we’re cleaning the rivers up. We’re showing people nowadays that what we’re putting into the rivers is actually helping the rivers. They can see that the clear water looks like drinking water going into the receiving stream.”

## WHERE DO I APPLY?

Earth Day tours also gave plant staff a chance to reach students — the next generation of employees. “Kids take a bath or flush the toilet, and they don’t even know where the water goes,”

The team in LaSalle leads plant tours on Earth Day to explain what the clean water industry is all about.

## 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 your ideas to [editor@tpomag.com](mailto:editor@tpomag.com) or call 877/953-3301.





# Accurate solids results in minutes **\$10K?** for less than

## That's SMART!

For more than 30 years, wastewater treatment plants have trusted CEM for fast, accurate moisture/solids testing. Our easy-to-use microwave moisture/solids analyzers feature pre-programmed methods for cake, feed, polymer, and Total Suspended Solids. Call CEM today for a free demonstration.

- Results in as little as 2 minutes
- Maintain high solids to reduce incineration and transportation costs
- Rapidly calculate Total Suspended Solids (TSS), Volatile Suspended Solids (VSS) & Volatile Solids (VS)
- Ensure regulatory compliance for discharge
- Optimize polymer usage



# CEM

www.cem.com /wastewater-treatment  
Tel: (800) 726-3331

says Daley. "This way they get to see where it goes and what it's actually doing — the biological system in action.

"We want to show these kids that there are careers available where years ago I don't think they really understood that these even existed or what their opportunities could be in this field."

"People have the concept that the plants are dumping sewage into the water. In reality, we're actually cleaning the rivers up."

**KEVIN DALEY**


Adults, including local farmers and Sue Rezin, a state senator, also got a chance to see how far technology has come. "Sen. Rezin was pleasantly surprised," says McNeilly. "The concepts we push forward are important to the industry.


"Traditionally, clarifiers provide gravity settling of solids, which are recycled back into the facility. We do not have clarifiers. Membrane bioreactors take their place and create very high-quality water. We also don't have the large footprint you typically see at treatment plants or the complex operations related to hydraulics in clarifiers.

"It's important for people to understand where we've come as an industry. The changes that have occurred over the last 30 years have been to the betterment of society." tpo


**It's your magazine. Tell your story.**


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


SCADA Solutions




Obsolescence-Proof  
Secure  
24/7  
Customer-Centric





User-Friendly



**PROVIDING SCADA SOLUTIONS SINCE 1981**

✓ Engineering & Design	✓ Guaranteed Radio Links
✓ Plant Automation Systems	✓ 3 Year Lightning Warranty
✓ Pump Station Controllers	✓ Industry Leading Support
✓ UL508 Control Panel Shop	✓ Rental SCADA Programs

INTRODUCING...



Harmonious pump & flow management

**"REDUCE PUMP ENERGY COSTS BY 30% OR MORE"**

www.dataflowsys.com - info@dataflowsys.com - 321.259.5009



PHOTOS COURTESY OF THE CITY OF WESLACO



The City of Weslaco's South Wastewater Treatment Plant was chosen as the solar array site because it is highly visible to the public and demonstrates a commitment to efficiency and sustainability.

# Prime Attraction

A SOLAR ARRAY IN WESLACO, TEXAS, HELPS THE TREATMENT PLANT RUN OFF THE GRID DURING THE DAY AND DRAWS INTEREST FROM ACADEMICS AND OTHER MUNICIPALITIES

By Lisa Balcerak

The City of Weslaco's South Wastewater Treatment Plant has been getting attention for its 302 kW solar array: On most days, the plant runs completely off the grid in the daytime, saving the city \$16,500 in electrical costs annually.

Located five miles north of the Mexican border in the Rio Grande Valley of Texas, Weslaco has seen 15 percent growth in the past 10 years to a population of 37,000.

The city is split into two watersheds and has wastewater treatment plants on the north and south sides of town.

The 2.5 mgd South plant and the recently expanded 4.75 mgd North plant provide secondary treatment using the activated sludge process with oxidation ditch aeration. The effluent discharges to the Arroyo Colorado and ultimately the Laguna Madre, a lagoon along the coast of the Gulf of Mexico. Biosolids are land-applied or landfilled.

The terrain is relatively flat, and the city has 52 lift stations. CH2M HILL OMI is contracted to operate the plants; David Salinas, public utilities director, and a crew of four maintain and operate the collection system, which includes 128 miles of pipe.

## A HOME FOR SOLAR

When funding from the American Recovery and Reinvestment Act of 2009 (ARRA) became available, Weslaco considered installing a solar array at City Hall. Instead, officials chose the South plant as a better location for multiple reasons.

The treatment plants, as the city's largest energy consumers, stood to benefit most from renewable energy. The South plant had more space on 40 acres of vacant, city-owned property, while the North plant was landlocked between an expressway, a shopping center and an airport.

Contractors felt a South plant installation would get more community visibility and interest. "Not everyone likes to see a wastewater treatment plant in their neighborhood, but the solar array shows we are being good stewards of the environment," Salinas says.

In June 2012, Meridian Solar installed 1,316 SCHOTT solar panels on three acres next to the South plant. The array produces 302 kW DC, which is converted to 260 kW AC. On most sunny days, the array harnesses enough power to operate the facility and return 21 kW to the grid. The ARRA grant provided \$1.3 million for the project, and the city added \$200,000. Payback on the investment is projected at 15 years.

Salinas sells surplus power to local energy provider Reliant. The array generates power during daytime peak-demand hours and goes back onto the grid at low-demand times. "We're actually off the grid when energy is at a higher cost, so we're negotiating with the utility for a rebate because we are saving on peak consumption," Salinas says.

## ECO-TOURISM INFLUENCE

Weslaco considered wind turbines as renewable energy sources but dismissed the idea for its potential harm to the region's eco-tourism industry, which draws significant dollars to the Rio Grande Valley. Tourists visit to view the migration of subtropical birds, monarch butterflies, dragonflies and rare waterfowl. Wetlands once drained for farming have been restored, creating Estero Llano Grande State Park.

"With wind turbines in the valley, there were concerns about the impact on the migrating birds," Salinas says. "Solar arrays are more bird-friendly."

Interest in the solar array has brought academics and representatives from other area municipalities to Weslaco. The facility has hosted tours for engineers from the Texas Public Works Association and students from South Texas College and the University of Texas-Pan American. Public Works officials have been visiting to ask Salinas for advice. The answers they receive may be somewhat surprising.

"They want to know how it was funded and the ROI," Salinas says. "But unless you get a grant to help fund it, I don't recommend a solar array without understanding that it won't give you a return on invest-



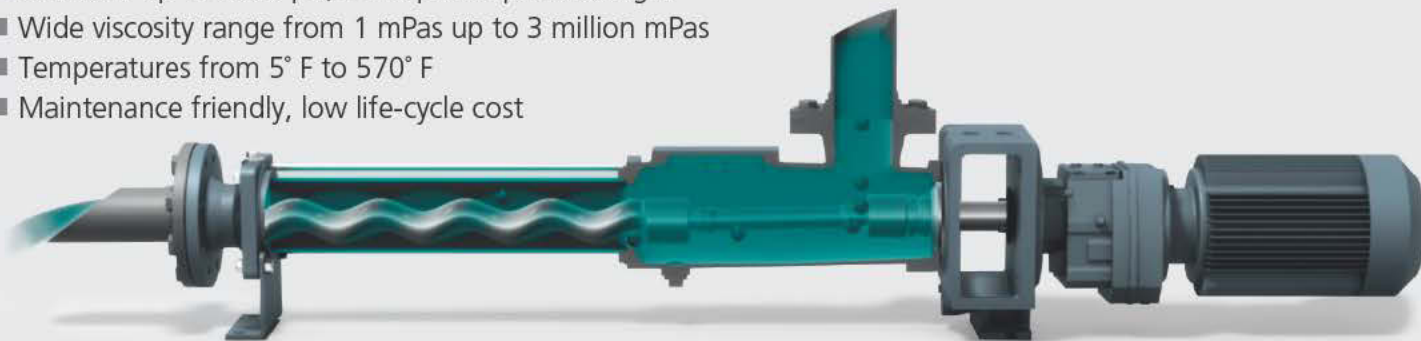
Switchgear and controls for the solar array.



## NEMO® Progressing Cavity Pumps

Your toughest pumping problem has just met its match

- Smooth operation, low pulsation and steady flow in direct proportion to speed
- Handles products with low to extremely high solids content, including abrasive material
- Perfect for shear sensitive products
- Capacities from a few gph up to 2,200 gpm
- Pressures up to 1080 psi; 3400 psi in special designs
- Wide viscosity range from 1 mPas up to 3 million mPas
- Temperatures from 5° F to 570° F
- Maintenance friendly, low life-cycle cost



### NETZSCH

NETZSCH Pumps North America, LLC  
 Tel: 610-363-8010  
 email: PUMPS@netsch.com  
 www.netschusa.com/ads

“The main goal should be to truly believe and act on environmental stewardship. We need to stop doing what we’ve been doing for the past century. We need to consider the people here after us.”

DAVID SALINAS

ment right away. Arrays have a short life expectancy, maybe 20 years at the most, and many have a return on investment of 15 to 20 years.”

#### DOING THE RIGHT THING

Salinas feels the key motivation for investing in solar power should be the environmental benefits and reduced dependence on nonrenewable energy. “ROI shouldn’t be the main goal of a solar power project,” he says. “If anything, the main goal should be to truly believe and act on environmental stewardship. We need to stop doing what we’ve been doing for the past century. We need to consider the people here after us.”

Since the South treatment facility has reached 75 percent capacity, the Texas Commission on Environmental Quality requires Weslaco to begin designing an upgrade. The city is now determining its capacity needs and how to optimize energy efficiency, such as by installing premium-efficiency motors. Construction on the upgrade is expected to begin in 2015. **tpo**

#### What’s Your Story?

**TPO welcomes news about environmental improvements at your facility for future articles in the Greening the Plant column. Send your ideas to editor@tpomag.com or call 877/953-3301.**

## Portable Flow Meter



### **New!** Greyline PTFM 1.0 Portable Transit Time Flowmeter

Accurately measure water, oils and chemicals. Use it for troubleshooting, calibrations, spot checks and balancing flow. Works with clamp-on ultrasonic sensors on the outside of metal and plastic pipes.

**GREYLINE**  
 instruments inc.

www.greyline.com  
 888-473-9546  
 info@greyline.com



# The Book on Biogas

A NATIONAL DATABASE SHEDS LIGHT ON TREATMENT PLANT DIGESTER METHANE AND THE ROLE IT PLAYS IN THE NATION'S RENEWABLE ENERGY INITIATIVES

By Ted J. Rulseh

**D**igester methane (biogas) is gaining huge favor as a renewable fuel — it has come to be seen as part of the nation's effort to conserve fossil fuels and reduce greenhouse gas emissions. But how many wastewater treatment plants produce biogas? And what do they do with it? What is this fuel's true potential?

A research project led by the North East Biosolids and Residuals Association (NEBRA) and the Black & Veatch consulting engineering firm set out to answer those questions. Using seed money supplied by the Water Environment Federation (WEF), and with help from numerous collaborators and advisors, the research team collected information on biogas generated at treatment plants in all 50 states and assembled it in a database now available to the public at [www.biogasdata.org](http://www.biogasdata.org).

It's the first step in what project organizers hope will be an ongoing effort to develop comprehensive data on biogas and its viability as a resource. The results already are of interest to biogas project developers, engineering consultants, policymakers, and others who rely on solid data to conceptualize, design and develop renewable energy and resource recovery projects at treatment plants.

Co-principal investigators on the project were Ned Beecher, NEBRA executive director, and Lori Stone, biosolids global practice and technology leader with Black & Veatch. Beecher talked about the database in an interview with *Treatment Plant Operator*.

**tpo:** How would you sum up the basic aims of this data-gathering project?

**Beecher:** There were two basic objectives — first, to assess biogas potential in existing anaerobic digestion systems at U.S. wastewater treatment plants; and second, to summarize the current uses of this biogas and potential future opportunities for its use.

**tpo:** How did this project originate?

**Beecher:** WEF put out a request for proposals. Lori Stone at Black & Veatch brought it to my attention. There has been considerable interest in renewable energy generation, and when it comes to wastewater treatment plants, there has been a lot of focus on anaerobic digestion and biogas. WEF recognized that there was a lack of reliable data in those areas.

The U.S. EPA and the Combined Heat and Power Partnership collaborated on a 2011 report on the potential of biogas from anaerobic digestion. It was a pretty good report, and its purpose was excellent, but people in the field recognized that the data was incomplete.

Here at NEBRA, we would frequently get calls from people looking for data on anaerobic digestion, and we knew of a number of private companies and technology vendors who wanted to work in that field. They all seemed to be out trying to do their own data collection. But because this was not a very mature field, there was no single consolidated database.



The Biogas Data website home page.

**tpo:** How did you go about collecting the data that is now available on the website?

**Beecher:** It was an arduous process. We knew from previous experience that there was no quick and easy way to do it. Essentially, our approach was to choose a data collector in each state who would likely know who the best resources in that state would be and might even know some of the data directly.

We handled the New England states out of the NEBRA office. In California, the state's Association of Sanitation Agencies biosolids person did the work. The Northwest Biosolids Management Association handled Oregon and Washington. Then we split up the states where we didn't have obvious contacts. NEBRA ended up doing a lot of it.

Generally, the protocol was to start with the biosolids coordinator in the state government, or with someone well positioned to know about biogas at wastewater facilities in the state. Often, that was a consulting engineer. We would talk to them and determine who the best sources were, and then go to those sources.

**tpo:** Was there any information available to use as a starting point?

**Beecher:** We were able to start with a database built on EPA Clean Watershed Needs Survey information, and with work that InSinkEerator had done to identify facilities with anaerobic digestion. InSinkEerator had hired an intern in 2011 who created a spreadsheet that identified a lot of anaerobic digestion facilities using information from websites. That was a step up from what had existed before, but the fact remains that many city websites are unreliable, because they don't get updated very often.

Once we had a sense of which facilities in a state had anaerobic digestion, we called the larger anaerobic digestion facilities in that state and asked them to confirm that our list was complete. Then we called those facilities and collected the data from them. The Mid-Atlantic Biosolids Association created an online data entry system. Another tool at our disposal was a Survey



Ned Beecher



Monkey online survey that allowed facilities to enter their own data if they wanted to.

