TREATMENT PLANT OPERATOR
tpo™
DEDICATED TO MUNICIPAL WASTEWATER PROFESSIONALS
www.tpomag.com
SEPTEMBER 2013

Greening the Plant: Innovative nutrient removal

PAGE 28

All In for the Hometown

John McCool
Plant Superintendent
Warren, Ill.

JOHN McCOOL OPERATES HIS PLANT WITH CARE FOR THE TROUT DOWNSTREAM AND RESIDENTS' POCKETBOOKS

PAGE 30

In My Words: Behaving like a business

PAGE 26

The Fire Chief Project: Watershed Warriors

PAGE 9

MYTH BUSTING

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**

weftec 2013
Booth 1425

HACH®
Be Right™

M301EM

FLYGT

a xylem brand

IN THE TRADITION OF GROUNDBREAKING INNOVATIONS COMES... FLYGT EXPERIOR™

Welcome to a new era in wastewater pumping. Where engineering excellence and a pioneering spirit combine with an unmatched understanding of your needs. The result is Flygt Experior, a uniquely holistic experience that combines state-of-the-art hydraulics, motors, and controls.

Today, Flygt Experior combines N-technology hydraulics and its adaptive functionality, premium efficiency motors and SmartRun – the all-new intelligent control. Flygt Experior comes from years of listening to you and applying our knowledge and expertise, to develop the most reliable and energy-efficient wastewater pumping. It is therefore the ultimate in our commitment to you.

Flygt Experior™
Inspired by you. Engineered by us.

For more information visit booth 1443 and 3940 at WEFTEC '13 in Chicago - Oct. 7-9.

flygt.com/flygtexperior

xylem
Let's Solve Water

advertiser index

SEPTEMBER 2013

Aeration Industries International 16

Aerzen USA 19

Alfa Laval Ashbrook Simon-Hartley 39

All-Star Products 64

AllMax Software, Inc. 15

Analytical Technology, Inc. 23

Andritz Separation, Inc. 51

Aqua Ben Corporation 4

BASF Corporation – Water Solutions Division 68

BDP Industries, Inc. 29

Blue-White Industries 4

Carylon Corporation 47

Chemineer 41

Chromalox 49

ClearSpan Fabric Structures 63

Dragon Products, Ltd. 65

EleMech, Inc. - PortALogic Water & Waste Stations 45

Environmental Dynamics International 61

Fibergrate Composite Structures Inc. 64

Flo Trend Systems, Inc. 59

Flygt – a Xylem Brand 3

Fournier Industries, Inc. 27

Hach Company 2

HF scientific 43

Huber Technology, Inc. 7

JDV Equipment Corporation 63

Keller America Inc. 17

Kepware Technologies 9

Komline-Sanderson 53

KSB, Inc. 25

Kuhn North America, Inc. 64

Milwaukee Rubber Products, Inc. 64

Mission Communications 11

Myron L Company 41

Nasco 64

Neptune Chemical Pump Company 61

NETZSCH Pumps North America, LLC 49

Ovivo USA, LLC 67

Penn Valley Pump Co., Inc. 33

Prime Solution, Inc. 59

Pulsar Process Measurement Inc. 51

Roto-Mix, LLC 61

seepex, Inc. 43

Thern, Inc. 45

TrojanUV 5

Unison Solutions, Inc. 63

Vaughan Company, Inc. 66

Walker Process Equipment 59

CLASSIFIEDS 61

Get Social with tpo

www.facebook.com/TPOmag

www.twitter.com/TPOmag

www.plus.google.com

www.youtube.com/TPOmagazine

LARGE-SCALE DISINFECTION

Here's the **TrojanUVSigna™**. It's ideal for those municipalities wanting to upgrade their wastewater disinfection system or convert from chlorine. The system provides high UV output, high electrical efficiency and the lowest lamp count (thanks to TrojanUV Solo Lamp™ Technology). It's also easy to operate and maintain. Quartz sleeves are automatically cleaned with ActiClean™. Lamp replacements are simple. And if you need to lift a bank from the channel, just activate the Automatic Raising Mechanism.

Learn more at trojanuv.com/signa.

TROJANUV™

WEFTEC 2013, Booth 1420

contents

September 2013

features

12 TOP PERFORMER – OPERATOR: LEAVING THINGS BETTER
Operator of the Year Dawn McCoy and her team keep the process humming at a Mississippi plant with a unique biological treatment system.
By Trude Witham

18 HEARTS AND MINDS: MAKING IT PERSONAL
A science center with interactive exhibits, combined with plant tours led by operators, form a solid education program for a Washington clean-water agency.
By Pete Litterski

20 TOP PERFORMER – PLANT: TREATMENT IN DEPTH
A deep-shaft activated sludge system helps the Homer treatment plant produce consistently good effluent despite Alaska's chilly climate.
By Jim Force

26 IN MY WORDS: BEHAVING LIKE A BUSINESS
Victor Valley Wastewater Reclamation Authority aims for energy self-sufficiency as part of a commitment to optimize use of resources on behalf of its customers
By Ted J. Rulseh

28 GREENING THE PLANT: GOING GREEN WITH ALGAE
University of Kansas researchers team up with the Lawrence treatment plant to test a new way to remove nitrogen and phosphorus.
By Doug Day

30 TOP PERFORMER – OPERATOR: ALL IN FOR THE HOMETOWN
John McCool runs the Warren (Ill.) Wastewater Treatment Plant with an eye toward protecting the trout waters downstream, and the pocketbooks of local residents.
By Ted J. Rulseh

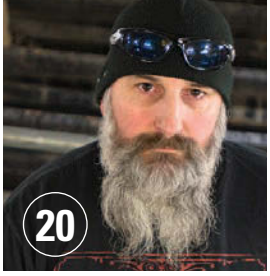
34 WEFTEC PRODUCT PREVIEW: NEW TECHNOLOGY SLATED FOR WEFTEC 2013
By Craig Mandli

52 PLANTSCAPES: STEWARDSHIP CERTIFIED
A North Carolina treatment plant gains certification under a program that brings industry and wildlife together.
By Jeff Smith

COMING NEXT MONTH: OCTOBER 2013

Focus: Tanks, Structures and Components/WEFTEC Show Issue

- Let's Be Clear: Clean water as a bridge from imprisonment
- Top Performer – Plant: Pursuing net zero energy in Clifton Force, Va.
- Top Performer – Operator: Rich Hunt, Woodard & Curran
- Top Performer – Biosolids: Co-digestion in Sacramento, Calif.
- How We Do It: DO control in Cantonment, Fla.
- Greening the Plant: Nitrogen reduction in New York City
- Hearts and Minds: Educational video in Portland, Maine
- PlantScapes: Stream bank restoration in Springfield, Mo.
- In My Words: Newspaper platform in Lockport, N.Y.



departments

8 LET'S BE CLEAR: THESE ARE EXCITING TIMES
Technology is advancing. Expectations are rising. That's a challenge and opportunity. Has there ever been a better time to be in the clean-water profession?
By Ted J. Rulseh, Editor

9 FIRE CHIEF PROJECT: WATERSHED WARRIORS LOOK UPSTREAM
By Ted J. Rulseh

10 LETTERS

10 EDITOR'S CHOICE: FIND OTHER USEFUL AND TIMELY INFORMATION ON THE *TPO* WEBSITE

54 PRODUCT FOCUS: DIGITAL TECHNOLOGY
By Craig Mandli

58 CASE STUDIES: DIGITAL TECHNOLOGY
By Craig Mandli

60 INDUSTRY NEWS

62 WORTH NOTING
People/Awards; Education; Calendar of Events

on the cover

John McCool, plant superintendent, does what it takes to run the Warren (Ill.) Wastewater Treatment Plant with care for the environment and with sensitivity to the community's many lower-income residents. He does it all, and that includes measuring the sludge blanket in a secondary clarifier. (Photography by Mark Hirsch)

PUT THE SUN TO WORK

SRT Solar Active Dryer

- Linear feed **continuous** drying process
- **Combined** sludge turning and transport
- True backmixing for **optimized** drying
- **Odorless** due to uniform turning
- **Full** automation capable

weftec 2015
Booth 3667

See the **SRT** runnning at
huberforum.net/SRT

solutions@hhusa.net · 704.990.2055

SOLUTIONS FOR:

SCREENING

GRIT

SLUDGE

HUBER
TECHNOLOGY
WASTE WATER Solutions

These Are Exciting Times

TECHNOLOGY IS ADVANCING. EXPECTATIONS ARE RISING. THAT'S A CHALLENGE AND OPPORTUNITY. HAS THERE EVER BEEN A BETTER TIME TO BE IN THE CLEAN-WATER PROFESSION?

By Ted J. Rulseh, Editor

Sure, fiscal times are tight. Sure, there's a wave of retirements coming and a shortage of new operators in the pipeline. Sure, clean-water agencies are being asked to do more in a time when resources are increasingly scarce.

Despite all that, can you think of a better time to be in the clean-water profession? That's a good attitude with which to approach the WEFTEC conference in Chicago, Oct. 5-9, or your next state or regional WEA or operator association conference.

WHAT'S SO EXCITING?

Why, from the comfort of my editor's chair, far removed from your daily issues, do I think these times are so great? In two words: technology and expectations. Let's take them one at a time.

Hardly a week goes by when I don't receive news of some new product or some experimental method that could change treatment for the better. In this issue alone, we have two such stories: the University of Kansas and the City of Lawrence collaborating to test algae for removal of nitrogen and phosphorus from effluent, and the Victor Valley (Calif.) Wastewater Reclamation Authority undertaking a co-digestion project with the ultimate aim of becoming a net producer — not consumer — of energy.

There's a big difference between being seen as a person in dirty jeans in a plant on a dead-end road and being seen as a protector of resources and watersheds.

Those aside, there are all sorts of new high-efficiency blowers that cut energy costs for aeration. New membrane filter processes. A process that turns otherwise troublesome struvite into a marketable fertilizer. Solar biosolids dryers. And "better mousetraps" in just about every class of equipment you care to name. You can count on seeing many intriguing new technologies at WEFTEC. It's exciting to contemplate putting these new tools to work for the benefit of plant teams, customers and the environment.

EXPECTING MORE

And that brings us to the second word: expectations. You can look at that word as something onerous ("Now they expect us to do what?") or as something elevating.

The time is passing when wastewater treatment plants and wastewater operators were thought of simply as occupying the end of a big, dirty pipe, in glamorless, thankless roles. Industry groups are leading a charge to create a much more positive — and truer — image of the profession and its role in protecting our waterways.

Specifically, the Water Environment Federation, the Water Environment Research Foundation, and the National Association of Clean Water Agencies are asking the profession and the public to think of the industry in a whole new light, with expanding roles and spheres of influence.

Their report issued early this year, *The Water Resources Utility of the Future: A Blueprint for Action,* states, "Instead of solely collecting and transporting wastewaters as far downstream as possible to central treatment plants where wastes are cleansed to meet permit limits prior to discharge to waterways, the Utility of the Future transforms itself into a manager of valuable resources, a partner in local economic development, and a member of the watershed community seeking to deliver maximum environmental benefits at the least cost to society."

Doesn't that accurately reflect much of what the profession already does? And doesn't it include a role and a stature people in the industry should aspire to? There's a big difference between being seen as a person in dirty jeans in a plant on a dead-end road and being seen as a protector of resources and watersheds.