**tpo:** Did you end up with a complete list of all anaerobic digestion facilities in every state?

**Beecher:** For the most part, yes, but time didn't permit us to be as thorough as we might have liked. We certainly accounted for all the large anaerobic digestion facilities. In our final report, we present a graph that shows our confidence level for each state. For example, Texas and Maryland are two states where we have lower levels of confidence. On the other hand, for Alaska and Maine, each of which has only one anaerobic digestion facility, we're 100 percent confident we've identified them all. And there are a number of other states where our confidence is quite high.

**tpo:** What information did you gather from the facilities you contacted?

**Beecher:** In meetings with the project team and an advisory group that WEF put together, we defined the data that we considered the most essential and that we thought we could get fairly easily. We called this Phase 1 data.

For example, we asked: Do you have anaerobic digestion or send your solids to an anaerobic digestion facility? Do you take in outside waste and feed it directly into the digesters? How do you use the biogas? Is it burned in boilers for digester heating? For building heating? Do you use it to generate electricity? If so, with what generating technology?

“Only about 300 plants use biogas to generate electricity. About two-thirds of the plants that produce biogas put it to use for energy in some form. The most common use is for digester heating. About one-third of the plants flare the gas, and a few just release it directly to the atmosphere.”

**NED BEECHER**

**tpo:** Did you ask about the volumes of biogas produced and consumed?

**Beecher:** We did not collect that data, although that is something people really want to know. We didn't collect that because we knew it would be too hard to get in a first pass. A lot of facilities don't measure it. It takes a lot of planning to figure out how to collect that information and how to separate estimates from actual measurements. But we now have the contact information of the people who know the most about biogas at each plant, so we can go back with follow-up questions.

**tpo:** What are some of the basic findings from the research?

**Beecher:** We identified 1,238 plants in the U.S. that have anaerobic digestion and produce biogas or send their solids to an anaerobic digestion facility. That's a fairly small percentage of the 15,000 to 16,000 permanent wastewater treatment facilities in the nation, and it's because many of those are smaller package plants.

Only about 300 plants use biogas to generate electricity. About two-thirds of the plants that produce biogas put it to use for energy in some form. The most common use is for digester heating. About one-third of the plants flare some gas, and a few just release it directly to the atmosphere, which is not necessarily a good thing. Those are smaller facilities, of course.

One surprising finding was that there are some pretty small facilities with anaerobic digestion — plants with flows from 1 to 5 mgd, and even some with less than 1 mgd. And some of them even use the gas to generate electricity.

**tpo:** What would you say is the real value of all this information? To whom is it useful and for what purposes?

**Beecher:** It addresses a need among people in the field, whether they be policymakers or commercial vendors, who are interested in understanding the market potential of biogas. Now they have access to data that, while not perfect, is quite a bit more accurate than what was around before.

Furthermore, the biosolids and wastewater coordinators at the treatment plants that have anaerobic digestion are finding the data useful for networking — for being able to understand who is doing what with biogas. They can look up who else in their state is using it that they may not have known about, and they can see what's going on in other states. This helps them share best practices and get advice. That's a benefit we really hadn't foreseen.

**tpo:** You mentioned that you've collected Phase 1 data. Do you envision a Phase 2?

**Beecher:** The parties to the project are discussing what to do going forward. We were fortunate last year to receive quick seed funding from Cambi, NYSERDA and the National Biosolids Partnership to create the initial website. Now we're looking for funding to support online database enhancements. At this point, the website presents some nice data, but doesn't have a download feature or reporting functions, which would be nice to have. We have the beginnings of a back-end data entry system that we would like to complete, so that eventually organizations would be able to enter their own data, subject to our approval. That would help keep the data current.

**tpo:** Might a Phase 2 involve collecting data on biogas volumes?

**Beecher:** That will be a primary goal if we go ahead with Phase 2. There's great interest in that. That's going to take some discussion around how we go about designing that question — we want to be sure we get it right. **tpo**

## MANY HANDS

Numerous people and organizations worked together to compile figures on the nation's biogas usage and create the Biogas Data website. They are:

### PROJECT TEAM

- Mid-Atlantic Biosolids Association
- Black & Veatch
- American Biogas Council
- California Association of Sanitation Agencies Biosolids Program
- Northwest Biosolids Management Association
- HDR consulting firm
- Hazen and Sawyer consulting firm
- InSinkErator
- North East Biosolids and Residuals Association

### ADVISORY CONSENSUS TEAM

- U.S. EPA
- National Association of Clean Water Agencies
- Massachusetts Department of Environmental Protection
- New York State Energy Research and Development Authority
- Water Environment Research Foundation
- Hampton Roads Sanitary District
- MWH Americas consulting firm
- CH2M HILL consulting firm
- REEThink research firm
- East Bay Municipal Utilities District
- Thames Water
- *BioCycle* magazine



# No Less Than the Best

A SEARCH FOR THE OPTIMUM BIOSOLIDS SOLUTION LEADS EXETER TOWNSHIP TO AN INDIRECT THERMAL DRYING PROCESS THAT YIELDS A CLASS A EQ PRODUCT

By Ted J. Rulseh



The Exeter Township team includes, from left, Dave Seltzer, assistant operator; Aaron Franckowiak, operator; Ed Pribish, operator/lab supervisor; Mark Maciejewski, mechanic; H. David Miller, assistant superintendent; Kenny Templin, mechanic; Dale Miller, chief operator; Josh Koontz, assistant operator; James Bingaman Jr., operator; Dave Welgoss, mechanic/electrician; Pavel Babich, collection system operator/backhoe operator; Kevin Dunn, collection system operator; Paul Herb, plant superintendent; and John Dean, assistant operator. (Photography by Patrick Gensel)



COSTS FOR LANDFILLING BIOSOLIDS WERE ESCALATING, and the staff at Exeter Township (Pa.) Water Quality Control knew it was time for a change.

Land application of liquid or cake product held little appeal to the board of supervisors of the Township of Exeter, owner of the wastewater treatment plant. They insisted that any beneficial use product be of the best possible quality.

Starting in 2005, Dale Miller, one of four operators of the 7.1 mgd (design) activated sludge plant, led a project to explore thermal biosolids drying. Today, the plant operates an indirect thermal dryer that yields a Class A EQ (exceptional quality) product, already finding great favor with local farmers, who pay \$10 per ton for it.



The \$6 million investment in the drying technology all but eliminated landfilling of biosolids and will be recovered in about 10 years through savings on tipping fees.

### JUST TOO COSTLY

The Exeter WQC plant was built in 1968, and its biosolids had been dewatered on belt filter presses and landfilled since 1978.

“In recent years, we had seen a huge increase in landfill costs,” says Miller, a plant team member for 15 years. “In 1992, it was \$58.60 per ton; in 1996, it was \$88.60; at present, it’s \$96.50. The price of landfilling had shot up dramatically, and that was the driving force behind this project.”

“It had been many years since we applied biosolids to farmland. A few of our supervisors were steadfastly against that. They were worried about liability issues. We’re in a fairly populated area and there are not very many farms in our township, so most of the product would have to go outside our borders.”

There was early consensus that thermal drying was the best alternative, but that left the question of which drying technology to choose. The township hired Entech Engineering of Reading, Pa., to conduct a feasibility study. Meanwhile, a team led by Miller; H. David Miller, assistant plant superintendent;

“I know the material works really well on grass. We’ve put some on patches of grass around the treatment plant, and we’ve found that it makes grass grow like crazy.”

### DALE MILLER

and Doris Heckman, an Entech representative and secretary/grant writer, began doing research. Two township supervisors met with the team periodically for updates.

### ROAD TRIPS

The research involved numerous “field trips,” according to Miller. “I was all over the country looking at how different municipalities were doing thermal drying, what kind of equipment they were using, and what they were doing with their end product. I made quite a few trips from 2005 to 2007.”

“I looked at a lot of equipment to get an idea of what I felt would work best for us. Our big question was whether to choose a continuous-feed dryer or a batch-feed dryer. We ended up with a batch system, and it seems to be working well.”



## profile

Exeter Township Water Quality Control, Birdsboro, Pa.

POPULATION SERVED:	25,000	
PLANT FLOWS:	7.1 mgd design, 3.5 mgd average	
PLANT PROCESS:	Activated sludge	
BIOSOLIDS PROCESS:	Anaerobic digestion, thermal drying	
BIOSOLIDS VOLUME:	1,000 dry tons/year	
BIOSOLIDS USE:	Land application	
WEBSITE:	<a href="http://www.exetertownship.com">www.exetertownship.com</a>	
GPS COORDINATES:	Latitude: 40°16'43.02" N; Longitude: 75°50'12.18" W	



In 2009, the township settled on drying technology from Fenton Environmental Technologies of Brownwood, Texas. The addition of the dryer dictated a change in the sludge dewatering process, from belt filter presses to two centrifuges (Alfa Laval Model G2-95), each rated at 2,500 pounds per hour.

"We found out from our research that it's much more economical to remove water mechanically than thermally," says Miller. "If you can produce a drier cake before it goes into the dryer, you're saving money all the way around. We did a quick payback analysis, looking at centrifuges as opposed to the belt presses.

"While centrifuges consume more electricity and use more polymer, they also create a much drier cake. We found that we would achieve about a two-year payback by installing the centrifuges and removing the belt filter presses." The centrifuges produce cake at 23 to 26 percent solids, versus 13 to 15 percent for the belt filter presses.



### GETTING IT DONE

Entech handled project design. Construction of the dryer system began in February 2010 with Miller as construction manager, assisted by Entech personnel.

Ronca Construction of Allentown, Pa., built the facility. The Exeter WQC

LEFT: Ed Pribish, operator/lab supervisor, enters daily testing results in the log. BELOW: Dale Miller, chief operator, checks the status of the biosolids dryer (Fenton Environmental Technologies).



team began operating it in June 2011 after Fenton Environmental ran a three-month testing and shakedown operation. The process has a footprint of about 3,300 square feet. It's housed in an existing building with a small addition.

The process dries a mix of primary sludge and gravity-thickened waste-activated sludge. Both sludges are fed to two anaerobic digesters. Digested material is pumped to a 230,000-gallon holding tank that also receives liquid aerobically digested sludges from some neighboring municipalities.

From the holding tank, the material goes straight to the centrifuges, where polymer is added. Centrifuged cake is conveyed to a 75-cubic-yard hopper. To start drying of a batch of material, a gate opens, and a cake pump activates, augering material into a hopper at the front of the dryer. From there, material is pumped to the drying chamber. Each batch contains about 12 wet tons of cake, which yields just over two tons of dried material — a five-to-one reduction.

Drying takes about three hours, after which the product is discharged into a surge bin. From there, a blower delivers the granular biosolids to a storage silo, which holds about 40 dry tons.

### INDIRECT HEATING

The dryer is fueled by natural gas. The drying chamber consists of a large drum. "It's an indirect dryer," says Miller. "It uses a thermal fluid, so there is no direct flame-to-biosolids contact. An auger inside the drum rotates back and forth, turning one way for 75 seconds, then stopping and reversing.

## NEXT ON THE AGENDA

The plant team at Exeter Water Quality Control isn't standing still after its successful biosolids drying project. Next up is a look at cogeneration using biogas from the plant's two anaerobic digesters. Once again, operator Dale Miller leads the charge. Historically, the plant has used its limited biogas production to fire a boiler that heats the digester; the excess gas is flared.

The first step toward cogeneration (also called combined heat and power, or CHP) is to boost gas production. To that end, the plant began taking fats, oils and grease (FOG) into one of the digesters about three years ago. "We do take septage and other hauled waste," says Miller. "Some of those haulers do grease trap cleaning. We didn't originally take that waste, but after investigation we started taking some.

"We went into it tiptoeing. We only feed it into one of the digesters, so that in case we have an upset, then the other one is still OK."

Miller had no way to equalize the flow of FOG into the digester, although the unit has gas mixing and a recirculation pump. "We put it into the digester basically as it comes in from the haulers," he says. "We've been slowly increasing the amount of FOG and watching the gas increase as well.

"We've found that digesters, at least in our case, are pretty robust. We find that it really doesn't affect the process at all. You don't seem to have to feed it slowly. Operators are always scared of anaerobic digestion getting upset, but we have not experienced that — I hope we never will."

The facility now takes about 1 million gallons of FOG per year, and gas production has increased by about 65 percent. The eventual plan is to use the biogas to fuel engine-generators to produce electricity for general plant needs and heat for the digesters, the thermal biosolids drying process, and other purposes.



It keeps moving the material back and forth inside this drum.”

The thermal fluid, at about 390 degrees F, circulates through the outside of the drum and through the auger itself. Sensors measure the temperature of the biosolids, and when the material reaches 275 degrees F, it is discharged.

“The dryer opens up, in almost the same way as a clothes dryer at home,” says Miller. “The auger turns in a clockwise direction and pushes the biosolids out. Then a screw conveyor delivers it to the surge bin. It takes about 10 minutes for the dryer to unload. If we’re going to run another batch, the conveyor shuts off, the door closes, and the whole process repeats itself.”

The end product, at 95 percent solids, is light brown and granular, with the consistency of coarse sand. A de-dusting agent (Dustrol 3003 made by ArrMaz Custom Chemicals) comes out of the silo as the product and goes into users’ trucks.

The plant team moved proactively to avoid odor issues involving off-gas from the dryer. “A lot of the plants I had visited bubbled the off-gas up through their aeration tanks,” say Miller. “That pretty well scrubbed the odors from it.”

“At our plant, the aeration tank is a pretty long distance away from the dryer, but the sludge holding tank is right next to the dryer building. We decided to blow the off-gas into there for scrubbing. The tank already had a small odor-control unit on it. The process has worked quite well.”

#### SHARING DUTIES

Primary responsibility for the drying operation falls to Miller, along with operators James Bingaman, Aaron Franckowiak and Edward Pribish. They are overseen by H. David Miller and Paul Herb, treatment plant superintendent. The Exeter WQC staff also includes maintenance mechanics Dave Welgoss, Mark Maciejewski and Kenny Templin; assistant operators David Seltzer, Josh Koontz and John Dean; and collection system operators Pavel Babich and Kevin Dunn.

The drying process is fully automated — no new staff had to be hired for it. “You basically hit start and watch it from then on,” says Miller. “It loads, dries, discharges, fills the silo and shuts down. Other than supervision, when everything is working properly, that’s about all it is. We’ve had a few hiccups here and there, but we figured them out.”

“Overall, in running for more than a year, our biggest problem has been power failures, which have nothing to do with the equipment manufacturer. We’re pretty happy with the drying equipment, and the centrifuges as well.”

#### TO MARKET, TO MARKET

The plant landfilled the product for a short time before receiving the state Department of Environmental Protection permits needed for land application. Product was distributed for free until the township received a state fertilizer resale permit, which required a nutrient analysis (the product contains 4 percent nitrogen, 5 percent phosphorus and no potassium).

Marketing to date has been simple and inexpensive. Material Matters, a consulting firm in Elizabethtown, Pa., helped the township develop a marketing

“We’ve had a few hiccups here and there, but we figured them out. Overall, in running for more than a year, our biggest problem has been power failures, which have nothing to do with the equipment manufacturer.”

DALE MILLER

strategy while assistant superintendent Miller developed a product logo. The product is simply called “Exeter Biosolids,” since it could also be used as an energy source.

An ad in the *Lancaster Farming* magazine offering the product at \$10 per ton brought numerous phone calls from farmers. Initially one farmer used most of the material, with a second farmer as a backup. The storage silo



# Mind Blowers



**NEW!**

**Aerzen Turbo Blower**

**+**

**Delta Hybrid Blower**

**=**

**Ultra Energy-Efficient Air**



Now the choice is yours! Optimize your process efficiency by selecting the Turbo and Hybrid technology to ensure the reliability of your process.



**Turbo+Hybrid**



To learn more, visit [www.aerzenusa.com](http://www.aerzenusa.com)

108 Independence Way • Coatesville, PA 19320 • (610) 380-0244  
[inquiries@erzenusa.com](mailto:inquiries@erzenusa.com)





Dale Miller, left, and Paul Herb.



"I was all over the country looking at how different municipalities were doing thermal drying, what kind of equipment they were using, and what they were doing with their end product."

DALE MILLER

The Exeter Township Wastewater Treatment Facility has a \$6.5 million biosolids dryer that has eliminated landfilling of some 9.5 million pounds of wet material each year, saving nearly \$50,000 per month.

has an offload screw that can load dump trucks, tractor-trailers and other vehicles.

"We're eager to hear what kind of success our customer has had," says Miller. "It's a whole lot less expensive than commercial fertilizer — that's the reason he took it. We also have some turf farms in the area that are interested. I know the material works really well on grass. We've put some on patches of grass around the treatment plant, and we've found that it makes grass grow like crazy."

### COMMUNITY FRIENDLY

To introduce the drying process to the community, the plant held an open house and ribbon cutting on Sept. 14, 2011. It attracted 120 people. Last May, 220 members of the Eastern Section of the Pennsylvania Water Environment Association toured the facility.

Part of the idea behind the project, which received a \$1 million grant from the DEP, was to extend its benefits to other communities by becoming a regional facility. "We're one of the bigger treatment plants in our area," says Miller. "We said to our neighbors, 'Here's a place you can bring your liquid sludge and we can process it, dry it and use it for land application.' We're trying to grow that business.

"We tried to get other communities to be involved before we went ahead with the project, but that was difficult because we didn't have enough concrete information. Their first question was, 'How much is it going to cost?' They weren't going to commit without knowing that, and I don't blame them one bit. It's evolving slowly."

Exeter WQC now accepts sludges from 10 other treatment plants, amounting to about 75,000 gallons per week, or about 20 percent of the total volume processed. "All in all, I'm very proud of our process," says Miller. "I'm happy that it has worked out so well." **cpo**

### more info:

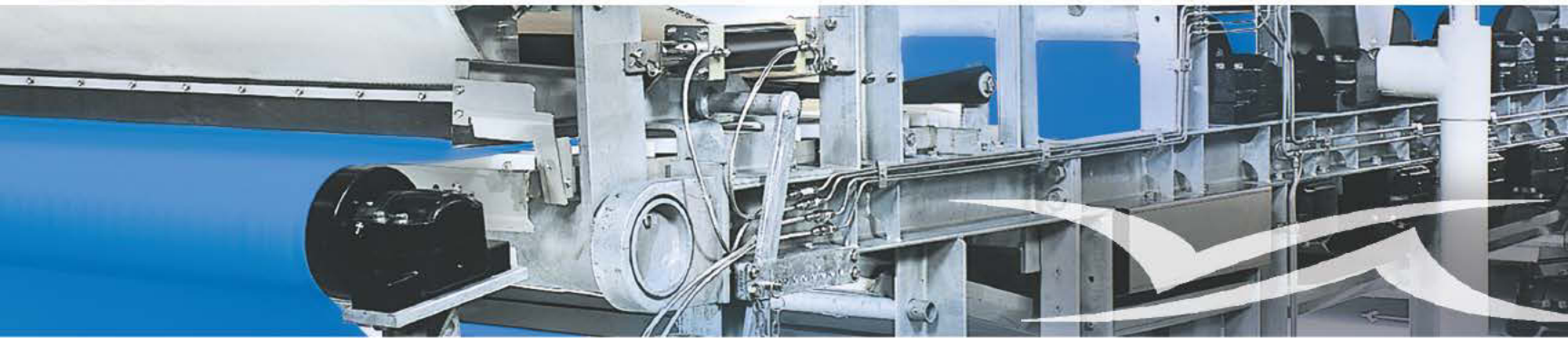
**Alfa Laval, Inc.**  
866/253-2528  
[www.alfalaval.us/wastewater](http://www.alfalaval.us/wastewater)

**ArrMaz Custom Chemicals**  
863/578-1206  
[www.am-cc.com](http://www.am-cc.com)

**Fenton Environmental Technologies, Inc.**  
800/521-1708  
[www.ifenton.com](http://www.ifenton.com)



# BRING YOUR DEWATERING CAPABILITIES INTO THE TWENTY-FIRST CENTURY WITHOUT KILLING YOUR BUDGET



## REDUCE CAPITAL EXPENDITURES WITH BEST PRACTICE SOLUTIONS FROM THE DEWATERING + THICKENING EXPERTS

- Gravity Belt Thickeners
- Belt Filter Presses
- Centrifuge Technologies
- Rotary Sludge Screens



Contact Ashbrook Simon-Hartley, today to learn how we can help you stretch budget and increase your peace-of-mind.

[www.as-h.com](http://www.as-h.com)  
**800.362.9041**  
 Fax: 281.449.1324  
 11600 East Hardy  
 Houston, TX 77093

**All Makes  
All Models**

**LONG-LIFE BELTING**  
 INCREASE DRY SOLIDS CONTENT BY UP TO 20%  
**RETROFITS**  
**REBUILDS**  
**PERFORMANCE UPGRADES**  
**USED & REFURBISHED EQUIPMENT**  
 "LIKE NEW" MOST PRODUCTS  
**MOBILE DEWATERING UNITS**  
**ACCESSORIES**  
**SPARES**  
**PARTS**  
**TRAINING**  
**CLEANERS**  
**SERVICE**

Ashbrook Simon-Hartley is now part of Alfa Laval. Together, we deliver a market-leading portfolio of products and solutions for municipal and industrial water and wastewater applications.

**Ashbrook**  
**Simon-Hartley®**



A 10-by-100-foot rain garden between the playground and tennis courts is planted with sedges and perennials.

# Underground Success

AN AWARD-WINNING WASTEWATER LIFT STATION PROJECT COMBINES COMMUNITY APPEAL WITH A LOW-COST SOLUTION THAT BENEFITS RATEPAYERS

By Jeff Smith

On the surface, the renovated Juan Solomon City Park on the northwest side of Indianapolis looks like many city parks across America: a playground of swings and slides and climbing bars, picnic tables and tennis courts, restrooms and parking space.

There's also plenty of green space for soccer fields and walking trails, and even a community meeting room with floor-to-ceiling windows that overlook the park. But below the surface, unseen by park users, is a 38 mgd lift station, central to a recently completed 7-mile-long, 42-inch relief interceptor and force main project for the delivery of wastewater to the city's 300 mgd (design) Belmont Advanced Wastewater Treatment Facility.

## WELL-DISGUISED

"No one would ever believe they are looking at a sewage pumping station," says Steve Nielsen, P.E., director of wet distribution engineering for Citizens Energy Group, the public charitable trust that owns the city's gas, chilled water, steam, and water and wastewater utilities.

The transformed park has landscaping that includes two green roofs and two rain gardens. A sloped green roof planted with sedum, green mantle and dragon's blood covers the community room, which has room for 50 people. A seasonal mixture of perennials dominates a flatter roof on top of the lift station. All plants were selected for compatibility of color and texture. Drainage is allowed to free-fall to a gravel infiltration bed.

A 10-by-100-foot rain garden between the playground and tennis courts was planted with sedges and perennials. Stormwater runoff is also captured in a 30-by-275-foot bioswale containing 16 types of grass and perennial plugs. The slope of the bioswale was hydroseeded with a native seed mix. Up to a foot of water collects in the swale before it flows into the stormwater system.

## BEST CHOICE

Nielsen says the award-winning project is the result of collaboration between the Department of Public Works and the Parks & Recreation Department. Originally, the plan was for a gravity sewer system near the

route of an existing interceptor, which follows a popular waterway known as Crooked Creek. The problem was the project would have meant significant loss of riparian vegetation that protects the streambank and wildlife habitat along the intended route.

An alternative route identified by a consulting firm would have saved the environmental resources of Crooked Creek, but it would have run through a city-owned golf course, which would have had to close for two years. Another alternative was for a force main system, but the ideal location for the lift station was at Juan Solomon City Park.

After public informational meetings, the force main system proved to be the best option: It saved the city more than \$50 million on the entire project because it required a smaller-diameter main installed shallower. Even the golf course benefited, because an old maintenance building was



The newly renovated Juan Solomon City Park is built atop a 38 mgd lift station that helps deliver wastewater to the city's Belmont Advanced Wastewater Treatment Facility.





A sloped green roof planted with sedum, green mantle and dragon's blood covers the community room, which has space for 50 people.

replaced with a new and larger facility that included a discharge stand-pipe structure, designed to look like a chimney.

**CREATIVE DESIGN**

Creativity in the project design and construction won recognition from the Indiana Chapter of the American Concrete Institute, which awarded Citizens Energy its 2012 Project of the Year Award. The Greater Indianapolis Chamber of Commerce presented an award for the Most Innovative Masonry Design Solution for Utilitarian Use.

"This was a win-win for everyone," says Nielsen. "The most cost-effective approach was a win for the ratepayers, and the park upgrades met our goal to be a good neighbor." **tpo**

**Share Your Ideas**

**TPO welcomes news** about interesting features of your facility's grounds, signage or buildings for future articles in the PlantScapes column. Send your ideas to editor @tpomag.com or call 877/953-3301.



a xylem brand

**YOUR BRAINS  
OUR IQ.**

BETWEEN YOUR SMARTS AND OUR **YSI IQ SENSORNET™** THERE'S NO LIMIT TO WHAT YOU CAN ACHIEVE. **SHEER GENIUS.**



IQ SensorNet 2020 XT

YSI's modular water quality monitoring network is flexible, easy to use and ideal for all your parameters. Just set it up and control your process.



**UPCOMING TRAINING & EVENTS**

**NAWT**  
National Association of Wastewater Technicians

**YOUR SOURCE  
FOR REAL LEARNING**

**Inspector Training and Certification:**

May 10-11, 2013 - San Antonio, TX  
Real Estate Training Systems, Brian Murphy  
at (817) 861-9998 or rets@rets-llc.com

August 28-29, 2013 - (TBA), Arizona  
Univ. Of AZ, Janine Lane at (928) 782-5882  
or janinel@cals.arizona.edu

November 14-15, 2013 - Lakewood, CO  
CHURCH Onsite Wastewater Consultants  
Kim Seip at (303) 622-4126 or  
highplains@tds.net

**Operation and Maintenance Training Certification:**

October 2-3, 2013 - Napa, CA  
COWA & NAWT - Evelyn Rosefield at  
(530) 513-6658 or evelyn@cowa.org

**Other CEU's for Recertification:**

April 24-25, 2013 - Monterey, CA  
COWA Soils, Hydrogeology, and Site Eval.  
Contact: Evelyn Rosefield at (530) 513-6658  
or evelyn@cowa.org

May 13-14, 2013 - (TBA), Arizona  
ATUs and Media Filters, Drip Dispersal  
Systems - University of Arizona  
Contact: Janine Lane at (928) 782-5882 or  
janinel@cals.arizona.edu

May 22, 2013 - Sacramento, CA  
COWA Low Pressure Pipe Drainfield & Drip  
Dispersal Design  
Contact: Evelyn Rosefield at (530) 513-6658  
or evelyn@cowa.org

-- Watch the NAWT website and industry publications for updates --

For more information call:  
**800-236-6298**

**WWW.NAWT.ORG**

800 897 4151 • 937 767 7241  
YSI.com/IQ

**xylem**

Let's Solve Water

YSI Incorporated is a brand of Xylem, whose 12,500 employees are addressing the most complex issues in the global water market. ©2013 Xylem Inc.



# Productive Fix

A ST. LOUIS TREATMENT PLANT RESOLVES PUMP STATION RELIABILITY ISSUES WITH AN EDDY CURRENT HIGH-POWER DIGITAL CLUTCH CONTROLLER

By Scottie Dayton

Six trickling filters at the Bissell Point Wastewater Treatment Plant in St. Louis, Mo., receive 110 mgd from a trickling filter pump station with two 1,650 hp centrifugal Peerless (90 mgd capacity each), and six 600 hp Peerless (40 mgd each) pumps.

The outdated analog system controlling the eddy current clutches on the large pumps caused maintenance headaches for operators: Reliability was suspect and replacement parts were hard to find.

“The many potentiometers also required frequent adjustments, usually done with a screwdriver,” says Vince Stollhans, assistant manager of the Pump Station Division.

When the clutch and motor on one pump went to a local shop for routine maintenance, technicians saw an opportunity to upgrade the controller. They called Stollhans for recommendations.

“I’m responsible for automating the pump stations,” Stollhans says. “Over the last five years, I’ve installed 10 digital controllers from Dynamatic. The units have a history of excellent performance and reliability.”

Technicians installed a Dynamatic eddy current EC-2000HP high-power digital clutch controller. “They thought the price of the unit was a drop in the bucket compared with replacing the clutch with a half-million-dollar variable-frequency drive,” says Stollhans. “The retrofit, around \$6,000, was definitely the most economical solution.”



The clutch and motor atop the 1,650 hp Peerless pump make the unit three-stories high.



Technicians replaced the aging analog clutch controller (left photo, bottom of cabinet) at the Bissell Point treatment plant with an eddy current EC-2000HP high-power digital controller from Dynamatic (right photo). They also modified the blue module (top right in cabinet) and relays to the left.