EMBRACING THE ROLE

Our own Fire Chief Project (see www.tpomag.com) has a somewhat similar mission — it aims to help elevate the profession such that clean-water operators enjoy the same community stature as the fire chief, and that boys and girls grow up wanting to be clean-water operators.

So, expectations are rising, and with them opportunity. It's time to say goodbye to the low profile. The attitude that "I do my job, I do it well, that's enough," may have been fine, but no longer.

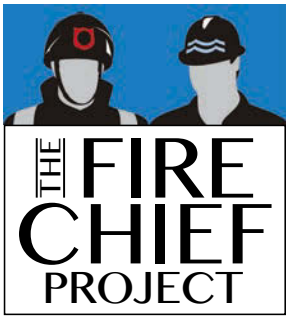
The profession has an essential role to play in society — as important as any other in the public sphere. It's time to embrace the expectations, and embrace the technologies that will help drive the industry forward in the years ahead. **tpo**

IDEA OF THE MONTH:

Watershed Warriors Look Upstream

By Ted J. Rulseh

As nutrient restrictions get stricter, notably for phosphorus, clean-water agencies are looking upstream. Adaptive management regimes in states like Wisconsin allow agencies to control phosphorus not just at the treatment plant but through better management of runoff into waterways.



In this respect, clean-water agencies become like local fire inspectors, visiting properties and looking for preventive measures. Just as it's better to prevent a fire than to have to put it out, it's better to prevent pollution than to remove it at the treatment plant.

At NEW Water in Green Bay, Wis., Brian Vander Loop, field services manager, is preparing his team for an evolving role. He and the agency's seven field service technicians (Duane Fish, Dan Renier, Matt Schmidt, Kevin Schuettpelz, Chris Thompson, Kim Williams, and Bob Zepnick) have taken on the internal title of "Watershed Warriors."

Today, they handle a wide range of duties that include sewer system flow monitoring, I&I prevention, odor control, regular manhole and pipe inspection and cleaning, and facility locates for contractors, all to protect system integrity and function for customers.

"The watershed approach is a broader way of thinking," Vander Loop says. "Our watershed is significantly larger than our sewer service area. I can see in the future that our duties could be expanded. Everybody will have to take on a little more to cover that watershed. We welcome those new challenges."

Bill Oldenburg, pretreatment coordinator, and William Lobner, pretreatment intern, already play a kind of "fire inspector" role with local businesses. They monitor 57 significant industrial dischargers according to U.S. EPA guidelines. They also work less formally with a number of proactive companies that want to help NEW Water and the local waterways by limiting their discharges.

"We do a lot of chemical and product approvals," Oldenburg says. "If someone wants to use a chemical in a process that ultimately will be discharged in some amount to the sewer system, we determine whether it's compatible with our treatment processes. We also offer opinions on how industrial facilities could use their pretreatment infrastructure more efficiently and effectively."

Vander Loop says the "Watershed Warriors" handle is a way to help keep the work atmosphere "light and fun" for the team. It's also a way to further the two key aims of the Fire Chief Project:

- **Raise clean-water operators to the status of the fire chief**
- **Make kids grow up wanting to be clean-water operators**

For more on The Fire Chief Project, visit the blog at www.tpomag.com.

Send ideas for The Fire Chief Project to editor@tpomag.com

TREATMENT PLANT OPERATOR

tpo

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

Kepware® TECHNOLOGIES

Developing Advanced Communications for Automation

Established in 1995, Kepware Technologies has been developing, testing, and delivering advanced communications and interoperability software solutions for the Automation industry for nearly 20 years. Our single server communications platform provides historical and real-time reliable data for improved productivity and decision-making throughout all levels of your organization.

- Over 150 servers offering 250 unique protocols
- OPC Certified Compliance
- Tailored, industry-specific server suites
- 3 software upgrades every year
- Free, fully-functional 2-hour demos available online

Kepware is proud to provide you with the highest quality, most robust, and easiest-to-use communications solution in the industry, backed by excellent support.

Contact us today to learn how our flexible and scalable solutions can help you connect, manage, monitor, and control your disparate automation devices and software applications.

207.775.1660 www.kepware.com

letters

Perspective on Fracking Wastewater

I wanted to respond to your request for thoughts on the issue of fracking wastewater and wastewater treatment plants [Let's Be Clear, "Figuring Fracking," *TPO,* July 2013].

Our plant was approached some time back to accept fracking wastewater. We ultimately turned it away, and the last I heard the material was going into a deep injection well in Ohio. I can tell you that besides very high TDS from a variety of sources and a relatively high COD, I was shocked to see very significant amounts of radium 226 and 228, uranium and strontium, and extremely high readings of gross alpha and beta radiation.

We are a secondary treatment plant with conventional mechanical aeration. I would not want to see this material in any plant with the capability to aerosolize those materials, making them available in the plant area to be inhaled or ingested. This would have been, in my opinion, an extremely hazardous situation, for workers and visitors alike.

Anyway, the radiological components are something that do not get much press, but I believe there are good reasons to be very concerned about them as far as safety and health are concerned, apart from any treatment concerns that fracking wastewater would pose to a conventional treatment plant.

Sincerely,

Michael Gille
Laboratory Director
Atlantic County Utilities Authority
Egg Harbor Township, N.J.

tpo TREATMENT PLANT OPERATOR

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 / Email: 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 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 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. 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.

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.

REPRINTS AND BACK ISSUES: Visit 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. To order back issues, call Nicole at 800-257-7222 (715-546-3346) or email nicolel@colepublishing.com.

CIRCULATION: 76,492 copies per month.

© 2013 COLE PUBLISHING INC.
No part may be reproduced without permission of publisher.

editor's choice

Find other useful and timely information on the *TPO* website

TPO aims to bring you stories that help you and your plant perform better. Now we do more of the same at www.tpomag.com. There you'll find stories that appear only online — and that are current, because they're not subject to the lead times involved in the print magazine. Here are a few online exclusives recommended by the *TPO* editorial team:

SAVING ENERGY AND REDUCING COSTS AT WASTEWATER TREATMENT PLANTS

As energy costs continue to rise, many water and wastewater treatment plants are taking significant steps to reduce energy use. The North Conway (N.H.) Water Precinct treatment plant is one example. The plant undertook a number of energy-saving measures in the equipment operation and invested in renewable energy. "The single highest cost of treatment plant operation is electricity," says David Bernier, superintendent. "Eight years ago it was 35 percent of our operating budget; today, it is less than 18 percent."

SCADA TROUBLESHOOTING TIPS HELP SYSTEMS RUN SMOOTHLY

Wastewater operators rely on SCADA systems to monitor and track nearly every aspect of operations. SCADA systems have grown from simple on-off functions to highly sophisticated tools. "The SCADA system is critical because it provides a window into the operation of the system," explains Dave Lee of Siemens Water Technologies, a SCADA systems provider. "More important, the SCADA system serves as an emergency warning system if something fails." He offers useful tips for SCADA troubleshooting.

CLEAN-WATER OPERATORS "FIGHT FIRES" TOO!

When the fire department does its job, trucks roar down the streets, sirens blazing. People from miles around may see the smoke. The TV and newspaper photographers arrive. The radio station may report right from the scene. Hours later, or certainly the next day, everyone in town knows what happened. The firefighters look like heroes. But how about when clean-water operators do the extraordinary to keep local waterways clean? Events in Chesterton, Ind., show what can happen when operators do their job well — and tell about it, too.

THE FIRE CHIEF PROJECT: PARTNERING WITH GREEN

Greening Nipissing and the City of North Bay partnered on a guided public tour of the city's clean-water plant. Plant staff members guided adults and children and described the processes from wastewater pumping through chlorination, dechlorination and discharge to Lake Nipissing. Odd as it may seem to those in the clean-water profession, there are people who think of treatment plants as sources, rather than preventers, of pollution. Teaming with a green-based non-profit is a way to help dispel that notion and further the aims of The Fire Chief Project:

- Raise clean-water operators to the status of the fire chief.
- Make kids grow up wanting to be clean-water operators.

Check out all these stories at www.tpomag.com/ec/2013/September

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

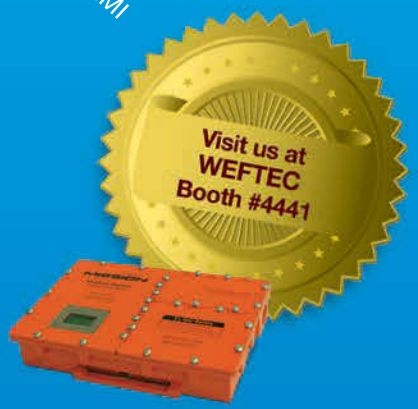
Mission SCADA systems are designed to get you up and running in hours, not days. Our packages start at around $1,000 with a maintenance fee of less than $1 a day. Mission strives for ease in doing business. Give us a try – no bureaucratic red tape, no huge commitment. If you like it, buy it. If not,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



(877) 993-1911

MISSION COMMUNICATIONS

www.123mc.com/tpo

Advanced Monitoring • Low Cost • Managed SCADA

LEAVING THINGS BETTER

OPERATOR OF THE YEAR DAWN McCOY AND HER TEAM KEEP THE PROCESS HUMMING AT A MISSISSIPPI PLANT WITH A UNIQUE BIOLOGICAL TREATMENT SYSTEM

By Trude Witham

DAWN McCOY LIKES TO LEAVE THINGS BETTER THAN WHEN SHE found them. That attitude has served her well during her 18-year career in the water professions.

Her hard work has led to a series of promotions, from laboratory technician/operator to field operations manager, area manager and finally project manager at the McComb (Miss.) Regional Wastewater Treatment Facility.

Today, as a Class IV senior wastewater operator, she manages four team members and is responsible for operations, maintenance, accounting and paperwork at the plant, operated by Severn Trent Services through a public-private partnership with the city.

She has spent her entire career with Severn Trent, moving to McComb six months before startup in 2010. The $34 million facility uses a vertical loop reactor (VLR) and interchange biological reactor (IBR) process, first of its kind in Mississippi and one of only a dozen in the country. The 15 mgd (design) plant replaced a lagoon treatment system that was decommissioned but now functions as a flow equalization basin and regional pumping station. The transition from old to new posed challenges for McCoy and her staff.

Dawn McCoy, Severn Trent project manager, City of McComb Regional Wastewater Treatment Facility. (Photography by Philip Hall)

"We had a lot of work to do, learning how to operate all the new equipment, writing standard operating procedures and cataloging everything," says McCoy. "It seemed like a whole lot to do at the time, but you just work out what you can until it's time to go home, and come back the next day and do it again."

For her efforts, McCoy received the 2011 Don Scott Award as Outstanding Wastewater Operator of the Year from the Mississippi Water and Pollution Control Operators Association (MWPCOA).

DOING IT ALL

McCoy has always been interested in science and biology. In 1994, she applied for a job as a laboratory technician with Severn Trent in Clinton, Miss. While there, she earned her Class II wastewater and Class D drinking water licenses, enabling her to serve as backup operator for the town's water and wastewater facilities.

"The town had small package plants, and I did a little bit of everything, including water and wastewater laboratory sample collection and analysis, administrative duties, meter reading and hydrant flushing," McCoy recalls.

From there, she went to Jackson, Miss., working in the laboratory, serving as backup operator for a satellite plant, and performing maintenance and administrative tasks. In 2002, she was promoted to field operations manager: "The operator I filled in for had passed away, and they asked me to fill that position. I was responsible for operating, maintaining and managing the Ceres Industrial Complex, Gulf States Canners and Culkin Water District wastewater systems."