## MAJOR WIRING PROJECT

The 350 mgd (design) Bissell Point plant uses primary clarifiers, trickling filters and secondary clarifiers. Effluent discharges to the Mississippi River. Biosolids are processed by dewatering, and six multiple-hearth incinerators consume 74,000 dry tons annually. The plant is one of the largest in the Metropolitan St. Louis Sewer District, which is the fourth-largest district in the United States.

With the old analog system, the three-phase, 240-volt clutch on the 1,650 hp pumps powered up only when the motors were running. “The new system is always powered up with the clutch waiting for a run command,” says Stollhans. “Normally, eddy current digital clutch controllers don’t go over 90 volts and 8 amps, but this high-power unit goes up to 180 volts and 64 amps.”

Incorporating the new digital eddy current control was relatively simple; the challenge was rewiring the starting circuit. The two plant technicians wired a 4160/240-volt, three-phase, step-down isolation transformer into the main medium-voltage synchronous starter and rewired the starter to make it compatible with the new system. Then they removed the dry contact from the starter that told the clutch when to come online. “Those were the biggest modifications,” says Stollhans.



**Waterproof!** **Meters**  
for Field or Lab!

**2020we Turbidity Meter**

- Menu-driven operation
- Automatic wavelength selection
- Waterproof to IP67
- Seven Languages

Visit Our Website for More Details!  
[www.lamotte.com](http://www.lamotte.com)

**LaMotte**  
PO Box 329 • Chestertown • MD • 21620  
800-344-3100 • f410-778-6394



**JDV Equipment Corporation**  
Incorporating Ralph B. Curtis Company

Committed to the design and manufacturing of superior quality waste water and water treatment equipment

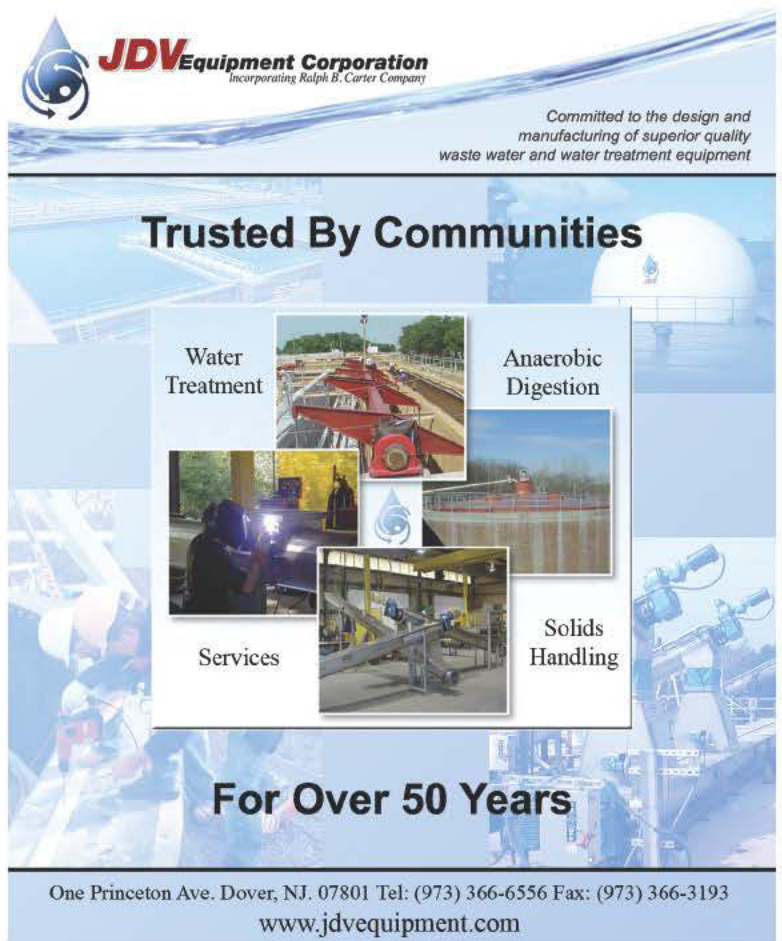
**Trusted By Communities**

Water Treatment      Anaerobic Digestion

Services      Solids Handling

**For Over 50 Years**

One Princeton Ave. Dover, NJ. 07801 Tel: (973) 366-6556 Fax: (973) 366-3193  
[www.jdvequipment.com](http://www.jdvequipment.com)



**TREATMENT PLANT OPERATOR**  
**tpo** *Keep It Coming!*

It's **FREE**  
and worth a great deal more.

Please take a few minutes and subscribe today.

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

Scan the code with your smartphone.



“Over the last five years, I’ve installed 10 digital controllers from Dynamatic. The units have a history of excellent performance and reliability.”

**VINCE STOLLHANS**

The team added the Dynamatic keypad to the pump control panel and changed out the speed potentiometer, enabling operators to switch between automatic and manual. They also replaced the analog control panel with a prewired augmented open-panel digital assembly. Stollhans oversaw the modifications and programmed the parameters.

**KEYPAD SIMPLICITY**

The controller’s functions include multiple cascading, linear acceleration/deceleration for soft starts and stops, instrument signal follower, four preset speeds, manual or automatic control, auto restart, jog speed, jump speed, and speed or torque mode.

According to the manufacturer, operators can regulate drive speed to within 0.1 percent of no load to full load, yet maintain 250 percent of rated torque for starting and momentary overloads. “I had three pages of parameters based on previous performance,” says Stollhans. “It took me only two hours to program the 30 values using the keypad. That’s the beauty of the system.” The controller operates in speed mode for the centrifugal pump.

When the clutch and motor returned in a month, Stollhans helped start up the systems and made slight adjustments to the pro-



LEFT: The control panel for a 1,650 hp centrifugal Peerless pump before modification. RIGHT: Technicians added the Dynamatic keypad to the control panel and changed out the speed potentiometer, enabling operators to switch between automatic and manual modes.

gramming. Then the operators took ownership. “I believe the digital controller is easier on the equipment because of its greater flexibility,” Stollhans says. “While I’m positive it is more efficient than the old drive, I wouldn’t know how to prove it until we accumulate sufficient run time. We did the retrofit primarily for the technology and reliability.” **tpo**

**Share Your Idea**

TPO welcomes news about interesting methods or uses of technology at your facility for future articles in the How We Do It column.

Send your ideas to [editor@tpomag.com](mailto:editor@tpomag.com) or call 877/953-3301.



# On His Way

A YOUTH APPRENTICESHIP WITH NEW WATER IN GREEN BAY GIVES BRANDON BURTON AN EXCELLENT START TOWARD A CAREER IN CLEAN WATER

By Ted J. Rulseh

At the tender age of 16, Brandon Burton is solidly on a path toward a career in the clean-water profession. Meanwhile, his employer, NEW Water (the new identity for the Green Bay [Wis.] Metropolitan Sewerage District), has found a way to groom potential replacements for operators who will retire in the next few years. "It's definitely a win-win," says Bruce Bartel, treatment manager for the district's two treatment plants, which process 38 mgd.

Burton, a junior at Green Bay Southwest High School, is the first student enrolled in the Green Bay Area Chamber of Commerce Youth Apprenticeship program in Wastewater Treatment, which is serving as a pilot for a statewide program to be offered through the Wisconsin Department of Workforce Development.

During the two-year apprenticeship, Burton attends regular high school classes and takes courses at Northeast Wisconsin Technical College. He also works about 12 hours a week (and full time in summer) at the treatment plant. At the end of 2012, he had logged nearly 500 hours of hands-on duty. Work at the plant pays the state minimum wage of \$7.25 per hour, with a modest performance-based raise at the midpoint of the program.

Burton appears certain about making wastewater treatment a career. "I plan to finish my course work at NWTC and after high school

"People in the wastewater field aren't getting any younger. This was my vision of how to get some younger folks involved in this industry and encourage them to make a career out of it."

## BRUCE BARTEL

go to the University of Wisconsin-Green Bay and major in Environmental Science," he says. "After that, I intend to become an operator at a wastewater treatment plant and move up through the ranks."

For his part, Bartel sees the apprenticeship program as part of the answer to the growing shortage of operators. "People in the wastewater field aren't getting any younger," he says. "This was my vision of how to get some younger folks involved in this industry and encourage them to make a career out of it."

## REACHING OUT

Bartel calls the youth apprenticeship his own brainchild, but he



Brandon Burton, youth apprentice (left), counts Scott Thompson, operations trainer, among his mentors at NEW Water in Green Bay.

credits Scott Thompson, operations trainer, with doing the majority of the work to get the program going. They started in December 2011 by exploring the idea with the Green Bay Area Chamber of Commerce and the Green Bay Area Public School District. Next came outreach to science classes at Green Bay Southwest High, where Rod Bohm, principal, and science faculty members were quick to embrace the apprenticeship concept.

In spring 2012, Thompson teamed with Lisa Schmelzer, who administers the Chamber's broader Youth Apprenticeship Program serving 16 industries, to introduce the wastewater apprenticeship to Southwest High science classes. Operator Jenny Pagel and Lori Peacock, career/technical education and counseling coordinator for the school district, did likewise.

NEW Water later held a preview night and tour at the treatment plant, attended by eight students and their parents. In the end, Burton and Southwest High junior Jacob Price applied for the apprenticeship.

As part of the process, each had to write a letter telling why he wanted to be in the program; the parents had to write a similar letter on their sons' behalf. The applicants also had to submit three letters of reference from a guidance counselor and teachers explaining why they would be well-suited for the program.

After final interviews, conducted by Bartel, Thompson and Amy Kox, associate dean of energy and sustainability at NWTC, Burton was selected. Bartel notes that Price is also officially in the program and takes NWTC classes just as Burton does — however, there is no work available for him at the treatment plant.

## ON THE JOB

Burton began his apprenticeship in July 2012. He has taken classes in pneumatics and hydraulics in NWTC's Environmental Engineering program, receiving time off from high school to attend.

At the treatment plant, he doesn't just run errands, sweep floors and cut grass — he's involved in many phases of daily operation.

(continued)



# LOW-COST FACTORY CERTIFIED UPGRADE

=

# BIG TIME SAVINGS



## Why replace your reliable Eddy Current system with high-cost VFDs?

Save hundreds of thousands of dollars in capital costs while bringing new levels of efficiency to your system with a factory certified re-manufacture of your existing drives and motors plus an upgrade to Dynamatic® digital controls. Our engineering team can assess all makes and models of Eddy Current drives and show you how to save up to 65% on drive system capital costs, achieve higher overall drive system operating efficiency, and realize the lowest lifetime cost of ownership.

Outlast VFDs  
by as much as

6:1



**FREE cost comparison!**

Call 800.548.2169 or [www.dynamatic.com/upgrade](http://www.dynamatic.com/upgrade)

**Dynamatic®**  
DRIVE SOURCE INTERNATIONAL, INC.





Marking Brandon Burton's completion of 500 hours as a youth apprentice were, from left, Laura Gerold, P.E., environmental engineering technology instructor from Northeast Wisconsin Technical College; Bruce Bartel, treatment manager, NEW Water; Lori Peacock, career and technical education and counseling coordinator, Green Bay Area Public School District; Dr. Michelle Langenfeld, superintendent of schools and learning, Green Bay Area Public School District; Rod Bohm, principal, Green Bay Southwest High School; Burton, his father Scott Burton and brother Nick Burton (front); Jim Schmitt, mayor of Green Bay; John Katers, professor, University of Wisconsin-Green Bay; Dr. H. Jeffrey Rafn, president, Northeast Wisconsin Technical College; and Laurie Radke, president, Green Bay Area Chamber of Commerce.

During a typical school day, he works at the plant from about 4 to 7 p.m. "I usually start by taking the samples around the plant," Burton says. "Once I finish with that, I'll go see what's on the non-routine task list and take care of some of those. Then I'll accompany one of the operators on their final rounds. They'll explain a plant process to me. The next time I'm with them, they'll take me back to that spot and I'll tell them what I know about what they told me. It's like a test.

"When something goes wrong, that's when I really start learning about the plant. I get to see inside the equipment and learn how to fix things. One day, a grit screw was broken down and filled with water. Operator Mike Gardner and I siphoned the water out with a hose and cleaned the grit out. He showed me how to troubleshoot it and make the repair."

While the focus early in the internship has been on basic operations, that will change. "He's doing dissolved oxygen profiles, he's analyzing for solids content in our cake solids, and he's doing a lot of the operational tasks," says Bartel. "As we move along, he'll spend time in our lab. He'll spend some time with our engineering team.

"We plan to get him some exposure to field services, which is our collection systems people. And he'll spend some time with our mechanics and electricians. Whatever departments and functions we have here, he'll be exposed to over the two-year period."

## LOOKING AHEAD

The skills he's learning fit with Burton's interests in the sciences and mechanics, and with his appreciation for the environment. "I guess you'd call me an outdoorsman," he says. "I like to kayak. I like to fish. Now I get to help clean the water before it goes out to the Fox River and give the fish a hand.

"Before I got here, I never knew how much was involved in treating water once it went down the sewer. Now that I do know about it, it's really interesting. There's a lot of troubleshooting that goes on. I like figuring things out. Working here always presents new challenges. The operators are great people. I've learned a lot from them, and I hope one day I'll be their co-worker."

"When something goes wrong, that's when I really start learning about the plant. I get to see inside the equipment and learn how to fix things."

**BRANDON BURTON**

## A CONCEPT TO EMBRACE

To Bruce Bartel, treatment manager for NEW Water, youth apprenticeships are a smart step toward solving the problem of an aging operator workforce.

"We've been through a wave of individuals who have retired in the last three or four years," he says. "In another three to five years, we'll have four more people with over 35 years of experience who will be retiring.

"I would encourage other agencies in Wisconsin to get involved in this Youth Apprenticeship Program. It's been great for us. Brandon Burton has been an excellent choice, and we're getting the benefit of his helping hands. I would like to think we're doing some favors for him as well.

"It's time for people in our profession to step up. I keep hearing that we need to get young people involved in wastewater treatment. I think this is a great way to do it."

"Working here always presents new challenges. The operators are great people. I've learned a lot from them, and I hope one day I'll be their co-worker."

**BRANDON BURTON**

Burton's schooling and work experience are helping prepare him to take the Wisconsin Department of Natural Resources operator license exam, after which he could become certified as an operator-in-training. He would need more on-the-job experience to qualify as a full-fledged operator.

Meanwhile, Bartel and the NEW Water team plan to take the apprenticeship program to the next level. "We will start the process toward hiring another apprentice this summer, who will also be an incoming high school junior," says Bartel. "Then when Brandon finishes his apprenticeship, we'll hire someone to replace him. Our plan from now on is always to have two youth apprentices working here."