While in Jackson, she honed her wastewater operations skills while learning about records maintenance, regulatory reports, assigning and scheduling staff, and developing and managing a project budget. She also earned her Class IV senior wastewater operator license. She credits her mentors with much of her success: "My first boss, David Canizaro, taught me how the wastewater process works. Kelvin Peters in the technical services group at Severn Trent taught me all my lab chemistry. I still call him with questions."

MEETING CHALLENGES

It was the McComb job that really allowed McCoy to flourish. "Severn

McCoy looks over the screw pumps at the headworks (Lakeside Equipment).

"I like my staff to know why they are doing what they're doing, since that makes the job more interesting for them."

DAWN McCOY

profile

Dawn McCoy, McComb (Miss.) Regional Wastewater Treatment Facility

POSITION:	**Project manager**
EXPERIENCE:	**18 years**
CERTIFICATIONS:	**Class IV senior wastewater operator, Class D water operator**
MEMBERSHIPS:	**Mississippi Water Pollution Control Operators Association, Water Environment Federation, Mississippi Rural Water Association**
GOALS:	**See the plant become a regional facility; offer assistance to other plants**

Dawn McCoy enjoys the daily challenge of monitoring and controlling the treatment process and making it work as efficiently as possible.

Trent was brought in during equipment installation at the new plant, and they needed a Class IV operator who could also manage the facility," McCoy says. "I met with equipment vendors who taught us how the equipment worked and the preventive maintenance that was needed."

Besides McCoy, two other Severn Trent employees relocated to the new plant, and the company hired two additional operators who had worked at the old plant. McCoy commuted 75 miles each way to her new job for 18 months before moving to a nearby town. She and the other operators had a hand in the design process: "The engineer, contractor and operators met every week during the final construction and equipment installation stage. We were able to provide input on some new lab equipment that we preferred and that was needed for compliance."

The new plant's VLR activated sludge process provides a high degree of total nitrogen and total phosphorus removal, and the IBR process (Cannibal system from Siemens Water Technologies) significantly reduces waste activated sludge. "There are two unique things about this plant," says McCoy. "It operates as a BNR, or biological nutrient removal process, which historically has a higher waste sludge need. But, because of the Cannibal process, it allows the plant to act as a BNR while reducing waste sludge."

Starting up the new plant proved challenging. "No one had any experience with the technologies, and there was no history on the plant," says McCoy. "We had to figure out what numbers were normal and set the parameters. There was a lot of trial and error. Fortunately, the design engineers came out and helped us.

"We had to seed the new plant with biomass from a sludge lagoon that Severn Trent operates in Clinton. We used 30,000 gallons of sludge, with the idea of speeding up the startup of the aeration basin biomass. The BOD and TSS were in compliance in a couple of months, but the ammonia nitrogen took a few weeks longer. The day after we placed the fourth aeration tank online, the ammonia nitrogen started dropping and went from an incoming level of

WASTING LESS

The McComb Regional Wastewater Treatment Facility became the first in the state to install advanced technology that meets stringent nutrient removal requirements while reducing solids handling costs. The system uses a vertical loop reactor and a sidestream interchange biological reactor (VLR/IBR) activated sludge process that virtually eliminates waste sludge.

"The sludge we waste is a fraction of the amount wasted in a conventional activated sludge process," says Dawn McCoy, project manager with Severn Trent Services. The Mississippi Municipal League recognized the McComb plant as the state's best regional wastewater treatment plant, presenting the city with the Municipal Excellence Award in 2010. The American Council of Engineering Companies of Mississippi presented the plant's design engineer, Neel-Schaffer, with a 2011 Engineering Excellence Grand Award.

The VLR system (Siemens Water Technologies) is designed with looped reactors in series, allowing dissolved oxygen stratification and therefore simultaneous nitrification/denitrification, biological phosphorus removal and stormwater treatment. The company describes VLR tanks as "similar to oxidation ditches that have been flipped on their sides."

The system consists of an upper and lower compartment, separated by a horizontal baffle running the length of the tank. It uses surface-mounted discs to provide mixing and deliver oxygen. Two or more basins typically comprise the VLR system; the first tank operates as an aerated anoxic reactor. The mixed liquor from the VLR system is sent to a clarification tank, where it separates into clear water and settled biological sludge. The clear water is pushed to the top and over the side into another basin, where UV disinfection occurs. Oxygen is added to the clear water, and the remaining sludge is left to settle at the bottom of the clarification tank.

After it is raked off the bottom, the sludge is recycled to the aeration basin, while the excess is sent to the IBR process (Cannibal solids reduction system from Siemens Water Technologies). In the Cannibal system bioreactor, mixed liquor bacteria are transformed from an aerobic-dominant to a facultative-dominant population by limiting the amount of oxygen in the tank.

In this environment, the facultative bacteria break down and metabolize the remaining aerobes and their byproducts. The facultative bacteria are broken down after they are returned to the aeration system. The alternating environments of the oxygen-rich aerobic treatment process and the oxygen-deficient bioreactor greatly reduce the biological solids. With this technology, solids wasting is virtually eliminated, effluent quality is increased (better BOD/TSS removal) and nitrification/denitrification is improved.

"I am excited about coming to work every day because I feel that I am leaving things better than they were when I found them. We are cleaning up the wastewater and returning clean water to the streams."

DAWN McCOY

12 to 14 mg/L to 0.1 mg/L in the effluent." In spite of the technology learning curve, the plant achieved compliance seven months ahead of schedule.

BETTER PLANT

The new technology has increased plant efficiency over the old aerated lagoon and sand filter system. A water information management system (WIMS) helps determine the proper control parameters. Operators input laboratory data into the WIMS, which generates monthly operation reports and NPDES monitoring reports. The staff monitors dissolved oxygen, pH, temperature and oxygen reduction potential (ORP) readings at various points in the VLR and enters the data into the WIMS. Team members also measure daily influent and effluent dissolved oxygen, pH and temperature.

"The old lagoon plant couldn't meet the increasingly stringent total nitrogen and total phosphorus limits," says McCoy. "The new plant is meeting these limits and has also increased the BOD/TSS removal from 85 percent to 97 or 98 percent. Our greatest challenge is inflow and infiltration. Sometimes it rains for four to eight days in a row, which means our flow can be as high as 25 mgd, instead of the typical 2.5 to 3.0 mgd."

When this happens, the plant enters a "storm mode," taking steps to divert flow. "We divert the influent to the third reactor cell, protecting the aerobic process in aeration basins 1 and 2," says McCoy. "We programmed the computer to automatically divert this flow. We can also divert water to the lagoons, but only for so long."

PEOPLE WHO CARE

Four staff members assist McCoy: Shannon Moore, assistant manager (Class IV senior wastewater operator, 15 years with Severn Trent); Eric Jones, operator II (Class II, four years); James Anderson, maintenance supervisor (18 years); and Samuel Reese, maintenance technician (three years).

"Shannon and James came with me to the McComb plant from the Jackson plant," says McCoy. "Shannon performs operations and assists in the lab. Eric is our dedicated lab person and assists with operations."

The staff meets weekly or as needed to discuss plant operations, and McCoy holds a safety meeting once a month. "I like my staff to know why they are doing what they're doing, since that makes the job more interesting for them," says McCoy. "With some people, you can't make them care, but I try to surround myself with people who do."

McCoy describes her team as dedicated and responsible: "They care about the plant like I do, and they don't mind if it's 5 p.m. — they will stick around and help get the job done. They're proud of the plant." Eager to learn, they have taken the Sacramento online courses. Severn Trent offers a certification incentive program that monetarily rewards employees who earn their licenses. "I try to encourage that," says McCoy.

McCoy is active in professional organizations, such as MWPCOA, where she shares ideas with other operators and takes classes: "These classes help a lot, and I am always learning something. They have lunches every other month with guest speakers." She also takes classes through the Mississippi Water Environment Association (MWEA), and is a member of the Water Environment Federation and the Mississippi Rural Water Association.

NEVER BORING

"I am excited about coming to work every day because I feel that I am leaving things better than they were when I found them," McCoy says. "We are cleaning up the wastewater and returning clean water to the streams.

The Right Choice...
Operations and Maintenance Software

Operator10® *Water*

Operator10® *Wastewater*

Synexus™ *Pretreatment*

Antero™ *Maintenance*

We specialize in O&M data mangement software. We give you more by providing world-class technical support that is fast and friendly.

AllMax Software

See us at
WEFTEC in Chicago
Booth 2218

800-670-1867 www.allmaxsoftware.com/tpo

Team members at the McComb facility include, from left, Dawn McCoy, Severn Trent project manager; Shannon Moore, assistant manager; Samuel Reese, maintenance technician I; and Eric Jones, operator II. They are shown beside the plant's vertical loop reactor (Siemens Water Technologies). Not pictured is James Anderson, maintenance technician III.

We're also helping to protect the environment for future generations. People have said I'm a tree hugger, because I take bugs outside and set them free. We had bees nests at the plant, and I called a beekeeper up to come and get them."

McCoy likes the challenge of process control and the constant monitoring and adjusting of various parameters to make the process work more efficiently. "It is exciting to have such a wide variety of controls to work with, and it never gets boring," she says. "There is always a little blip or a problem to solve. Every improvement and discovery makes the job more rewarding, and there is always something new to learn."

McComb Regional Wastewater Treatment Facility
PERMIT AND PERFORMANCE

	PERMIT (Monthly Avg.)	EFFLUENT (Monthly Avg.)
BOD	7.3 mg/L	3.4 mg/L
TSS	30 mg/L	7.2 mg/L
Fecal coliform	200/100 ml	35/100 ml
Ammonia nitrogen	1.46 mg/L	0.1 mg/L
Dissolved oxygen	6.0 mg/L minimum	8.5 mg/L
pH	6-9	Compliant

She would like to see the plant develop into a true regional facility: Despite its name, it now serves only McComb and its 20,000 people. "As nutrient removal requirements grow tighter, I think this plant can be an asset to the smaller surrounding communities," says McCoy. "They can send their wastewater here, rather than build more sophisticated plants to meet their permit requirements."

McCoy also wants to reach out to the larger community: "I'd like to travel to other plants and help operators with their challenges and share what I've learned with them."

Her advice for other plant managers reflects the kind of manager she strives to be: "Always be honest, work hard and ask questions. And try to learn something new every day." **tpo**

more info:

Lakeside Equipment Corporation
630/837-5640
www.lakeside-equipment.com

Severn Trent Services
866/646-9201
www.severntrentservices.com

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

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.

weftec 2013
Booth 402

KELLERAMERICA

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

Making It Personal

A SCIENCE CENTER WITH INTERACTIVE EXHIBITS, COMBINED WITH PLANT TOURS LED BY OPERATORS, FORM A SOLID EDUCATION PROGRAM FOR A WASHINGTON CLEAN-WATER AGENCY

By Pete Litterski

"[Plant tours don't] disrupt us at all. The operators usually enjoy showing people what we do. They take a lot of pride in the role they play in the community."

MARK PETRIE

George Peterson, an operator at LOTT Clean Water Alliance's Budd Inlet Treatment Plant, leads a tour group of middle school students.

In 2010, when the LOTT Clean Water Alliance opened its Regional Services Center, the headquarters included space for the WET Science Center, a hands-on educational facility that gives visitors a close look at the water cycle and an in-depth view of wastewater treatment.

LOTT, a regional wastewater utility serving the Washington cities of Lacy, Olympia and Tumwater and surrounding areas in Thurston County, opened the WET (Water Education and Technology) Science Center in the lobby of the headquarters near downtown Olympia.

The interactive displays in the gallery are open to the public from 10 a.m. to 4 p.m. Monday through Saturday. Amber Smith, environmental educator, says that although school programs are a major source of visitors, the center attracts many adults and families. Seventy-five to 100 people pass through the exhibits most Saturdays.

WELL ATTENDED

Smith, who joined LOTT in 2012, says the center had more than 17,000 visitors that year, including 3,000 students in school tours. Most visits involve families, youth and scouting groups, and individual students from all levels, including local and more regional colleges from the Seattle/Tacoma region to the north all the way to Oregon to the south.

Many school visits are part of the center's involvement in the middle school science curricula of all three public school districts in its service area. "We see an entire grade level from each of the three districts during the full school year," Smith says. "We pay for their bus transportation, and we even pay for any substitute teachers that might be needed so they can bring the students here for the program."

Since each school system — Olympia, Tumwater and North Thurston — brings a different grade level, the center adjusts its program to the ages of the students. It takes the full school year for the science classes to visit the center one class at a time. Each school year, the classes involve almost 2,000 students. The WET Science school programs include an instructional session in the center's classroom, a visit to the interactive gallery, and a tour led by one of the operators at the Budd Inlet Treatment Plant across the street from the service center.

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 or call 877/953-3301.

Lisa Dennis-Perez, public communications manager, says the center's annual budget is about $130,000. Some funding for the middle school science program comes through a small trust set up when Michael Sharar, former executive director, died. The interest helps with the bus expenses and other parts of that program.

OPERATORS LEAD

Although the interactive displays have proven popular with all ages, Smith says older students and adults remain very interested in the treatment plant tours, where they see how the utility treats wastewater for discharge to Puget Sound or pumping across the street to the reclaimed water facility, which further filters the water to meet state Class A Reclaimed Water standards. (LOTT's 20-year-plan includes three satellite reclaimed-water facilities.)

Although the WET Science Center uses a wide array of interactive displays to engage visitors, the program also relies heavily on human interaction. Smith, who oversees visits, turns groups over to an operator for a treatment plant tour.

Operations supervisor Mark Petrie says his staff welcomes the opportunity to interact with students and the public: "[Plant tours don't] disrupt us at all. The operators usually enjoy showing people what we do. They take a lot of pride in the role they play in the community." Petrie sends new operators to attend classes Smith teaches, "So we're all on the same page when it comes to public education."

Plant operator George Peterson says the classes and the plant tours are a good combination: Students get a good grounding in the treatment process at the center and then can see the process in action. Peterson, who has led many tours over the past three decades, says his one regret is that he doesn't get to spend as much time with students.

Tours that once took up to an hour and a half are now allotted 30 minutes after students come from the classroom. "They get a really good introduction to wastewater treatment in the WET Center, but a lot of our interaction with the kids is gone," Peterson says.

He still enjoys the tours and looks forward to leading other groups around the plant. "I've given tours for everyone from third graders to dignitaries, politicos, college students and more," he says. Engineering students from as near as Olympia and as far as China have visited in the recent past. When a group like that arrives, Peterson asks them how long they can stay and then adjusts the tour to their needs.

Students get a good grounding in the treatment process at the center and then can see the process in action.

VARIED ACTIVITIES

Besides the WET displays and the tours, Smith organizes environmental classes and activities in the center's classroom, on the grounds of the LOTT facilities, or afield. Programs in 2012 covered everything from soil science and amphibians to "Creatures of the Deep" and the relationship between energy conservation and water.

In the exhibit gallery itself, a popular stop is a wastewater production calculator where the visitors answer questions about their daily activities and then push a button that illuminates a number of gallon jugs on the wall, illustrating the amount of wastewater they create. On a touch screen map, visitors can find their address and touch that spot to see an illuminated trail of how their wastewater reaches the Bud Inlet plant.

Visitors also spend a lot of time studying the "Bugs in Balance" display, an interactive video of cartoon microorganisms describing their roles in wastewater treatment. A "Floaters & Sinkers" station is a mechanical activity that illustrates primary treatment. **tpo**

Treatment in Depth

Operating team members in Homer split their time between the Deep Shaft Treatment Facility and the Bridge Creek Water Treatment Facility. They include, from left, Dave Welty, operator; Paul McBride and Bob Kosiorek, building maintenance; Joe Young, operator III; Jerry Lawver, lead operator; and Todd Cook, wastewater superintendent. (Photography by M. Scott Moon)

A DEEP-SHAFT ACTIVATED SLUDGE SYSTEM HELPS THE HOMER TREATMENT PLANT PRODUCE CONSISTENTLY GOOD EFFLUENT DESPITE ALASKA'S CHILLY CLIMATE

By Jim Force

THE MOUNTAINS, FORESTS AND CLEAR WATERS OF Kachemak Bay make Homer a favorite spot for Alaska's summer tourists. Year-round residents enjoy those features, too, along with a municipal water and wastewater infrastructure that protects the natural resources, while delivering reliable and efficient service.

The Homer Wastewater Treatment Plant is a case in point. Situated near the shore of the bay, the plant uses an innovative deep-shaft aeration system that provides effective biological treatment in this cold climate and lowers the plant's profile so it doesn't interfere with the town's travel-brochure views.

The deep shafts are the central part of a treatment train that treats a daily average flow of 0.3 to 0.5 million gallons and returns clean water through a 2,100-foot outfall to the bay. "We have some of the most picturesque views you can get," says Todd Cook, wastewater superintendent for his hometown. "Visually, it's an awesome place." Another reason deep-shaft technology was the choice for Homer is that U.S. EPA innovative technology funding was available for it.

A STEP UP

That was in 1991, when the Homer plant was upgraded from an old sewage lagoon system that Cook says wasn't cutting it anymore. "The quality of the effluent coming out of the ponds was not what the regulators wanted," he says. "We could only get so much treatment out of the lagoons. Besides the beaches and fishing, there are also shellfish here. We needed to increase treatment and get better-quality effluent."

In the upgraded treatment scheme, wastewater enters the plant through an influent pump station powered by four Flygt pumps, two in operation at any one time, controlled by an automatic level control sensor (Siemens). Two pumps are rated at 700-800 gpm and the other two at 1,000 gpm.

An old bar screen (John Meunier) removes rags, and a conical T-Cup Eutek centrifuge (Hydro International) takes care of grit, which is deposited in one of the old treatment ponds. Sharps and plastics pass through a grinder. Then the flow heads down the hatch.

Homer has a twin deep-shaft system — a splitter box directs flow to one or both shafts depending on volume. Each shaft extends 500 feet below the surface. The raw wastewater and return activated sludge (RAS) enter the system through an 18-inch inner pipe, passing to the bottom where the flow injected with 40 cfm of air at 80 psi from a 60 hp rotary screw compressor (Rogers Machinery). In a 5-foot-deep space at the bottom of the shaft, the flow transfers to the outer pipe and returns to the surface. The main pipe casing is 30 inches in diameter on each shaft.

The mean cell residence time at normal flow rates is about two days, Cook says. "Things run so steadily,

profile City of Homer (Alaska) Wastewater Treatment Plant

BUILT:	1990
POPULATION SERVED:	6,500
FLOWS:	0.3 mgd average, 0.5 mgd summer, 1.5 mgd maximum
TREATMENT PROCESS:	Deep-shaft aeration
TREATMENT LEVEL:	Secondary
RECEIVING WATER:	Kachemak Bay
BIOSOLIDS:	Aerobic digestion, drying beds, cake to landfill
ANNUAL BUDGET:	$1 million
WEBSITE:	www.cityofhomer-ak.gov
GPS COORDINATES:	Latitude 59°38'31.74" N; Longitude 151°31'57.01" W

Operator Dave Welty rinses UV lamps used in the Homer Deep Shaft Treatment Facility's disinfection system (Ozonia North America).

"The quality of the effluent coming out of the ponds was not what the regulators wanted. Besides the beaches and fishing, there are also shellfish here. We needed to increase treatment and get better-quality effluent."
TODD COOK

City of Homer (Alaska) Wastewater Treatment Plant
PERMIT AND PERFORMANCE

	INFLUENT (Avg.)	EFFLUENT (Avg.)	PERMIT
BOD	293 mg/L	13 mg/L	Monthly 30 mg/L Weekly 45 mg/L Daily Max 60 mg/L 85% minimum removal monthly
TSS	306 mg/L	13 mg/L	Monthly 30 mg/L Weekly 45 mg/L Daily Max 60 mg/L 85% minimum removal monthly
Nitrogen	N/A	15-30 mg/L	Report in mg/L

it's almost boring," he says. "But sometimes boring is nice. Typically, plants use deep-shaft technology because they need a smaller footprint. The systems were first used in Europe, but when funding became available, we went for it."

Homer's northern location was an important factor in the decision. "I've worked in other activated sludge plants up here," says Cook. "The weather wreaked havoc. By having the shaft in the ground, the temperature stays stable, and that helps the biology." Keeping the plant running along with Cook are Jerry Lawver, lead operator; Joe Young and Dave Welty, operators; and Paul McBride and Bob Kosiorek, maintenance technicians.

Maintenance is minimal: "We really don't have to clean the shafts as long as nobody drops anything in them. There are a few items down there, but nothing worth going after," Cook says. The crew takes the head tank down periodically to remove rags and some grit and clean off the concrete to prevent deterioration from hydrogen sulfide.

After treatment, a pair of rectangular flotation clarifiers separate mixed liquor from the treated effluent. Between the shafts and the clarifier, the Homer team adds cationic polymer (Hydrofloc 1665 by Russell Technologies) to promote solids coagulation. "Because of all the air entrained in the mixed liquor, our solids float, rather than settle," says Lawver.

Both clarifiers discharge to a common effluent channel, which directs the water to a UV disinfection system (Ozonia North America) consisting of two banks, each with 12 racks of four bulbs (SunRay or UV Doctor). After disinfection, the flow passes to Kachemak Bay. "The Bay has good tidal action, from negative 3 feet to plus 16 feet, so we get good mixing and flushing," says Cook.

The system produces about 10,000 gallons a day of waste activated sludge (WAS), which is transported by Moyno pumps to two 50,000-gallon aerobic digesters. Cook and his staff run the digesters in series; WAS enters the first digester and decants to the second digester, which in turn decants to one of the former treatment ponds.

"We operate our digester at 8,000 to 15,000 ppm TSS," says Lawver, noting that the organic loading on the plant is much higher in the summer. "We

(continued)

Dissolved Ammonia Monitor

Proven Measurement Approach

The Q46N uses reative chemistry that converts ammonia in solutions to a stable monochloramine compound equivalent in concentraion to the original ammonia level. The measurent is then made with a proven amperometric sensor.

FEATURES

- New Approach to On-Line Ammonia Measurement
- Total Ammonia Measurement
- Optional Free and Monochloramine Measurement

Toroidal Conductivity

Non-Contacting Conductivity Sytem

The Q46CT Monitor employs an inductive (toroidal) sensor that allows measurement in difficult samples with virtually no maintenance. The toroidal sensor is a molded assembly made from Noryl, an engineering thermoplastic with excellent resistance to both strong acids and strong bases.