Thompson is part of a committee advising the state on developing a curriculum for a statewide youth apprenticeship, built around the Green Bay model. It has all the makings of a program that helps young people get a start in a rewarding profession, and helps clean-water agencies fill the pipeline with qualified operators. **tpo**



# Mission SCADA Works Right Out Of The Box, But Won't Box You In

Mission SCADA systems are designed to get you up and running in hours, not days. Our packages start at around \$1,000 with a maintenance fee of less than \$1 a day. Mission strives for ease in doing business. Give us a try – no bureaucratic red tape, no huge commitment. If you like it, buy it. If not, send it back. It's that simple.

Mission flexibility allows you to expand your system as you are ready and on your terms. Mix and match any of our products one at a time or all at once, the choice is yours. That is why you will find Mission SCADA in over 1,400 municipalities across the United States and Canada.



In Sewer Level Alarm



Lift Station



Tank and Well Control



Alarms and Data to: • Phones • Pagers • Fax • Email • Your Computer • Your Tablet • Your HMI  
Simple and secure access to your information anywhere—even in the field.



(877) 993-1911

**MISSION**  
COMMUNICATIONS

[www.123mc.com/tpo](http://www.123mc.com/tpo)

Advanced Monitoring • Low Cost • Managed SCADA



# Monitoring and Instrumentation

By Craig Mandli

## AMMONIA ANALYZER

The ChemScan mini LowAm ammonia analyzer from ASA Analytics is designed for rapid and automatic batch analysis of ammonia in effluent. The low-cost units are built for accurate and reliable operation in harsh environments. Requiring minimal maintenance with quarterly reagent changes, the analyzer helps reduce aeration energy costs and provides verification, resulting in a healthy, stable process. **800/665-7133; www.asaanalytics.com.**



ChemScan mini LowAm ammonia analyzer from ASA Analytics



E-Series of ultrasonic meters from Badger Meter

## ULTRASONIC METERS

E-Series of ultrasonic meters from Badger Meter for water and wastewater metering use ultrasonic transit time technology to calculate flow rate and total consumption. There are no moving parts; the internal battery powers the meter for up to 20 years. Lead-free compliant with NSF/ANSI standards, the

housing is available in sizes from 5/8 to 2 inches. Electronics are contained in a weatherproof, UV-resistant housing. **800/876-3837; www.badgermeter.com.**

## HEAVY-DUTY PRESSURE TRANSDUCERS

PT-400 heavy-duty pressure transducers from Automation Products Group are ATEX and IECEx certified and rated for use in hazardous locations. With all stainless steel welded construction, they withstand shock, vibration and high pressure spikes through temperatures from -40 to 180 degrees F and pressures up to 20,000 psi. **888/525-7300; www.apgsensors.com.**



PT-400 pressure transducers from Automation Products Group



MultiCELL Type 8619 controller from Burkert Fluid Control Systems

## MULTI-CHANNEL CONTROLLER

The MultiCELL Type 8619 multi-channel controller from Burkert Fluid Control Systems can be used for monitoring functions as a flow indicator, to measure the ORP value or percentage retention value. It can also be used for control tasks, such as regulation of the pH value and the dosing of chemicals and ratio control. It is adapted at the factory to the particular application and customer specifications. The standard version includes the user interface, the mainboard and AC adapter, two analog and digital outputs and two digital inputs. Six slots are available for connecting additional boards. The large, configurable graphic display with backlighting can display up to four readings simultaneously. **800/325-1405; www.burkert-usa.com.**



MBS 3000 compact series pressure transmitter from Danfoss Industrial Automation

## PRESSURE TRANSMITTER

The MBS 3000 compact series pressure transmitter from Danfoss Industrial Automation is designed for severe environments. It is available with an integrated pulse snubber for protection for use in systems with harsh influences

like cavitation, liquid hammer or pressure peaks. It can be digitally adjusted to match the controller reading. Simple programming allows readings to be displayed in various units, such as psi, bar or kPa. The unit can be pivoted for easy viewing. **410/931-8250; www.danfoss.us/ia.**

## TELEMETRY CONTROL UNIT

The Telemetry Control Unit from Data Flow Systems combines automated pump control functions with advanced SCADA communications. It is designed to automate the operations of simplex, duplex and triplex pump stations and is available for fixed- and variable-speed applications. The unit accepts input from floats, bubblers and pressure transducers. The operator interface presents the menu, setpoint adjustment, fault resets and status indication. HOA switches are fail-safe and remain functional even with loss of power. The unit is SCADA-ready with open Modbus RTU and ASCII protocols and is available with integrated radio, network interface or telephone auto-dialer. **321/259-5009; www.dataflowsys.com.**



Telemetry Control Unit from Data Flow Systems



HF Scientific Fluorimeter from Cole-Parmer

## SCIENTIFIC FLUORIMETER

The HF Scientific Fluorimeter for heavy metals testing from Cole-Parmer enables technicians to conduct on-site analysis of toxic metal contaminants without waiting for results from a laboratory. The device tests for lead, mercury, copper and uranium in less than one minute and meets U.S. EPA standards. The IP54-rated instrument includes disposable, color-coded sensors designated for a specific metal for sample analysis. Sample data is captured with site name and time-and-date stamp, and is downloadable via USB cable. **800/323-4340; www.coleparmer.com.**

## MASS FLOWMETER

The Tantalum straight-tube Coriolis mass flowmeter, a version of the Optimass 7300 from KROHNE, measures corrosive fluids that require glass-lined piping or process vessels. The meter tunes itself, independent of external forces and fluid density. **800/356-9464; www.us.krohne.com.**



Tantalum flowmeter from KROHNE



IL-Mini data logging and alarming instrument from Logic Beach

## DATA LOGGER

The IL-Mini data logging and alarming instrument from Logic Beach is a low-cost, weatherproof, stand-alone, battery-powered logger that measures and records to internal or removable memory from most sensors and transmitters, including temperatures, flows, duty cycles, electrical power, energy and pressure. It has analog and digital inputs and outputs that are fully programmable. **619/698-3300; www.logicbeach.com.**





## WIRELESS GAS DETECTION

The stand-alone Smart Wireless Site Sentinel battery-powered gas detection system from Detcon is for fixed, semi-fixed and transportable use. The system monitors for toxic and combustible gases and can be customized. Each system can handle 32 detectors consisting of any combination of wired or wireless devices. Fault diagnostics are available locally or through a link to other members of the network.

Power options include disposable batteries, rechargeable battery packs with solar options, and line power. **713/559-9200; www.detcon.com.**

Smart Wireless Site Sentinel gas detection system from Detcon

## MULTICHANNEL TRANSMITTER

Endress+Hauser's Liquiline CM44x multichannel, multi-parameter transmitter uses a single sensor array to measure a user-defined combination of ammonium, nitrate, pH, potassium or chloride, resulting in energy savings. The transmitter accurately monitors DO to ensure maintenance of the minimum levels for compliance, and it reliably measures total solids. **888/363-7377; www.us.endress.com.**



Liquiline CM44x transmitter from Endress+Hauser



## PUMP PROTECTION FLOW SWITCH

The FlexSwitch FLT Pump Protection Flow Switch from FCI – Fluid Components International, keeps pumps running long and reliably with low maintenance over an expanded lifetime.

It reliably monitors the flow and temperature of liquids, gases, slurries, lubricants, coolants and more, making it well-suited for wet/dry detection

FlexSwitch FLT Pump Protection Flow Switch from FCI – Fluid Components International

where unexpected reductions in flow rates may leave pumps vulnerable to overheating. **800/854-1993; www.fluidcomponents.com.**

## WORKFORCE AUTOMATION

FlexOps from FlexSystems is a mobile workforce automation package designed for plant operations inspections that addresses the blind spots of SCADA by standardizing manual procedures. It utilizes touch-screen guided PDA based inspections, eradicating transcription errors and secondary data capturing, validating data at the point of entry and providing customization throughout the system. Added benefits include ensuring all inspections are correctly carried out, as data inputs are validated and consequently imported into the plant's operations system. This paperless system allows for all reports to be integrated into operations, compliance, historian, maintenance and LIMS software systems. **303/684-8303; www.flexops.net.**



FlexOps workforce automation package from FlexSystems



## AUTOMATED MINI-CONTROLLER

The CECC mini-controller with IO-Link master and CoDeSys V3 from Festo Corp. reduces installation time and simplifies programming for small- to mid-size treatment systems. Able to handle electric and pneumatic automation tasks, the four-channel device can be integrated into higher-level systems. **800/993-3786; www.festo.com.**

CECC mini-controller from Festo Corp.



## DENSITY METER

The DM3 inline continuous-density meter from SCIAM Worldwide calculates density by measuring direct mass over a known volume within a flow tube. By directly calculating density,

DM3 inline continuous-density meter from SCIAM Worldwide

rather than inferring or estimating, the technology improves accuracy, value and the environmental viability of sensor and mass flow systems. It measures abrasive media with a gum-rubber-lined flow tube. Custom options are available for high-pressure and extreme-temperature applications. It's insensitive to plant vibrations, noise, vacuum and temperature. **407/529-9391; www.sciamworldwide.com.**

## WATER TRANSPORT CONTROLLER

The APP 800 automated water transport controller from Flygt – a Xylem Brand has dedicated pump I/Os engineered for control of water and wastewater transport systems. It delivers advanced functionality for pump operators and broad process functionality for control over plant operations. It is modular and scalable, allowing flexibility to add or modify modules for expansion. With an embedded web server, operators can check pump status from any location to monitor, identify trends, handle alarms, and diagnose and resolve faults. **704/409-9700; www.flygtus.com.**



APP 800 water transport controller from Flygt – a Xylem Brand



## AUTONOMOUS LEVEL LOGGER

The DCX-25 PVDF battery-powered level logger from Keller America records water depth (pressure) and temperature

DCX-25 PVDF level logger from Keller America

over long periods. The housing is made of polyvinylidene fluoride, and the sensing diaphragm is available in

Hastelloy C-276 or titanium 6AL-4V. For installation, the logger is secured by a suspension cable and immersed in the media and must be recovered for data read-out. It opens easily, allowing access to the replaceable battery and the interface connector for configuration and data download. Users can configure it to record at fixed time intervals using fixed or event-based start times, in user-selectable measurement units. **877/253-5537; www.kelleramerica.com.**

## THERMAL MASS FLOWMETER

The QuadraTherm 640i/780i thermal mass flowmeter from Sierra Instruments measures gas mass flow with accuracy of  $\pm 0.5$  percent above 50 percent of the full scale. Its sensor and iTherm algorithm set introduces four sensors — three precision platinum temperature sensors and one no-drift Dry-Sense mass velocity sensor. The sensor isolates forced convection



QuadraTherm 640i/780i from Sierra Instruments

by calculating and then eliminating unwanted heat-transfer components, providing a true flow rate reading. **800/866-0200; www.sierrainstruments.com.**

(continued)



### SLUDGE BLANKET LEVEL DETECTOR

The handheld Sludge Gun from Markland Specialty Engineering finds interface levels of settled tailings in lagoons, ponds and tanks. Compact and weatherproof, the detector is convenient for use from boats/catwalks. It detects sludge densities ranging from light flocs to thick blankets, with the high-power version ideal for murky lagoons. As the probe is lowered, an audible tone varies in volume and pitch, depending upon the concentration of solids. The sludge blanket level and overlying unsettled cloudy layer are located by observing the depth markers on the cable. No calibration is necessary. **855/873-7791; www.sludgecontrols.com.**



Sludge Gun from Markland Specialty Engineering

### WIRELESS CONDITION MONITORING



VIBCONNECT RF wireless condition monitoring from LUDECA

The VIBCONNECT RF wireless condition monitoring from LUDECA monitors machine vibration, bearing condition and temperature. The system also detects damage caused by cavitation and allows monitoring of plant equipment over a large area without cabling. The system's bridge acts as the central receiver that processes the data from the sensor unit and transmits it through the operator's network for visualization and archiving. Irregularities or faults found in the machine components are directly recorded and forwarded to the relevant control center. **305/591-8935; www.ludeca.com.**

### LEVEL CONTROLLER

The LMS II pre-programmed level controller from Metropolitan Industries has a color touchscreen interface that allows users to alter pump options, transducer options and more, providing access to basic SCADA features cost-effectively. It is a menu-configurable, constant-speed, pump-down level controller, allowing control of one to three pumps. Seal fails and thermal inputs are standard. **815/886-9200; www.metropolitanind.com.**



LMS II level controller from Metropolitan Industries



OLCT 200 photo ionization detector from Oldham

### PHOTO IONIZATION DETECTOR

The OLCT 200 photo ionization detector from Oldham measures sub-ppm concentrations of hydrocarbons or VOCs. It is impervious to poisons or damage from high gas concentrations and can be used in inert atmospheres. The detector has wireless connectivity, making it suitable for confined-space entry. **800/338-3287; www.oldhamgas.com.**

### PUMP STATION MANAGER

The MultiSmart pump station manager from Multitrode offers out-of-the-box functionality for fast and easy deployment. It provides preventive control and maintenance, calculates pump efficiency,



MultiSmart pump station manager from Multitrode

and decreases pump station electrical consumption by using the most efficient pump. Remote control programming reduces maintenance, troubleshooting and site visits. It includes PID controls for booster pumps and built-in local SCADA without HMI hardware and software. **561/994-8090; www.multitrode.com.**

### ANALOG SIGNAL CONVERTER

ADC Series analog-to-digital signal converters from NK Technologies accept analog signals from up to eight loop or separately powered current, voltage, temperature or other parameter sensors, converting them to a digital signal that interfaces with Modbus RTU protocol using a single network address. The series can be factory set for 120 or 240 VAC power supplies. **800/959-4014; www.nktechnologies.com.**



ADC Series signal converters from NK Technologies



AlarmAgent.com monitoring and reporting system from RACO Manufacturing and Engineering

### MONITORING AND REPORTING

The AlarmAgent.com wireless, web-based remote monitoring and reporting system from RACO Manufacturing and Engineering provides centralized access to multiple WRTUs at once. Municipalities can manage, switch between and move all the WRTUs within their system at the same time from a single login. It offers customizable notification settings with options to notify the call list once without requiring an acknowledgement, and to blast an alert to everyone on the contact list at the same time. **800/722-6999; www.racom.com.**

### CURRENT DATA LOGGER

The OM-CP-PROCESS101A DC current data logger from Omega Engineering has a 10-year battery life, 4 Hz reading rate, multiple start/stop function, high-speed download, 1 million-reading storage capacity, memory wrap, battery life indicator, optional password protection, and programmable high and low alarms. The unit is available in 20mA and 160mA input ranges. **800/826-6342; www.omega.com.**