FEATURES

- Good Performance in Dirty Applications
- Multiple Monitoring Configurations
- Easy Calibration

Dissolved H_2S Monitor

Keep Chemical Costs Under Control

The Q46S/66 Monitor take a unique approach to the measurement, employing a unique gas phase method to continuously monitor sulfite values without contact between the sensor and the water sample.

FEATURES

- Gas Phase Sensing - No Contact Between Sensor & Sample
- Internal Sequencing & Relay for Auto Sample Line Cleaning
- Low Maintenance & Low Reagent Useage

Total Chlorine Measurement

Amperometric Measurement

The Q46H/79 provides highly accurate measurement of total residual chlorine down into the parts oer billion range. Total Chlorine is measured using EPA recommended method for reaction of the sample with buffer and KI.

FEATURES

- Direct Reading Membraned Amperometric Idodine Sensor
- High Accuracy and Sensitivity Down to PPB
- 2-Assignable 4-20 mA Outputs for Chlorine, Temp or PID

Toxic & Combustible Transmitter

Internal Data Logger

Model D12 Gas Transmitters provide the ultimate in application flexibility. Loop-powered or 3-wire models with on-board relays are available, as are both combustible gas and universal toxic gas versions. Digital communication using Hart™ or Modbus™ protocols are available.

FEATURES

- Interchangable "Smart Sensors"
- Internal Data-Logger
- Optional Sensor Daily Auto-Testing

Portable Gas Leak Detector

Interchangable "Smart Sensors"

PortaSens II C16 Detector provide a flexible tool for locating the source of toxic gas leaks from storage cylinders, process machinery, gas generation equiptment or piping systems. Smart interchangable sensors allow one instrument to be used for a variety of gas detection requirements. Data-logger come standard.

FEATURES

- Interchangable "Smart Sensors" for Over 30 Gases
- Internal Sample Pump and External Sampling Wand
- One-hand Pistol Grip Design

Q-Blast

Automatic Sensor Cleaner

Introducing Q-Blast!

ATI's New Q46D Dissolved Oxygen System with Q-Blast Sensor Cleaner provides reliable D.O. measurement using either optical or membrane sensors. The Q-Blast D.O. System is ideal for aeration control system, resulting in improved process performance and energy savings. Installation is simple and maintenance is lower than any competitive system.

*This system also works with our NEW Q46P/R monitor with reliable pH / ORP measurement.

Visit us at WEFTEC 2013 booth #2267

800-959-0299

www.analyticaltechnology.com

ATi Analytical Technology

DEEP SHAFTING

Even though deep-shaft aeration systems (also known as vertical bioreactors, or VBRs) were introduced in the mid-1970s and are common in other parts of the world, the City of Homer was the first treatment plant to install one in North America. Since then, says Todd Cook, plant superintendent, a second deep-shaft system has started up in the city of Dawson in the Yukon.

The systems are well suited to small footprints and to cold temperatures. At Homer, the system is positioned in a moderate-sized building that also contains the headworks, digesters, and UV disinfection system. A typical deep-shaft unit can be several hundred feet deep, consisting of a riser pipe and down-comer.

As wastewater and return activated sludge (RAS) fill the shaft, compressed air is forced into the solution at the base of the shaft, providing a highly efficient source of oxygen for the activated sludge biota. The rising oxygen and injected RAS assure adequate mixing. At the surface, the treated liquid is decanted and separated from solids. Though relatively high in construction costs, deep-shaft treatment is highly efficient with superior oxygen transfer rates and an absence of sludge bulking.

see a reduction of 2,000 to 4,000 parts in TSS from digester to digester."

From the pond, solids are pumped to drying beds, which are covered against wet weather. According to Lawver, the biosolids dry to about 35 to 40 percent solids, resulting in 400 to 500 cubic yards of cake per year, hauled to a landfill and used as landfill cover.

Cook and his staff also operate the Homer water treatment facility, so they split duty between the two plants. "Generally, we have an operator and a mechanic at both plants most of the day," says Cook. "If we have a big project at either plant, then it's all hands on deck. We flip flop just to keep things fresh."

The crews work overlapping schedules, half Monday through Thursday and the other half Tuesday through Friday. To fill in for the operator who is off-duty, Lawver covers one of the plants on Mondays, as does Cook on Fridays. "It gets our hands back into the operation," Cook says. "This paperwork stuff is for the birds." A SCADA system (S&B Controls with Siemens controllers) provides automatic control and monitors the operation.

TACKLING CHALLENGES

While it's generally "steady as she goes" at Homer, Cook and his staff have faced their share of challenges. One issue involved the recycle of return activated sludge. "The original design used head pressure to get solids to recycle off the bottom of the clarifier," says Lawver. "But we were getting more liquids than solids and that was throwing off our polymer injection rates, because those are based on flow. Our sludge was not coagulating as well as it should have, and our fecals were going up."

Now, "Homer homemade" airlift pumps have been installed in the clarifiers to pull RAS off the bottom, says Cook. While that has solved the polymer feed issues, it also added to maintenance because the pumps get jammed with rags from time to time.

Another issue has been algae growth in the decant ponds after the aerobic digesters, but a new solar-powered floating mixer (SolarBee) may have taken care of the problem. "We used to get long, stringy green algae," says Lawver. "It didn't inhibit the treatment process, but once it started, we couldn't get rid of it."

Homer was using UV inhibitor chemicals to counter the algae but since has switched to the surface mixer. The mixing impeller is 30 inches in diameter and shears the water molecules, throwing them back across the surface of the water. One impeller covers the 1.4-acre pond, keeping dissolved oxygen up to the desired level of 1.0 mg/L. Solar powered, the unit offsets about 30 hp that normally would be required for mixing.

Todd Cook, wastewater superintendent.

Due to infiltration and inflow, the Homer plant tends to get high flows in springtime. "The seasonal change makes things a bit challenging for us," says Lawver. The spring breakup of ice and snow from connected roof drains and basement sump pumps add to the volume of water. "We chlorinate with 12 percent sodium hypochlorite as a backup during these high flows, and dechlorinate with sodium bisulfate," Lawver says.

Other staff-driven changes are adding to treatment efficiency. Homer will replace its old bar screen with a rotary drum screen later this year, and that will help greatly with rag removal.

Improvements have been made to the polymer system, as well. "We replaced our polymer system with a new dry feed system from Fluid Dynamics," Lawver says. "We're happy with it. We couldn't get parts anymore for the old system."

ENERGY SAVINGS

Energy conservation is also paying dividends. According to the U.S. Energy Information Administration, Alaska has the fifth highest electricity rates in the country — 14 to 16 cents per KWh — so conservation can save significant money. "We've replaced all our ballasts and installed motion-sensored lighting throughout the plant," Cook says. The team has also installed new transformers in the UV system, and has replaced mercury vapor lighting with LED lights.

Lead operator Jerry Lawver prepares to conduct a BOD test.

"I've worked in other activated sludge plants up here. The weather wreaked havoc. By having the shaft in the ground, the temperature stays stable, and that helps the biology."

TODD COOK

Finally, the plant's deep-shaft system requires just one of the pair of compressors to provide the air needed for biological treatment.

The energy program has won a state award. The product of a citywide energy audit and upgrade plan developed by Siemens and Sylvania, with local electrical contractors, Homer's conservation measures were funded by a state grant and received recognition in the Great Alaska Energy Challenge in 2011. Other awards for the plant include:

- 1993 Outstanding Plant of the Year, Alaska Water Wastewater Management Association, Southeast Region
- 1993 Large System Plant of the Year, AWWMA statewide
- 2011 Wastewater Treatment Plant of the Year, Alaska Rural Water Association

Cook has used the honors to boost the image of his plant and operators in the community: "It gave us some bragging rights. We received a proclamation from the city council, and our staff received awards. We've been on the local radio station."

The recognition has made the energy conservation measures known and has also boosted public confidence in the plant while giving its operators due credit, Cook believes. That's especially important in Homer where the wastewater treatment facilities themselves are nearly out of sight. tpo

more info:

Fluid Dynamics Inc.
888/363-7886
www.dynablend.com

Flygt - a Xylem Brand
704/409-9700
www.flygtus.com
(See ad page 3)

Hydro International
866/615-8130
www.hydro-int.com

John Meunier, Inc.
88/638-6437
www.johnmeunier.com

Moyno, Inc.
877/486-6966
www.moyno.com

Ozonia North America, LLC
201/676-2525
www.ozonia.com

Rogers Machinery Company, Inc.
503/639-0808
www.rogers-machinery.com

Russell Technologies
800/844-9314
www.russell-technologies.com

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

SolarBee, Inc.
866/437-8076
www.solarbee.com

The cycle of solutions - Water technology by KSB

Water is crucial for our survival. Clean water supplies and efficient sewage treatment have never been more important. KSB's know-how and extensive product range help you meet all water supply and treatment requirements, efficiently and effectively. We offer end-to-end solutions addressing all stages of the water cycle from water extraction to sewage treatment. For more information visit us at WEFTEC Booth #2679.

www.ksbusa.com

› Our technology. Your success.
Pumps • Valves • Service

KSB

Behaving Like a Business

VICTOR VALLEY WASTEWATER RECLAMATION AUTHORITY AIMS FOR ENERGY SELF-SUFFICIENCY AS PART OF A COMMITMENT TO OPTIMIZE USE OF RESOURCES ON BEHALF OF ITS CUSTOMERS

By Ted J. Rulseh

Logan Olds

Arun Sharma

There are a number of possible reasons to put digester gas to work — to further sustainability goals, to reduce harmful greenhouse gas emissions, to conserve energy and save money.

The Victor Valley Wastewater Reclamation Authority in Victorville, Calif., goes a step deeper. To general manager Logan Olds and his team, it's about getting the most from the resources customers have paid for with their rate dollars.

To that end, the authority has entered a public-private partnership with resource recovery company Anaergia on a project to become energy independent by producing and using more biogas, ultimately saving an estimated $9 million over a 20-year term.

The initiative involves retrofitting old digesters, allowing co-digestion of food waste, fats, oils, grease and other organic materials with biosolids. That will yield enough biogas to fuel generators that can fulfill all power needs at the 18 mgd (design) activated sludge tertiary wastewater treatment plant.

Construction is to be complete by February, according to Olds, who heads an independent entity governed equally by leaders from member agencies that include the communities of Apple Valley, Hesperia, Victorville, Oro Grande and Spring Valley Lake.

Financing is structured so that the authority incurs no up-front cost. The project also may enable the authority to open new revenue streams by charging companies to drop off waste and by selling excess energy to the utility grid. Olds and Arun Sharma, Anaergia president, talked about the project in an interview with *Treatment Plant Operator*.

> "We may be a public agency, but we need to think just like we're a business. The bottom line is how do we provide the best value to our customers?"
> **LOGAN OLDS**

tpo: What is the Victor Valley Authority doing with biogas now?

Olds: We use about 70 percent of the biogas we produce to fuel three Waukesha 450 hp engines driving Turblex blowers, producing 9,200 scfm airflow to provide oxygen for our aeration basins. We capture the engines' waste heat to keep our digesters heated. The issue we have is that we're still flaring gas, and that's money.

tpo: What was the origin of the goal to make the plant energy self-sufficient?