OM-CP-PROCESS101A data logger from Omega Engineering



IQ3 electric valve actuators from Rotork

### VALVE ACTUATOR

IQ3 electric valve actuators from Rotork provide advanced functionality and asset management. They offer a large, wide-angle screen for user-friendly displays and real-time asset management data. A secure Bluetooth hand-setting tool enables convenient setup, configuration and commissioning. Removable thrust bases across the entire range allow actuators to be safely removed from the valve without altering valve position. **585/247-2304; www.iqactuator.com.**

### SCADA SYSTEM

The Advantage SCADA system from Total Systems Resources allows users of chart recorders to add SCADA features such as historical logging,



Advantage SCADA system from Total Systems Resources



report generation, alarm notification dial-out, maintenance scheduling, event recording, and remote terminal access. The suite of configurable tags allows creation of complex process control algorithms including PID. **888/583-3001; www.tsr-advantage.com.**

### WATER QUALITY TESTER

The spectro::lyser water tester from s::can Measuring Systems measures the entire absorption spectrum in raw and treated water monitoring. It detects multiple organic substances and uses spectrometry to measure in-situ or by flow cell. Global and local calibrations are stored on the instrument. The device also can identify several groups of organics and detect individual substances. **888/694-2088; www.s-can.us.**



spectro::lyser water tester from s::can Measuring Systems



Flow metering system from Primary Flow Signal

### FLOW METERING

The flow metering system from Primary Flow Signal is a customizable, insertable Venturi meter engineered for measuring low or irregular pressure and dirty, wet gas environments. It measures any gas, including digester gas. It is available in standard and special configurations for any line size and for site-specific conditions. It maintains accuracy of  $\pm 0.25$  percent or better based on hydraulic calibration, handles temperatures to 350 degrees F, and has a tap clean-out rod for the high- and low-pressure sensing points that allows removal of particles from the meter. **877/737-3569; www.primaryflowsignal.com.**

### MOBILE MAPPING SYSTEM

VTS from Trihedral Engineering Limited allows users to interact with remote monitoring sites as they would use online mapping tools. Users can pan and zoom across all sites with a click, toss or scroll, add dynamic maps to any graphic display and use built-in map pages. They can also click map pins to see detailed process and alarm information about each site, download map tiles directly from online map providers such as MapQuest, pre-load tiles for offline applications, or load custom tiles created using third-party graphics programs. It supports maps on devices such as Android, iPhone and iPad. **800/463-2783; www.trihedral.com.**



VTS mobile mapping system from Trihedral Engineering Limited



331 lift station control panel from SJE-Rhombus

### LIFT STATION CONTROL PANEL

The 331 lift station control panel from SJE-Rhombus is designed to "fit and click" the appropriate overload module into the starter for standard duplex applications. The panel has a lockable stainless steel or fiberglass wall-mount enclosure, single-point power connection, IEC HP rated motor starter with adjustable overload module, a tri-voltage step-down control transformer, and pump run and seal-leak lights. Pump short-circuit disconnect and overload reset controls are accessible through the inner door. **888/342-5753; www.ecosmartpanel.com.**

(continued)

# Extra! Extra!

## Want More Stories?

Get extra news,  
extra information,  
extra features with

### Online Exclusives

Exclusive online content for  
*Treatment Plant Operator*

[www.tpomag.com/online\\_exclusives](http://www.tpomag.com/online_exclusives)

**Local Nutrient Removal Troubleshooting Chart**  
for suspended growth systems

**Sludge Process Control Troubleshooting Chart**  
Second Edition

**Non Activated Sludge Microorganisms Chart**

**TETRA TECH**

Activated Sludge Process Control	May 7 - 9 Las Vegas, NV 22 contact hours
Under the Microscope	Jun 11 - 13 Las Vegas, NV 21 contact hours
Biological Nutrient Removal	Jun 25 - 26 Denver, CO 16 contact hours
Activated Sludge Troubleshooting	July 23 - 25 Denver, CO 21 contact hours

## EDUCATION & TRAINING

For Wastewater Professionals

Tetra Tech offers training for industrial and municipal clients in pre-scheduled classes. Tetra Tech has developed courses, troubleshooting tools, and software applications that provide insight, best practices and operational tips designed for performance optimization and energy savings of wastewater processes.

[www.tetratech.com/training](http://www.tetratech.com/training)



### NITRATE ANALYZER

The NITRATAX sc UV nitrate analyzer from Hach Company uses ultraviolet (UV) absorption technology for accurate in-nitrate analysis. By continuously measuring the UV light absorbed by nitrates, the instrument eliminates the need for reagents, sample conditioning and frequent calibrations. With few moving parts, it is simple to operate and maintain. Just plug it into any Hach digital sensor and it's ready to use to monitor influent, effluent and aeration basin water. **800/227-4224; [www.hach.com/wastewater](http://www.hach.com/wastewater).**



NITRATAX sc UV nitrate analyzer from Hach Company

### PROCESS CONTROL MONITOR

The IQ SensorNet 2020 XT process control monitor from YSI Inc. is designed to continuously measure water quality parameters in wastewater treatment facilities. Highly scalable, the device provides plug-and-play connections with up to 20 sensors at any time. Technicians also get quality network visibility and management, early detection of network failures, improved compliance with regulatory targets, and cost savings (energy, pump/blower maintenance, labor). **800/897-4151; [www.ysi.com/iq](http://www.ysi.com/iq).**



IQ SensorNet 2020 XT process control monitor from YSI Inc.

### DATA MANAGEMENT PLATFORM

The data management platform from FlowWorks lets operators view data from sewer and water meters, rain gauges, groundwater sensors and pump stations alongside their GIS data to create a single view of all information without changing screens, changing terminals, or searching through old files. The platform accepts data from all manufacturers' instruments. It also collects data directly from SCADA, USGS and NOAA environmental stations and GIS platforms. **206/859-6999; [www.flowworks.com](http://www.flowworks.com).**



Data management platform from FlowWorks

### BATCH PROCESS CONTROLLER

The Model 1020-B batch process controller from Scaleton Industries automates batch-out processing, eliminating visual monitoring of dosing and dispensing. For filling or emptying containers placed on the scale, the controller provides accurate readings to five digits and enables integration with other up- or downstream processes. It allows simple operation using a six-button panel with indicator lights. **800/257-5911; [www.scaletonscales.com](http://www.scaletonscales.com).**



Model 1020-B controller from Scaleton Industries

### CHLORINE DIOXIDE SENSOR

CLD500 sensors from Sensorex Corp. use amperometric measurement technology to monitor chlorine dioxide in disinfection. An integral two-wire loop-powered transmitter with 4-20mA output delivers readings to process control systems such as PLC or DCS. **714/895-4344; [www.sensorex.com](http://www.sensorex.com).**



CLD500 sensors from Sensorex Corp.



Gas detector from Sensor Electronics

### SELF-CHECK GAS DETECTOR

The self-check toxic gas detector from Sensor Electronics continually checks its electrochemical cell to give constant protection, flashing an alarm if it fails. It monitors more than 70 toxic gases, including chlorine, ammonia, carbon monoxide and nitric oxide, plus arsine, phosphine, titanium tetrachloride and hydrogen sulfide. Detectors can team with transmitters to show toxic gas levels on digital read-out panels. LEDs glow green/amber/red if gas concentrations increase. **800/285-3651; [www.sensorelectronics.com](http://www.sensorelectronics.com).**

### CHLORINE ANALYZER

The AMI Codes II chlorine analyzer from SWAN Analytical USA continuously measures chlorine levels in wastewater. It uses a long-life LED light source and is designed to minimize electronic drift, reducing calibration frequency. It uses reagent level monitoring, alerting the operator when the reagents are low. A cleaning module is available to reduce manual cleaning of the flow chamber and photometer. **847/229-1290; [www.swan-analytical-usa.com](http://www.swan-analytical-usa.com).**



AMI Codes II chlorine analyzer from SWAN Analytical USA

**wso**  
WATER SYSTEM OPERATOR

## See Both Sides

Now there's a magazine for the drinking water side of the house. *Water System Operator™ (WSO)* — with the same emphasis on the people who make it all work. It's designed to help water operators:

- Share best practices
- Learn new technologies and methods
- Receive recognition
- Advance in the profession
- Celebrate successes

Get your subscription at [wsomag.com](http://wsomag.com) — free to qualified professionals.



## VIBRATION ANALYZER

The RION Vibration Analyzer VA-12 from Scantek monitors vibration levels per ISO 10816-1. It offers real-time frequency analysis up to 20 kHz with 3,200 fast Fourier transform spectral lines, allowing technicians to identify and attribute vibration to bearing wear, rotational unbalance, shaft misalignment or cavitation. Using a trigger function, it can detect and identify resonance frequencies in casing or piping. 410/290-7726; [www.scantekinc.com](http://www.scantekinc.com).



RION Vibration Analyzer VA-12 from Scantek

## CONTROL PANEL

The WS Series control panel from SEewater Inc. is an advanced simplex and duplex system designed for wastewater and sewage pump applications. It comes standard with NEMA 4X enclosure, pump run, pump fault, high liquid alarm and auxiliary contacts for accessing building management systems. Custom options are available upon request. It is ARRA-certified and has a three-year warranty. 888/733-9283; [www.seewaterinc.com](http://www.seewaterinc.com). tpo



WS Series control panel from SEewater Inc.



## PORTABLE ULTRASONIC FLOWMETER

PTFM 1.0 flowmeter from Greyline Instruments

The PTFM 1.0 portable transit time flowmeter from Greyline Instruments is designed to accurately measure clean liquids like water, oils and chemicals. Set-up through the handheld meter is fast with a user-friendly five-key menu system. The clamp-on transducers mount on plastic or metal pipes, and ultrasonic signals are injected through the pipe between the two sensors. It works on full pipes with diameters from 1/2 to 48 inches, and features a large backlit display, totalizer, 4-20mA output and a data logger with USB output. It operates for 24 hours on internal rechargeable batteries, and comes with a rugged, watertight carry case. 888/473-9546; [www.greyline.com](http://www.greyline.com).



It's your magazine.  
Tell your story.

TPO welcomes news about your municipal wastewater operation for future articles.

Send your ideas to  
[editor@tpomag.com](mailto:editor@tpomag.com)

## case studies

## MONITORING AND INSTRUMENTATION

By Scottie Dayton

## SCADA system provides applicable data

### Problem

Workers at Caryville-Jacksboro (Tenn.) Utility Commission spent 48 person hours per day and countless financial resources managing 49 lift stations. Without timely data to detect inflow and infiltration and excess energy consumption, they found it difficult to operate efficiently.

### Solution

**Mission Communications installed a cellular-to-web SCADA system.**

The trending data enabled operators to identify defects throughout the system. Alarms on pumps and electric power connections alerted them to problems before they worsened or damaged equipment.



### RESULT

The system enabled the utility to reduce annual flow by 36 million gallons and energy usage by \$21,540, while saving \$98,000 on operations and maintenance. The data paved the way for Caryville-Jacksboro to receive a U.S. EPA Outstanding Leadership and Successful Organizational Achievements award. 877/993-1911; [www.123mc.com](http://www.123mc.com). tpo

## Expect more!

AllMax provides the best in operations and maintenance software, and so much more!



The best in information management solutions also comes with a world-class customer service and technical staff. It's like having your own personal support team at your command.

How genius is that?

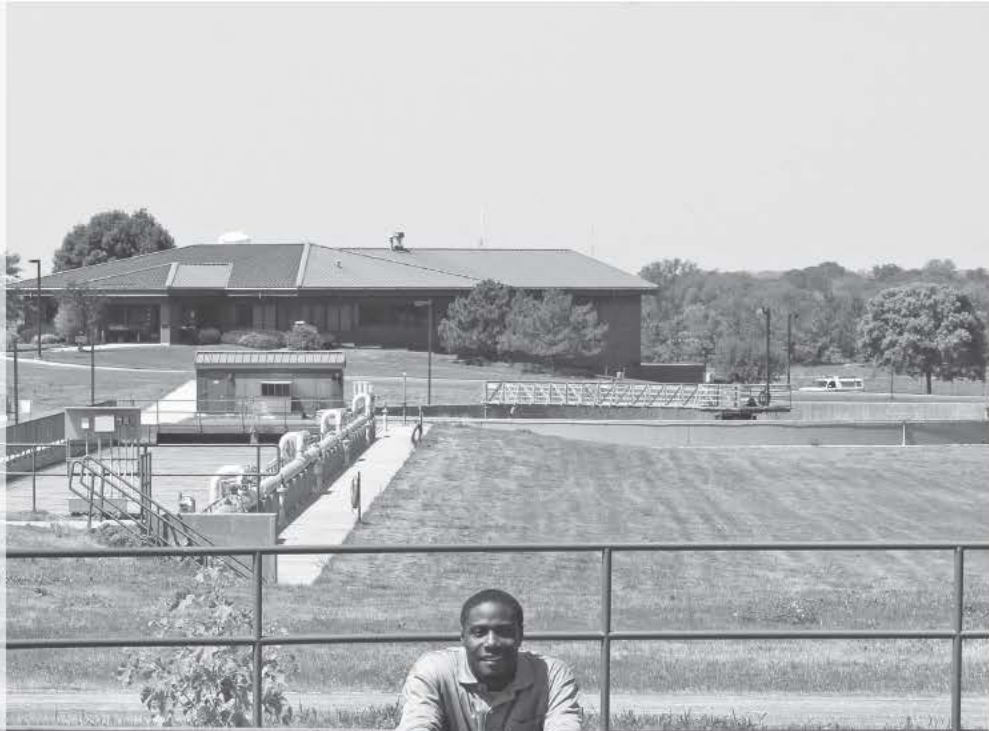


Operator10® • Synexus™ • Antero™  
800-670-1867 [www.allmaxsoftware.com/tpo](http://www.allmaxsoftware.com/tpo)



// The team members  
are the greatest  
resource at this plant.  
They know it.  
They've been here forever.  
They do the work.  
I'm support staff.  
I coordinate what they do,  
and the best way for me  
to do that is to listen to  
what they have to say."

**Nate Tillis**  
Operations and maintenance supervisor  
Beloit (Wis.) Water Pollution Control  
Treatment Facility



# People.

The greatest natural resource.