Olds: In 2008 we completed an expansion to 18 mgd and built two new million-gallon anaerobic digesters that replaced three 300,000-gallon units. The initial plan was to decommission the old digesters, but I considered that a pretty significant waste of resources, given that they are paid for and still work fine. Our project with Anaergia initially will repurpose one of the old digesters for our food-waste-to-energy program. We could potentially use the other two for that as well.

tpo: Does your agency have any previous experience with co-digestion?

Olds: We did a full-scale test of food waste digestion with Waste Management. We didn't want to have to reach out and manage dozens of waste haulers and whatever waste they might bring. In a public-private partnership, you want to use each party's strengths to mutual benefit. Waste Management had access to every doorstep and every business for collecting material, while we had the ability to process it and produce energy from it.

The project ended a couple of years ago, and it was a great learning experience. We found where the issues were with our system and how we could improve the efficiency of it. What we wanted was a slurry that we could inject into our digestion process without having to process it. Anaergia will bring that in as part of our contract with them.

tpo: How will you change the plant's cogeneration system to handle the additional gas production?

Olds: We will decommission our existing biogas engines so that all the biogas we produce will be burned in two 800 kW engine-generators [Caterpillar], which will provide electricity for a high-speed turbo blower [Piller TSC Blower Corp.].

tpo: As a matter of philosophy, why are you doing all this?

Olds: I am relatively obsessive about performance efficiency. I hate to see waste, and when I saw that methane flare going, I knew we could do a better job with the gas. We may be a public agency, but we need to think just like we're a business. The bottom line is how do we provide the best value to our customers?

We do that by being proactive rather than reactive and by identifying what resources we can use to reduce costs and improve efficiency. Every time we have to build something or meet a new regulation, we don't want to hold our hand out to our ratepayers and say, "Now we've got to do this." What we should do is operate as efficiently as possible, so that when we do ask to increase rates, we can fully justify it.

tpo: Will this project have benefits beyond increased energy production?

Olds: Yes. Now that we do nitrification-denitrification for nutrient removal, we need to be smarter about how we apply oxygen to our process. By having high-speed turbo blowers with variable-frequency drives, our staff can dial in a specific point to meet our oxygen requirements at any given time — there's no waste.

tpo: What is the nature of material that will be co-digested? Where will it come from? How will it be collected, processed and fed to the digesters?

Sharma: There are two basic classes of material. One is relatively clean, like fats, oils and grease, which do not need much processing before they are put into the digester. The other is source-separated food waste, such as from grocery stores and restaurants. These would require a certain amount of processing because they contain grit and a certain amount of plastics. We have technology called the Anaergia Dynamic Cyclone that extracts those items from the material.

tpo: What sort of volumes are you expecting for the co-digested materials?

Sharma: The volume depends on the type of material available. For example, FOG is very high-strength material and will produce a lot more energy than food waste, which is rich in carbohydrates.

tpo: What is the timetable for getting this system up and running?

Sharma: There are two separate projects. The power generation project is separate from the biogas enhancement project. Right now, they are proceeding concurrently, and both should be up and running no later than the end of 2014.

tpo: At what point do you expect to achieve energy self-sufficiency or become a net energy producer?

Olds: The first goal is to meet all our on-site energy needs, and the second is to export energy. We have a ready customer, because the Victorville Municipal Utility Services [VMUS] power plant is directly next door to our facility.

We're now doing a survey with a third-party firm to determine how much FOG is being generated in our community, so we can see if that is enough to inject into our system and get the additional energy we need. Right now, we need about 20 to 30 percent more biogas to fulfill all our energy needs — that is to produce about 1.4 to 1.5 MW. It's my hope that by as early as June 2014, we could be energy-neutral. I expect us to be in a position to export power to VMUS within six to eight months after we complete our project with Anaergia. Part of the plan is to leave a slot for a third engine-generator.

TEAM EFFORT

The cogeneration and co-digestion projects at Victor Valley Wastewater Reclamation Authority have involved a number of key players within the agency, according to Logan Olds, general manager. "Much of the credit goes to our staff members, who believed in this and wanted to make it happen," says Olds. "It's about having a team of people who are proactive, think outside the box and want to find solutions that make our facility and the community better. From top to bottom, everyone here is interested in this project and wants to see it come to fruition."

The key team members in addition to Olds and their roles are: Kevin Schmidt, construction and energy efficiency manager: reviewed project specifications and engineering. James Bryant, operations supervisor: reviewed operational digester data to quantify methane gas production. Dean Johnson, maintenance supervisor: evaluated generator mechanical systems and technology. Mauricio Marin, senior electrician: evaluated electrical systems, switchgear and electrical specifications. Gilbert Perez, director of operations: assisted in review of project specifications, evaluated proposed technology and operational data, and assisted the operations and maintenance staff in negotiating the electricity rate structure.

tpo: How does your facility manage biosolids from the digestion process?

Olds: We produce a Class A exceptional quality product that is used in cement kilns and on land application sites. Because we get so much sunlight here, the material is completely air-dried. We put it in drying beds that cover many acres and get our solids content up to more than 80 percent. We do not rely on mechanical dewatering.

tpo: How did Victor Valley Authority and Anaergia form this partnership?

Olds: On projects like this, you're dealing with a commodity, and the margins are extremely important. We were fortunate to obtain a free energy audit through a U.S. EPA Region 9 program in which University of San Diego engineering students did the evaluation.

The other critical element was to write a request for proposal [RFP] that would get us exactly what we needed for our facility. A specific requirement we put in the RFP was that the partner we selected must be able to self-fund the project. They could not submit a proposal that would require us to sell bonds at municipal bond rates, as that would undermine the economics of the project. Anaergia met that requirement.

tpo: How would you quantify the economic benefits of this initiative?

Olds: It gives us a reliable long-term energy cost, rather than wondering what Southern California Edison is going to charge us year to year. We're now paying 11.7 cents per kWh for electricity. We calculated that after all our generating costs are included, we will save $50,000 to $150,000 in the first year.

We have a fixed-price contract with Anaergia, so that every year Edison increases its rates, we will experience additional savings. Over the 20-year term of the contract, we expect to save about $9 million, not counting savings on natural gas. That translates to cost savings to our member agencies and customers.

As public agencies, we're all cash-strapped, yet we continue to face new regulatory requirements that come with additional costs. We need to be smarter about how we leverage the resources we have. **tpo**

Going Green with Algae

UNIVERSITY OF KANSAS RESEARCHERS TEAM UP WITH THE LAWRENCE TREATMENT PLANT TO TEST A NEW WAY TO REMOVE NITROGEN AND PHOSPHORUS

By Doug Day

Secondary effluent in four 2,600-gallon tanks is treated with algae to remove nitrogen and phosphorous.

Research at the wastewater treatment plant in Lawrence, Kan., is demonstrating that algae can remove nitrogen and phosphorus from wastewater. Now in its fifth year, the pilot project is helping researchers learn more about how algae removes nutrients and how it can be used to create biofuel and other beneficial products.

"I think the verdict is still out on the best way to remove nitrogen and phosphorous that's going to use the least energy," says researcher Belinda Sturm, assistant professor of environmental engineering at the University of Kansas. Her work in Lawrence earned an Excellence in Environmental Engineering Honor Award in 2012 from the American Academy of Environmental Engineers.

"This is adding another option to the suite of tools we have," Sturm adds. Her work at turning wastewater into a resource is part of a larger "Feedstock to Tailpipe" program at the university, which is researching alternative and renewable fuels and technologies.

"We achieve the phosphorous goal. The nitrogen removal is pretty close, even in this system that is not optimized. I was pleasantly surprised at the efficiency of phosphorous removal across the system."

BELINDA STURM

TESTING THE HYPOTHESIS

After positive results in preliminary laboratory studies on algae for phosphorus removal, the university approached Lawrence in 2009 to see about testing the idea. "Looking at the chemistry in which algae grow, the wastewater effluent matches up pretty well," Sturm says. Because the Lawrence plant performs nitrification but not denitrification, the effluent has traces of nitrate and phosphate. "Our hypothesis was that we could grow algae in the effluent and remove nutrients," says Sturm.

While bacteria are preferred for removing BOD, treatment plants are under increasing pressure to remove nitrogen and phosphorous. "That's what is unique about this project," says Sturm. "We're saying we can grow algae in our effluent as a polishing step so it doesn't interrupt BOD removal, then separate the algae so we're not discharging it."

The 12 mgd (average) Lawrence plant serves 90,000 people. Sturm's project is testing a concept, so it does not use commercial-grade equipment. The four algae tanks are 2,600-gallon fiberglass cattle tanks that take effluent from the secondary clarifier and operate from April to October. "We're not trying to get the very best productivity with reactor design," Sturm stresses. "We're testing some of the scientific principles and nutrient removal across the system by playing with some variables."

HITTING THE TARGETS

One variable tested was adding carbon dioxide to enhance algae growth. "It did not, which was surprising to us, because in the laboratory it definitely helps. There may be enough total inorganic carbon in effluent that the additional carbon dioxide doesn't help."

The testing has shown that algae significantly reduced both nitrogen (by 61 percent) and phosphorus (by 91 percent). Over the study period, the algae tanks receive effluent with 20 mg/L nitrogen on average (ranging from 12 to 28 mg/L) and 3 mg/L phosphorus (ranging from 1.5 to 5 mg/L).

The targeted effluent levels from the state Department of Health and Environment are 8 mg/L nitrogen and 1.5 mg/L phosphorus. "We achieve the phosphorous goal," says Sturm. "The nitrogen removal is pretty close, even in this system that is not optimized. I was pleasantly surprised at the efficiency of phosphorous removal across the system."

A bioreactor would be expected to perform even better than the cattle tanks.

FISH PATROL

Growing algae in open tanks in Kansas presented an unusual challenge to research on removing nitrogen and phosphorus from wastewater treatment plant effluent. Being open to the air, the tanks were subject to contamination by *Daphnia* (water fleas) that eat algae. The solution was simple.

"We added fish to two of the tanks," says Belinda Sturm, assistant professor of environmental engineering at the University of Kansas. "The fish eat the *Daphnia,* so we're using a predator to eat a predator. Treating a bioreactor system as a living food web has been kind of fun."

The first fish were shiners from a local bait shop. Mosquito fish are now the choice. Also used for mosquito control, they reproduce quickly, and that has helped protect the algae: "We get much higher algae density and better nutrient removal."

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.

"That would be the ultimate end-use of the biomass. The bio-crude has very similar properties to crude oil that comes out of the ground."

BELINDA STURM

Algae is harvested from the effluent using gravity sedimentation. It is dewatered with a centrifuge and turned over to a team of chemical engineers for conversion into bio-crude oil. "That would be the ultimate end-use of the biomass," says Sturm. "The bio-crude has very similar properties to crude oil that comes out of the ground."

VERSATILE PRODUCT

Algae create much more bio-crude than other possible sources, which are normally food crops. Sturm points out that bio-crude can be produced from any wastewater biosolids. "One thing we might try is taking the biosolids from the plant's anaerobic digestion and see what type of crude oil it produces," she says.

Another byproduct of the algae process is biochar, which is comparable to wastewater biosolids. Its main components are carbon, silica, calcium and phosphorus. It can be used as fertilizer or even as a supplement to coal as an energy source.

The final liquid waste material is similar to centrate from anaerobic digesters. "It's a high-nitrogen waste stream, so we're testing how to recycle that back to algae growth," says Sturm. "There may also be other uses for it. We're trying to close the loop with all the products we get."