[tpomag.com](http://tpomag.com)  
SUBSCRIBE FOR FREE



**BUSINESSES**

FOR SALE: Premier Portable Restroom business in Southwestern Colorado/Four Corners region, 25+ years with solid customer base and service reputation. 2012 revenue \$472,000; last four year average \$465,000. Equipment includes: 24' comfort station, 2 NU Concepts, 15 Premier units, 800 units in excellent condition, 13 handicaps, 16 pots on wheels, 13 sinks, 6 service trucks, (2) 34' heavy duty trailers and more. Turn Key \$550,000 cash. Inquire to DHRMS@frontier.net or Bob's Johns, 406 Snowcap Lane, Durango, CO 81303. (P04)

**DEWATERING**

1200 mm NETZSCH FILTER PRESS for sale: Excellent condition, 70 plates, new drip pans, new replacement fabric. \$40,000. For more info contact shawnperry@klinesservices.com, 717-587-1927. (P04)

Seriously!! Are you still trying to dewater using a "box, bed or belt"? I have a better way. Check out ITRDewatering.com then call or better yet, come watch it work!! Also works great on straight grease! 317-539-7304. (P07)

**DRAINFIELD RESTORATION**

Terralift: Huge discounts on Terralift Machines. Call Dick Crane or John Vanzandt at 800-223-2256. (P05)

**EDUCATION**

RoyCEU.com: We provide continuing education courses for water, wastewater and water distribution system operators. Log onto www.royceu.com and see our approved states and courses. Call 386-574-4307 for details. (oBM)

**MISCELLANEOUS**

Send your MLSS wastewater sample for biomass lab analysis and filamentous identification. We solve problems! Nitrification, BOD, TSS, Foaming, FOG. www.EnvironmentalLeverage.com. 630-906-9791, admin@environmentalleverage.com. (o04)

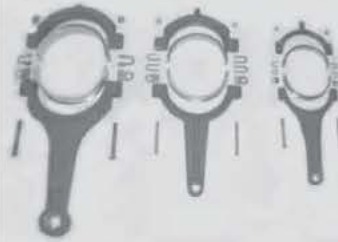
UV DISINFECTION EQUIPMENT: Attention: Small wastewater treatment plant owners and operators. Possible use with Fish Farms. Portable, or very easy installation. Brand new product. US patent pending. callagher@sbcglobal.net, www.thefecalfighter.com. (oBM)




**s:can**  
Intelligent. Optical. Online.

**wastewater monitoring  
for process control**  
888.694.3230 www.s-can.us

**Rebuilds  
Parts**



**Belts**




**Komline-Sanderson**  
1 800 225 5457  
www.komline.com

**Map It!**

TPO classified ads are pinpointed on a map for conveniently locating where the equipment is.  
Go to  
tpomag.com/classifieds/place\_ad

TREATMENT PLANT OPERATOR  
**tpo**  
**Marketplace  
Advertising**

**FlowWorks**  
know your data<sup>®</sup>

A better way to manage monitoring data...

Water • Wastewater  
Rainfall • Climate  
Streamflow • Industrial  
Facilities • Visual

FlowWorks.com



TREATMENT PLANT OPERATOR  
**tpo**  
Complete Edition  
**2012**

**NEW!**

**Get it ALL  
in one convenient  
eBook!**

[www.cole-mart.com/tpo](http://www.cole-mart.com/tpo)

Treatment Plant Operator magazine is written solely for professionals who manage and operate municipal wastewater treatment facilities.




**NAWT**  
National Association of Wastewater Technicians

NAWT Looks Forward  
**Request for Proposals  
for an  
Executive Administrator**

This individual or firm should have the ability to manage the day to day business of NAWT and to take the lead in developing a member benefits program and growing membership.

The RFP can be downloaded from the NAWT website at [www.NAWT.org](http://www.NAWT.org)

Proposals should be submitted to:  
NAWT Executive Administrator Search Comm  
Attn: Jeff Rachlin, V. President  
PO Box 220, Three Lakes, WI 54521

For more info please call (800)236-6298 or email [info@NAWT.org](mailto:info@NAWT.org)



## people/awards

The **City of Lodi** received the California Water Environment Association Northern San Joaquin Section Plant of the Year and Collection System of the Year awards for 2012.

The **Plymouth Wastewater Treatment Facility** received a Laboratory Excellence Award at the 76th annual conference of the Indiana Water Environment Association.

The new \$9.6 million wastewater treatment plant in **Bigfork, Mont.**, won an Engineering Excellence Award from the American Council of Engineering Companies. The facility was designed through a combined effort of the Morrison-Maierle engineering firm and members of the Bigfork Water and Sewer District board.

The **Twin Cities Metropolitan Council's** energy conservation initiative in wastewater treatment and transit operations earned a Continuous Improvement Award from Governor Mark Dayton. The efforts saved wastewater ratepayers and regional and state taxpayers \$7.9 million in 2012.

The **City of Greencastle Wastewater Treatment Plant** received a Plant Safety Award from the Indiana Water Environment Association.

The **Salida (Colo.) Wastewater Treatment Plant** was recognized by the Rocky Mountain Water Environment Association for its safety record.

**HDR** received a Grand Award from the American Council of Engineering Companies Virginia chapter for its work on the Hopewell Regional Wastewater Treatment Facility.

The Florida Department of Environmental Protection Division of Water

Resource Management presented 2012

Plant Operations Excellence Awards to:

- **City of Dunedin Wastewater Treatment Facility**
- **Bonita Springs Utilities East Water Reclamation Facility**
- **City of Key West Richard A. Heyman Environmental Pollution Control Facility**
- **Winter Park Estates Wastewater Treatment Facility**
- **Military Point Advanced Wastewater Treatment Facility**
- **City of Marathon Service Area 5 Wastewater Treatment System**
- **Northlake Estates Recreational Vehicle Park**

TPO welcomes your contribution to this listing. To recognize members of your team, please send notices of new hires, promotions, service milestones, certifications or achievements to editor@tpomag.com.

## education

### SWPA

The Submersible Wastewater Pump Association will hold its semiannual Pumping Systems and Controls Training Seminar in Chicago April 17-18. The program, now in its 12th year, is based on the systems approach to lift station design, operation and maintenance, which optimizes performance by ensuring that components operate efficiently and in concert with each other. Participants will explore more than 20 topics, including a presentation from the Metropolitan Water Reclamation District of Chicago. Visit [www.swpa.org](http://www.swpa.org).

## CALENDAR OF EVENTS

### April 7-9

Water Environment Association of Ontario Technical Symposium, Toronto Congress Centre. Visit [www.weao.org](http://www.weao.org).

### April 7-10

Alabama Water Environment Association Annual Conference, Perdido Beach Resort, Orange Beach. Visit [www.awea-al.com](http://www.awea-al.com).

### April 14-18

Kentucky Water and Wastewater Operators Association Annual Conference, Galt House Hotel & Suites, Louisville. Visit [www.kwwoa.org](http://www.kwwoa.org).

### April 16-17

Georgia Association of Water Professionals Spring Conference and Expo, Macon. Visit [www.gawp.org](http://www.gawp.org).

### April 16-19

California Water Environment Association Annual Conference, Palm Springs Convention Center. Visit [www.cwea.org](http://www.cwea.org).

### April 18-19

Nebraska Water Environment Association Great Plains Spring Conference, Embassy Suites La Vista. Visit [www.ne-wea.org](http://www.ne-wea.org).

### April 20-24

British Columbia Water and Waste Association

Annual Conference and Trade Show, Kelowna. Visit [www.bcwwa.org](http://www.bcwwa.org).

### April 28-May 1

Arkansas Water Works and Water Environment Association Annual Conference, Hot Springs. Visit [www.awwwea.org](http://www.awwwea.org).

### April 28-May 1

Florida Water Resources Conference, Renaissance Hotel at SeaWorld, Orlando. Call 407-363-7751 or email [hollyh@fwrc.org](mailto:hollyh@fwrc.org).

### April 29-May 2

Alaska Water Wastewater Management Association Annual State Conference, Anchorage Hilton Hotel and Conference Center. Visit [www.awwma.org](http://www.awwma.org).

### May 5-8

Water Environment Federation Residuals and Biosolids 2013: Emerging Opportunities for Sustainable Resource Recovery, Nashville Convention Center. Visit [www.wef.org](http://www.wef.org).

### May 14-17

Central States Water Environment Association Annual Conference, Monona Terrace, Monona, Wis. Visit [www.cswea.org](http://www.cswea.org).

### June 3-5

New York Water Environment Association Spring

Technical Conference and Exhibition, Sheraton Syracuse University Hotel & Conference Center, Syracuse. Visit [www.nywea.org](http://www.nywea.org).

### June 9-12

Water Environment Federation/California WEA Collection Systems 2013: Gold Nuggets of Knowledge, Sacramento Convention Center. Visit [www.wef.org](http://www.wef.org).

### June 12

American Public Works Association-Washington State Chapter, Northwest FOG Forum, Greater Tacoma Convention and Trade Center. Visit [www.apwa-wa.org/chapter](http://www.apwa-wa.org/chapter).

### June 18-20

Ohio Water Environment Association Annual Conference, Great Wolf Conference Center, Mason. Visit [www.ohiowea.org](http://www.ohiowea.org).

### June 23-26

Michigan Water Environment Association Annual Conference, Boyne Mountain Resort, Boyne Falls. Visit [www.mi-wea.org](http://www.mi-wea.org).

### July 14-17

Georgia Association of Water Professionals Annual Conference and Expo, Savannah International Trade and Convention Center. Visit [www.gawp.org](http://www.gawp.org).



## Alaska

The Department of Environmental Conservation is offering a Pumps and Pump Systems: Specifications, Installation and Operation Course May 22-23 in Anchorage. Visit [www.awwma.org](http://www.awwma.org).

## Kansas

The Kansas Water Environment Association is offering these courses:

- April 9 – Applied Math for Wastewater Operators, Garden City
  - April 12 – Wastewater Certification Preparation, Hays
  - April 16 – Special Topics: Ultrasound and Ultraviolet, Cheney
  - April 19 – Wastewater Treatment, Scott City
  - April 24-25 – Math for Operators, Pittsburg
  - April 24-25 – Collection Systems, Topeka
  - May 3 – Wastewater Stabilization Lagoons, Dodge City
  - May 7 – Intro to Water and Wastewater Conveyance, Ulysses
  - May 9 – An Examination of Your Ethics, Scott City
  - May 15 – An Examination of Your Safety, Scott City
  - May 21 – Small Wastewater Systems, Liberal
  - May 23 – Special Topics: Ultrasound and Ultraviolet, Dodge City
  - May 23 – Certification for Collections, Distribution and Maintenance, Newton
  - May 30 – Wastewater Stabilization Lagoons, Cheney
  - June 5 – Natural Systems for Wastewater Treatment, Dodge City
  - June 7 – An Examination of Your Ethics, Dodge City
  - June 11 – An Examination of Your Safety, Dodge City
  - June 19 – Small Wastewater Systems, Dodge City
  - June 27 – Special Topics: Corrosion, Dodge City
- Visit [www.kwea.net](http://www.kwea.net).

## Michigan

The Michigan Water Environment Association has a Lab Practice Seminar on May 14 in East Lansing. Visit [www.mi-wea.org](http://www.mi-wea.org).

## Ohio

The Ohio Water Environment Association has a Collections System Workshop on May 9 in Grove City. Visit [www.ohiowea.org](http://www.ohiowea.org).

## Wisconsin

The Wisconsin Department of Natural Resources is offering these courses:

- April 1-5 – General Wastewater Treatment Intro and Advanced, Madison
  - April 8-9 – Activated Sludge Intro, Stevens Point
  - April 10-11 – Activated Sludge Advanced, Stevens Point
  - April 16-18 – Lab Intro, Tomah
  - April 22-23 – Lab Advanced, Appleton
  - April 23-25 – Nutrient Removal Engineering: Phosphorus and Nitrogen in Wastewater Treatment, Madison
  - April 24-25 – Ponds and Lagoons, Intro and Advanced, Appleton
  - April 26 – General Wastewater Treatment Intro and Advanced, Green Bay
  - April 30 – General Wastewater Treatment Intro and Advanced, Madison
  - May 7-9 – Pumps and Motors, Madison
  - May 14-15 – Advanced Asset Management Practices for Water and Wastewater Utilities, Madison
- Visit <http://dnr.wi.gov>.

The University of Wisconsin Department of Engineering-Professional Development has a Nutrient Removal Engineering: Phosphorus and Nitrogen in Wastewater Treatment seminar April 23-25 in Madison. Visit <http://epdweb.engr.wisc.edu>.

The Central States Water Environment Association has an Education Seminar on April 2 in Monona Grove, Wis. Visit [www.cswea.org](http://www.cswea.org). **tpo**



## Every day is Earth Day.™

“We must be one of the earliest plants to employ full-scale UV. We’re proud of the fact that we are not adding chemicals to our discharge. We maximize the biological activity — let the microbes do their thing. Engineers design the best plant they know how to, and contractors build it as well as they can. In the end, though, it’s the operators who make it work.”

**Joni Emrick**  
An Original Environmentalist

WATER RESOURCE MANAGER  
Kalispell (Mont.) Wastewater  
Treatment Plant

Get your **FREE subscription** and read about original environmentalists like Joni each month in *Treatment Plant Operator*.