As for marketability, she says algae is a good candidate for lagoon systems and smaller wastewater treatment plants. "They might not have operators to handle anammox or enhanced biological phosphorous removal systems. Lagoon systems often have an algae composition to them anyway."

The pilot has funding through 2014 and Sturm is seeking more research funding. She has also issued design proposals for a more sophisticated bioreactor design for the Lawrence plant. She adds, "We also have a few sites in the area where we have nitrates in groundwater, so I'd like to see if we can clean up groundwater with algae." **tpo**

Your Solution for
Mobile Dewatering

Tractor Trailer Unit H&A Resource Mgmt.
Verssailles, KY Tel: 859-873-3331

Pick-up Truck Compatible Unit

Skid Mounted System Thunder Bay Casino
Sacramento, CA Tel: 209-483-4118

MSD Environmental Inc. Mobile Unit
Centerville, OH Tel: 937-313-9314

BDP Industries' Mobile Belt Press Units have the following advantages:

- Waist level operation
- High discharge directly to truck
- Easy maintenance and cleaning
- Strong, galvinized tubular frame

Industry References: Synagro Inc., LWI, Inc. MSD Environmental, Blue Heron, & Parker Agg.

Sales: 518-527-5417
Factory: 518-695-6851
Fax: 518-695-5417
Email: kelly@bdpindustries.com

Visit us at the
2014
Pumper & Cleaner Environmental Expo

and
weftec® 2013
Booth #1620

BDP INDUSTRIES
www.bdpindustries.com

ALL IN FOR THE HOMETOWN

JOHN McCOOL RUNS THE WARREN (ILL.) WASTEWATER TREATMENT PLANT WITH AN EYE TOWARD PROTECTING THE TROUT WATERS DOWNSTREAM, AND THE POCKETBOOKS OF LOCAL RESIDENTS

By Ted J. Rulseh

MAYBE JOHN McCOOL WOULD RATHER HAVE AN AUTOMATED BAR SCREEN scraper instead of having to rake the screen three times a day. But when the Warren (Ill.) Wastewater Treatment Plant was last upgraded in 2005, money ran short, and the scraper was one of the "nice to have" items cut.

"That's just the way it is," says McCool. That reflects his attitude toward caring for the village's 330,000 gpd (design) activated sludge plant. He does what needs doing. "We have a lot of fixed-income people in town," he says. "We have to be very frugal."

That doesn't mean cutting corners on effluent quality, because Wolf Creek, the receiving stream, flows on to the Apple River, which the state Department of Natural Resources stocks with rainbow trout for anglers in Apple River Canyon State Park.

As wastewater superintendent and the plant's only full-time operator, McCool personally handles most basic maintenance and stays in close contact with the Illinois EPA, all to keep the equipment humming and the effluent leaving at 2 to 3 mg/L BOD and TSS, well below the permit levels of 12 mg/L.

While village residents may not notice the job he does, McCool's peers certainly do. The Warren facility received the 2012 Plant of the Year award from the Illinois Rural Water Association, an honor given to small plants for environmental compliance, appearance, record keeping and other measures.

John McCool, Warren Wastewater Treatment Plant superintendent. (Photography by Mark Hirsch)

BIG ON EXCELLENCE

Warren, a community of 1,450 in far northwest Illinois, has seen economic struggles as businesses closed or shipped production to Mexico. The original treatment plant was built in 1937. It was upgraded in 1964 and 1976, and again in 2005, to the tune of $2.2 million. Dry-weather flows average 150,000 gpd, essentially all domestic wastewater. The annual operating budget is $350,000.

McCool grew up in Warren and has worked for the village since 1976, mostly at the treatment plant. After high school, he studied psychology for three years at Illinois College in Jacksonville, then went to work in a local plastics factory. He scored high on a test for a tool and die apprenticeship, but then learned from his father, a dentist and village board member, that the village Public Works Department had an opening.

"I'd reached the point where I had to decide if I wanted to work in a factory environment or get into a setting where I could be more my own boss," he recalls. He applied with the village, got the job and went to community college to earn his wastewater and water certifications.

Today he is one of three Public Works team members. Todd Stone operates the water plant and is also licensed for wastewater; Jeff Bartell takes care of the streets. The three help each other when needed. "I still plow streets, install water and sewer mains and fix hydrants with the other guys," says McCool. "We have to work as a team because it's the only way to get things done. That's just the way it works."

PROTECTING THE WATERS

In his role at the treatment plant, McCool treats effluent quality with the utmost care. "Our discharge parameters are very stringent, and they should be," he says. "Wolf Creek is such a small stream that last year when we had a drought, it was dried up. We were the flow of the stream for a couple of months."

The plant's activated sludge process is fed by 13 miles of sanitary sewers and two lift stations. After passing the bar screen and grit chamber (both Walker Process Equipment), and a Muffin Monster communitor (JWC Environmental), the flow splits and enters two primary clarifiers. A lift station moves the primary effluent to a two-cell oxidation ditch (Siemens Water Technologies), after which it enters the secondary clarifiers and from there flows to the creek.

profile

As essentially a one-person operations team, McCool has duties that include routine lab testing.

John McCool, Warren (Ill.) Wastewater Treatment Plant

POSITION:
Wastewater superintendent

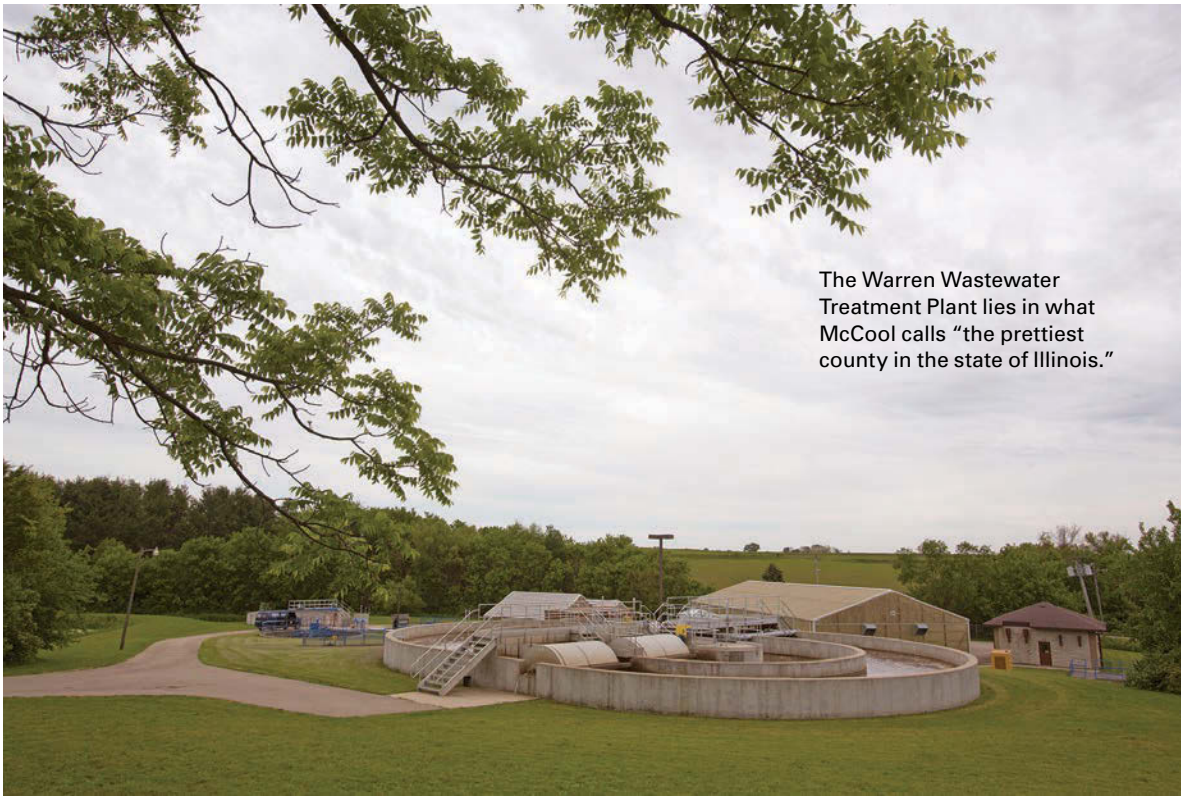
EXPERIENCE:
37 years

Education:
3 years at Illinois College, Jacksonville, Ill.; wastewater courses at Highland Community College, Freeport, Ill.

CERTIFICATIONS:
Class 2 wastewater, Class C water, Class K industrial wastewater

GOALS:
Keep the receiving stream clean and safe; operate efficiently within a small budget

McCool prides himself on keeping the facility clean. Here, he brushes down the sides of the oxidation ditch.



The Warren Wastewater Treatment Plant lies in what McCool calls "the prettiest county in the state of Illinois."

"I still plow streets, install water and sewer mains and fix hydrants with the other guys. We have to work as a team because it's the only way to get things done. That's just the way it works."

JOHN McCOOL

PRETTY COUNTRY

The glacier missed what is now northwestern Illinois. As a result, the landscape is hilly and the scenery beautiful. The Warren Wastewater Treatment plant fits right in — its 4-acre property doubles as a refuge that is hospitable to migratory birds and other wildlife.

"Back in the 1970s, when I started working here, after we finished one of our plant expansions, we planted a lot of trees," says John McCool, wastewater superintendent. "We planted about 500 walnut trees and all sorts of others to create habitat. We have deer out here. Once in a while we see an eagle. There are blue herons. Canada geese nest here every year beside our stormwater lagoons."

McCool loves the local geography — it is one reason he has spent his whole career in his hometown. "The rock formations you see now were here millions of years ago," he says. "This is the prettiest county in the state of Illinois, by far."

In wet weather when I&I drives the plant flow above 500,000 gpd, excess water flows over a weir into two aerated lagoons (total 2.6-million-gallon capacity) for about a week's detention time, and then is chlorinated for discharge to the creek.

Primary and waste activated sludges are delivered to two aerobic digesters and from there to three sand drying beds (total 3,200 square feet) inside a building with a clear polycarbonate roof. After three to four weeks, the material is applied to cropland.

"One farmer is right next to the plant," says McCool. "We apply it with his tractor-drawn manure spreader. He loves it and can't get enough of it. We haul the material in a dump truck to another farmer's place, and he goes ahead and spreads it."

MAKING INVESTMENTS

While the facility and process are relatively simple, McCool is proud of what the village has invested: "For a town like ours, there's a lot to this plant. Many towns this size just go with a lagoon system."

The 2005 upgrade included the drying bed building, a new secondary clarifier, three primary effluent pumps two waste activated sludge pumps (Fairbanks-Nijhuis), a 200 kW diesel emergency generator (Caterpillar), piping and electrical updates, and the oxidation ditch, which helps the plant meet its ammonia nitrogen permit limit of 1.8 mg/L.

McCool keeps it all running on a tight budget by doing as much work as possible in-house. "I have the specs on every motor, blower and electrical device in the plant," McCool says. "We keep the oils, lubricants and filters the manufacturer recommends, and we make sure things are lubricated at the intervals the manufacturer has set up."

He and the village team installed polycarbonate covers on the digesters, with help from a contractor, to correct winter freezing problems. If a motor fails or needs service, McCool pulls it out, sends it to a shop, and reinstalls it. He runs lab tests for BOD, TSS, pH, ammonia nitrogen and dissolved oxygen; monthly testing for fecal coliform and phosphorus is handled by Lyons Lab in Stockton, Ill.