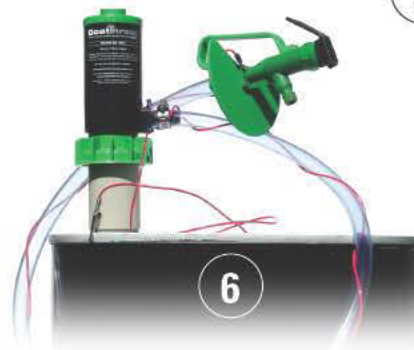
**tpo**

COLE PUBLISHING INC.  
[tpomag.com](http://tpomag.com)  
800-257-7222

Proudly Serving the  
Environmental Service Industry  
Since 1979

FREE subscription to  
Treatment Plant Operator at **tpomag.com**





### 1. ELECTRO STATIC SPLIT UNIVERSAL MOUNTING KIT

The AEGIS SGR bearing protection ring split universal mounting kit (Split uKIT) from Electro Static Technology protects VFD-driven motor bearings from electrical damage and allows quick retrofitting of the ring on most AC motor shafts without decoupling attached equipment. The kit includes split AEGIS ring and mounting hardware (screws, washers, Allen wrenches and four styles of brackets). Brackets can be attached to NEMA or IEC motor faceplates by drilling, tapping or conductive epoxy (available). **866/738-1857; [www.est-aegis.com](http://www.est-aegis.com).**

### 2. GRAPHIC PRODUCTS PIPE MARKING GUIDE

The free DuraLabel wastewater treatment pipe marking guide from Graphic Products provides a standard color coding system to identify pipe contents. **888/326-9244; [www.duralabel.com](http://www.duralabel.com).**

### 3. DURAMAX CAST STAINLESS STEEL CHAINS

DuraMax cast stainless steel chains from Environmental Resources are made from heat-treated and through-hardened cast aerospace grade chromium-nickel alloys to resist wear, corrosion, biological and chemical

breakdown in wastewater equipment applications, including bar screens and grit collectors. **800/691-0998; [www.duramaxchain.com](http://www.duramaxchain.com).**

### 4. VERSA-MATIC PUMP SUPPORT APP

The Versa-Matic mobile application from Warren Rupp supports air-operated double diaphragm (AODD) pumps, enabling users to locate information related to a specific pump. Downloadable at [www.versa-matic.com/mobileapps.asp](http://www.versa-matic.com/mobileapps.asp), the app also provides chemical compatibility information, as well as catalogs, training and service videos. **419/526-7296; [www.warrenrupp.com](http://www.warrenrupp.com).**

### 5. GUARDAIR WORKER CLEANING STATION

The Personnel Cleaning Station vacuum from Guardair Corp. cleans dust, powders and debris off worker clothing, eliminating self-cleaning with compressed air and providing compliance with OSHA directive STD 01-13-001 that prohibits the use of a gun, pipe or cleaning lance for self-cleaning. The unit weighs 13 pounds and includes a 55-gallon container, pre-drilled mounting bracket, 10-foot hose and air-agitator brush. **800/482-7324; [www.guardaircorp.com](http://www.guardaircorp.com).**



## 6. GOATTHROAT REMOTE DISCHARGE TAPS

The RT Series of remote discharge taps from GoatThroat Pumps offers precise control of fluid delivery to point-of-use for low viscosity liquids. The thermoplastic, injection-molded, hand-operated taps deliver drops to gallons of liquids to beakers, weighing scales or day tanks from the original chemical source. **866/639-4628; www.goatthroat.com.**

## 7. SMITH FLOW CONTROL PORTABLE VALVE ACTUATOR

The Easi-Drive portable valve actuator from Smith Flow Control enables one user to operate multiple valves with a single tool while reducing fatigue and injury risk. The tool, which can be powered by air, electricity or battery, is effective on valves that require a high number of turns or are otherwise difficult to operate because of high torque or location. **859/578-2395; www.smithflowcontrol.com.**

## 8. TY-RAP POLYESTER-COATED BALL-LOCK CABLE TIES

Ty-Rap polyester-coated stainless steel ball-lock cable ties from Thomas & Betts Corp. features a low-smoke, halogen-free polyester coating that releases fewer toxins if burned. Additional safety features include rolled edges on the strap that eliminate the risk of damage to cables and injury to installers. Made of marine-grade 316 stainless steel, the ties are corrosion-, impact- and abrasion-resistant with a temperature range of -40 to 302 degrees F. **901/252-5000; www.tnb.com.**

## 9. LARSON EXPLOSION-PROOF LED STRING LIGHT

The explosion-proof LED string light from Larson Electronics features long bulb life, durability and low heat output for confined spaces. The EPL-SL-10-LED light string has 10 10-watt LED bulbs in Class 1 and Class 2, Divisions 1 and 2 hand lamps linked together over 100 feet, offering 50,000 hours of bulb life. **800/369-6671; www.magnalight.com.**

## 10. VIDEX VAULT 20 KEY CONTROL CABINET

The CyberKey Vault 20 FX key control cabinet from Videx features weatherized input modules and embedded Flex System Hub for improved performance. The vault is designed to manage, program and dispense CyberKey smart keys, programming keys with individualized access privileges for each user. **541/738-5500; www.videx.com.**

## 11. PENTAIR TABLET ENCLOSURE AND STAND

The Hoffman tablet enclosure and stand for iPad devices from Pentair Technical Products provides industrial-strength shielding and security for iPad 2 and 3 devices in demanding environments. The tablet accommodates a multitude of application requirements, adjusting to four different heights without the use of tools. The modular stand can be disassembled for portability. Accessories include carrying case, key lock, caster kit and charging cord. **763/421-2240; www.hoffmanonline.com.**

## BIOWATER COLD WEATHER CONTAMINANT CLEANING SYSTEM

The continuous flow intermittent cleaning (CFIC) biofilm process from Biowater Technology removes BOD, TSS and other nutrients down to 39 degrees F. The packed bed process acts as a filter to capture solids for a smaller secondary clarification footprint and enhances filtration and separation technologies for effluent suitable for reuse. **401/305-3622; www.biowatertechnology.com.**

## SCHNEIDER ELECTRIC DRIVE SELECTION APP

The drive selection mobile app from Schneider Electric enables users to find a specific drive without using a catalog or product number. Users also can select complementary accessories and view additional information on product specifications and capabilities. **888/778-2733; www.schneider-electric.us. tpo**

## product spotlight

### Microfiber Pile Cloth Media Removes Solids, Turbidity and Phosphorus

By Ted J. Rulseh

Effective filtration is partly a function of filtering surface area within a given footprint. Toward that end, **Aqua-Aerobic Systems** has developed **OptiFiber PES-14** microfiber pile cloth filtration media engineered to remove suspended solids, turbidity and fine particles. The company says the media provides up to 50 percent greater removal than standard cloth fiber filters or microscreens.

"We consider this media excellent for fine polishing applications," says Ed Lang, filtration product manager. "Its ability to maintain high filtrate quality even during backwashing provides assurance of meeting even the most stringent effluent requirements."

The all-polyester microfiber material has very fine fibers that make it possible to pack more filtration surface area into a given space. "Because it removes more solids, and in particular smaller solids, it's an excellent tool for enhanced phosphorus removal," Lang says. The company states that the media has proven capable of reducing total phosphorus to 0.1 mg/L or less.

The media can be used in treatment plants of any size and type, according to Lang. It is designed for use with the company's AquaDisk, Aqua MiniDisk and AquaDiamond filters, either in retrofits or for new plant construction. Lang notes that the company offers two cloth media styles in addition to the new offering: "We apply them to suit the application." **800/940-5008; www.aqua-aerobic.com.**



OptiFiber PES-14 from Aqua-Aerobic Systems



### Pepperl+Fuchs offers enclosure guide

The *Systems & Solutions Enclosures* pocket guide from Pepperl+Fuchs provides an overview of enclosures for wastewater applications. Each enclosure lists relevant location classifications, including Class 1 Division 1, Class 1 Division 2, Class 1 Division 1 and 2, Class 1 and 2 Division 1 and Ex 2 2GD. Call 330/425-3555 to request a free copy.



### Smith & Loveless president named group vice chairman

Frank J. Rebori, president of Smith & Loveless, was named vice chairman of the Water & Wastewater Equipment Manufacturer's Association. He will chair the association's strategic planning committee and oversee its annual Washington Forum. Rebori has served on the board for three years and was treasurer for the executive committee the past year.

### FDT, KMS honored for environmental best practice

FDT Consulting Engineers & Project Managers of Ireland and Koch Membrane Systems received Green Apple award recognition. FDT won the award and nominated KMS as deserving much of the credit for the achievement. The Green Apple Environmental Awards is an international campaign to find the greenest companies, councils and communities. The award was for FDT's recovery and reuse of water and carbon dioxide from industrial waste streams project, partly funded by the Cleaner Greener Production Programme of the EPA, Ireland's Environmental Protection Agency.

### Flowserve names senior VP, general counsel

Flowserve Corp. named Carey A. O'Connor senior vice president, general counsel and secretary. She succeeds Ron Stuff who is retiring in the first quarter of 2013 after 25 years with the company.

### WILO appoints accounts managers

WILO USA appointed Cliff Alford key off-shore accounts manager and promoted John Seawright to key accounts manager. Suzy Wooten replaces Seawright as western regional sales manager.



Cliff Alford



John Seawright



Suzy Wooten

### Kusters Zima completes implementation of quality management system

Kusters Zima Corp. completed implementation of its ISO 9001:2008 quality management system.

### Yaskawa Europe acquires majority shares of VIPA

Yaskawa Electric Corp. signed an agreement between its European subsidiary, Yaskawa Europe, to acquire the majority share of German-based VIPA, supplier of programmable logic controllers (PLCs), input/output modules and human machine interface (HMI).

### Desalitech establishes US headquarters

Desalitech Ltd., provider of advanced water treatment solutions, established U.S. headquarters in Massachusetts. The company will use the location as a base for expanding operations, including purification, water reuse and wastewater purification.

### Aquatech receives wastewater project award

Aquatech received the H2O Water Award for Best Waste Water Project for its work with EQUATE Petrochemical Co. in Kuwait. Aquatech piloted a project for wastewater recycle/reuse in the oil, gas and petrochemicals industry. The goal of the project is to reduce water consumption and decrease carbon emissions associated with purifying water and reusing treated wastewater for internal use.

### Telvent becomes Schneider Electric

Telvent is now Schneider Electric, concluding a year-long brand integration after the company's acquisition by Schneider in 2011. The combination of Schneider's hardware and infrastructure with Telvent's IT solutions enables the company to be a single-source provider for the water industry.



### Report finds mining byproduct helps clean water

A byproduct from the treatment of acid mine drainage might help clean waters from agricultural and wastewater discharges, according to a study from the U.S. Geological Survey Leetown Science Center. The report shows that dried acid mine drainage sludge or residuals that result from treating acid mine drainage discharges can be used as a low-cost adsorbent to remove phosphorus from agricultural and municipal wastewaters. The phosphorus adsorbed by the mine drainage can be stripped from the residuals and recycled into fertilizer.

### SEewater names Johnson president

SEewater, manufacturer of pump control systems that can differentiate between oil and water, promoted Michael Johnson to president. Johnson has been with the company for six years, holding the positions of vice president of sales and marketing and corporate vice president.

### Huber Technology names director of sales

Huber Technologies named Frank Scriver director of sales. He will be responsible for driving sales for the company's products to municipal and industrial customers in North America. He has been Huber's Northeast Region Sales Manager since 2009.



Frank Scriver

### Headworks names Nair vice president

Headworks promoted Ranjit Nair to vice president of its screens and screenings handling division. He has 10 years experience in the North American environmental industry and has been with Headworks since 2008. tpo



# ROTAMIX®

## PROCESS MIXING SYSTEM

With over 750 worldwide installations Vaughan's Rotamix System is today's most cost effective means of mechanical hydraulic mixing, consisting of an engineered arrangement of floor mounted nozzles fed by a Vaughan Chopper Pump.



### APPLICATIONS:

Anaerobic Digesters  
Sludge Storage  
Sludge Blend  
TWAS  
Biosolids  
Anoxic Zones  
Acid Phase  
Equalization Basins  
Influent Channels  
Pump Stations  
CSO Tunnels  
FOG Reception  
Septage Receiving



- Over 50 years of expertise in every pump
- Reliable chopping action reduces solid size
- Reduced power options available
- Oversized shafting and bearings extend pump life
- Conditioning of solids increases surface contact and enhances volatile solids destruction



Dual-rotational zone mixing

- Offered in single and double nozzle configurations
- Designed for permanent fixed installation (no moving parts in the tank)
- Glass lined nozzle barrels protect against effects of abrasion and corrosion
- Mixing assemblies include a 10 year full warranty



**QUALITY CHOPPER PUMPS SINCE 1960.**

phone: (360) 249-4042 FAX: (360) 249-6155

email: [info@chopperpumps.com](mailto:info@chopperpumps.com) web: [www.chopperpumps.com](http://www.chopperpumps.com)





The team at Antioch's Wastewater Treatment Facility is proud to show off their new high-efficiency system. In 2008, Antioch broke ground on their new wastewater treatment facility, which was officially finished in 2011. "The old plant had just run its course," explained Jason Treat, Lead Supervisor.

Thanks to the new facility, Antioch sees itself in a great place going forward. Their use of the Biological Nutrient Removal treatment process has proved highly effective in many ways, including increased control of phosphorus levels. Jason shared that "chemical usage has been greatly reduced from the old facility. This provides huge savings for the citizens of Antioch!"

USABlueBook is dedicated to helping Jason and his team, whether it's through our extensive product selection or our unbiased technical support. "We got a new temperature gauge from you guys, and it's been great. Now we're only out here measuring the temp. about once a month," said Jason.

**"We got a new temperature gauge from you guys... now we're only measuring temperature once a month."**

USABlueBook is proud to support the entire crew out in Antioch. Their commitment to increased facility efficiency shows a great deal of dedication to the folks in their community.

Jason Treat  
Supervisor  
Antioch WWTP  
Antioch, IL



## Featured Products From **USABlueBook**<sup>®</sup>

**FREE**  
**USABlueBook**  
**Barbed Wire Camo Hat**  
with the purchase of  
these Autodialers.



Call 1-800-548-1234 and  
Mention Code ALF.  
Offer expires 5/31/2013.

May not be used on previous orders or combined with other discounts or promotional offers.

### RACO<sup>®</sup> Verbatim<sup>®</sup> Autodialers



- Expandable and reliable; 5-year warranty
- Fully customizable user-recorded messages
- Heavy-duty surge protection on all power and phone lines

Autodialers continuously monitor preset alarm points. If an alarm condition is sensed, it automatically dials a list of 16 pre-programmed telephone numbers until it gets an answer. Once answered and acknowledged, the system reports the alarm location and status via pre-recorded voice messages.

Custom configurable with these available options: upgradeable up to 32 alarm input channels, up to 16 analog input channels, remote supervisory control (operator can turn equipment on/off via any telephone, 4 or 8 outputs), NEMA 4X washdown enclosure, and local alarm relay output.



Alarm inputs:	4, 8 or 16
Phone numbers, autodialing:	16 programmable, 60 digits each
Speech messages:	digitally recorded by user
Power:	105 to 135 VAC, 50/60 Hz
Battery backup:	20 hours continuous
Dimensions:	9 <sup>3</sup> / <sub>4</sub> "W x 11 <sup>7</sup> / <sub>8</sub> "H x 4"D

DESCRIPTION	ALARM INPUTS	STOCK #	EACH
Verbatim Autodialer	4	54090	\$ 2,095.00
Verbatim Autodialer	8	54091	2,350.00
Verbatim Autodialer	16	54092	3,250.00

**See page 340 in Master Catalog 124 for more information.**



**USABlueBook**  
**Get the Best Treatment<sup>™</sup>**  
**800-548-1234**  
**www.usabluebook.com**