Safety is a priority. McCool brought the village's insurance carrier to the plant for an inspection, "to make sure we had the right fire extinguishers, that we had lockout/tagout for electrical work, that we had warning signs on the doors for the chlorine room, that we knew where hearing protection was required. That way, if OSHA or the Department of Labor should ever pay us a visit, we're in compliance."

He also knows when to get expert help. He works with either of two electrical contractors on projects beyond his expertise, and he has the generator serviced by Patten Power Systems, the Caterpillar dealer in Rockford. "I'm a firm believer that if I buy a car at a dealership, they're going to service it," he says. "The same holds true with that generator. It might cost a little more, but we get the assurance that it will run when we need it."

LOOKING UPSTREAM

McCool's duties extend to the collection system, where I&I is a key challenge, as it is for most communities in the area. "We're in the process of smoke testing to find out if we have cross-connections," he says. "We don't think we do, but we're going that route anyhow. The system was built in the 1930s, and it's still mostly the original 8- to 24-inch clay pipe. It would be

Warren Wastewater Treatment Plant PERMIT AND PERFORMANCE			
	INFLUENT	EFFLUENT	PERMIT
BOD	68 mg/L	2-3 mg/L	12 mg/L
TSS	52 mg/L	2-3 mg/L	12 mg/L
Ammonia	N/A	0.5 mg/l	1.8 mg/l
Phosphorus	N/A	1.2 mg/L	Monitor/report

great to slip-line the sewer mains, but it's not affordable at the moment. If we could get grants for it, obviously we'd go after them."

In the meantime, McCool does his best to keep the system free-flowing. The village owns a 2,000 psi O'Brien trailer-mounted jetter (Hi-Vac) to deal with blockages; the package includes a root-cutting tool. Northern Illinois Environmental Applications (NIEA) works on a contract basis, cleaning 5,000 feet of sewer per year.

"With their combination truck, they take the debris out of the flow pattern, rather than just sending it down to the next manhole," McCool says. "We have most of the system already TV inspected, so we found the trouble spots and got them fixed."

A few years ago, the village did get a grant from the Illinois EPA to install a 24-inch overflow pipe to correct occasional wet-weather surcharging at manholes. The pipe handles flow from an area where the sewers were undersized; it feeds directly into the main interceptor leading to the treatment plant. "We got the grant because the EPA realized we had a problem," McCool says. "We've always been aboveboard with them and reported whenever we had a surcharge out of a manhole."

REACHING OUT

Being aboveboard also means keeping an open door to the community and sharing with others in the profession. "Part of being an operator is having good public relations skills," says McCool. "You have to be open with the public — they helped pay for this facility. If anybody wants to go through the plant, I'm more than willing to take them. Just recently, a third grade class came for a tour because they were studying the water cycle."

McCool is a member of Mis-Rock Operators Association and enjoys lending a hand to other members. "I get a lot of calls from other cities about how our drying bed building works," he says. "I'll help anybody. The same goes for the IEPA. I get along very well with them. We deal with the Rockford office, and whenever I have a problem, I give them a call."

It's been a good life for McCool, personally and professionally. Thirty-five years ago, he married Anne, a new-in-town kindergarten teacher, whom he met at the village's autumn Pumpkin Festival. "We met downtown one night and started dancing, and that's all it took." They have three college-graduate daughters, two with a Ph.D.

"This is a great place to raise a family," McCool says. "I wouldn't trade it for anyplace in the world." **tpo**

more info:

Caterpillar, Inc.
309/675-1000
www.cat.com

Fairbanks-Nijhuis
913/371-5000
www.fairbanksnijhuis.com

Hi-Vac Corporation
800/752-2400
www.hi-vac.com

JWC Environmental
800/331-2277
www.jwce.com

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

Walker Process Equipment
800/992-5537
www.walker-process.com
(See ad page 59)

New Technology Slated for WEFTEC 2013

By Craig Mandli

WEFTEC, the Water Environment Federation's annual technical exhibition and conference, provides wastewater and water professionals from around the world with quality education and training and a vast technology display. This year's event, Oct. 5-9 in Chicago, showcases the latest products for municipal and industrial water professionals.

WEFTEC PRODUCT PREVIEW

ACME ENGINEERING PRODUCT

The **ACRS** line of automatic scraper-strainers from **Acme Engineering Products** automatically removes solids and large particles using only dirty water for blowdown. The strainers are available in sizes up to a 66-inch body in steel or corrosion resistant metals. These units are ideal for removing large, irregularly shaped solids and contaminants from graywater for recycling in cooling applications, water and wastewater plants and the protection of downstream fine filtration equipment. They are available down to 75 microns to cover a broad range of straining requirements, and can be designed to fit into existing conventional strainer locations. They are available in FRP construction with Monel internals. **518/236-5659; www.acmeprod.com.**

ADALET

Division 1 / Zone 1 **explosion-proof enclosures** from **Adalet** are constructed from stainless steel 316L. Designed for use in highly corrosive areas, they provide ideal construction material for offshore, petrochem or volatile industrial areas where environmental conditions require additional corrosion protection. Features include a watertight gasket and stainless steel cover bolts, stainless steel hinge kit, mounting panel, removable lifting eye bolts, cover alignment device, cast-on mounting lugs and internal/external ground screws. A flat plate cover allows for additional working area for viewing windows and operating devices such as pushbuttons, selector switches and pilot lights. **216/267-9000; www.adalet.com.**

AERATION INDUSTRIES INTERNATIONAL

The **Aire-O2 Triton** process aerator/mixer from **Aeration Industries International** effectively replaces discs, rotors and splashers. It adapts to existing municipal and industrial treatment facilities, and its strong horizontal mixing and circulation capabilities are suited for oxidation ovals. The mixer and blower operate independently, allowing for airflow to be controlled, meeting process requirements without any impact on mixing performance. It is able to send fine bubbles to depths of 33 feet. **952/448-6789; www.aireo2.com.**

AERZEN

The **Delta Hybrid** rotary lobe compressor from **Aerzen** is a combination of rotary lobe blower and screw compressor technologies. It provides the reliability of positive displacement aeration along with the energy efficiency that compares to Turbo technologies. **610/380-0244; www.aerzenusa.com.**

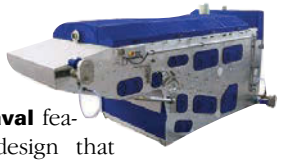
AGRU AMERICA

Sure Grip concrete protective liner from **Agru America** provides an economical and long-term corrosion prevention solution for the construction and rehabilitation of concrete containment and transmission systems. It features high back-pressure and pull-out resistance, and is low maintenance. It eliminates exfiltration and infiltration, protecting the environment. It also has a high chemical and mechanical resistance. **800/373-2478; www.agruamerica.com.**

AIRMASTER AERATOR

The **Turbo X-Treme Magnum Water Cannon** aerator from **Airmaster Aerator** features a rotating water cannon that sprays water constantly from above to provide foam suppression. It is a high-efficiency, 50-hp floating/surface aerator that can pump up to 12.5 mgd. The water cannon rotates 360 degrees in 1 minute 35 seconds, spraying more than 100 gpm in an approximate 230-feet diameter, achieving foam suppression, aeration, evaporation and cooling. **888/813-3680; www.airmasteraerator.com.**

ALFA LAVAL



The **Winklepress** enclosed frame belt filter press from **Alfa Laval** features an enhanced design that achieves improved process performance at lower operating costs. With an advanced belt roller configuration and higher efficiency motors, it delivers higher dry solids at lower polymer and energy costs. It also features an enclosed design that reduces odor emissions, an ideal choice for wastewater plants in heavily populated areas. **800/362-9041; www.alfalaval.us/wastewater.**

ALLIED MOULDED PRODUCTS

POLYLINE polycarbonate enclosures from **Allied Moulded Products** come standard with multi-mounting capability, including an out-of-the-box mounting flange or adjustable mounting feet, which adapt to various mounting configurations. They feature metallic or nonmetallic latches and molded-in latch keepers and mounting bosses, and a tongue-and-groove seal joint between cover and base. A clear polycarbonate cover is also available for instrumentation applications. Optional adjustable corner panel mounts for supporting an aluminum hinge front panel within the molded-in corner slots provides either flush positioning with the box top or adjustability down in the box 1.5 inches deep. **419/636-4217; www.alliedmoulded.com.**

ALLMAX SOFTWARE

Operator10 from **AllMax Software** features custom dashboards that allow for quick review of specific data and shortcuts to frequently accessed areas of the program. Enhancements to dashboards

have made them more customizable for an improved user experience. More flexibility has been added to many features, including DataViews, the program's data entry screens. The eDV Viewer tool, which allows non-users of the software to submit data to the database remotely, has been redesigned, and an auto-update feature has been added to keep users up to date with the newest software developments. **800/670-1867; www.allmaxsoftware.com.**

AMERICAN STRUCTURES

Bolted, **stainless steel tanks** from **American Structures** can be utilized for water, wastewater, commercial and municipal storage applications. The use of bolted, stainless steel in the tanks provides sustainability with little or no maintenance. **715/235-4225; www.ameristruc.com.**

APPLIED FELTS

Felt **CIPP liners** from **Applied Felts** utilize a single-pass extruded process for coating to ensure that no pinholes are present. Additional tests are conducted to monitor coating uniformity, mass and weight distribution. Each roll is sampled and destructively tested, including density at various pressures, tensile strength and coating distribution. During production, the liners are continually checked to ensure they satisfy specifications. Finally, a sample is cut from each finished liner for testing across more criteria to make sure the circumference, density, length, coating integrity and weld strengths meet requirements. **276/656-1904; www.appliedfelts.com.**

AQUA-AEROBIC SYSTEMS

The **Aqua MegaDisk** cloth media filter from **Aqua-Aerobic Systems** features 30 percent larger diameter disks and fewer mechanical components in a fraction of the space. The result is more hydraulic capacity and lower capital and O&M cost. It achieves low-level TSS and NTU, and accommodates high solids and hydraulic loading rates. It also offers low backwash rates, low energy consumption and has a fully automatic PLC control system. This filter is ideal for municipal reuse and phosphorus removal applications with limited land space, or deep bed filter retrofits. **800/940-5008; www.aqua-aerobic.com.**

AQUIONICS

The **InLine+W** system from **Aquionics** uses highly efficient medium-pressure lamps, allowing for a small footprint and minimal maintenance requirements. The compact system is ideal for tight-fitting spaces without the need for expensive building construction or large modifications to existing structures. It can treat up to 20 mgd through a single unit, and comes standard with DVGW sensors, automatic wiping system (chemical option available) and variable power ballasts, which ensure only the power required for disinfection is consumed. **859/341-0710; www.aquionics.com.**

ASAHI/AMERICA INC.

Asahi/America Inc.'s Chem Proline piping systems have been certified by NSF to NSF/ANSI Standard 61-G. Made from PE resin, pipe and fittings possess the greatest resistance to slow crack growth. It is a lower cost alternative to metal, fiberglass-reinforced plastic pipe and lined steel pipe. A complete system includes pipe, fittings and valves. Available in pipe sizes up to 12 inches, it is ideally suited for use in water treatment and chemical process applications using a variety of chemicals including sodium hydroxide, sodium hypochlorite, caustic soda and low concentration acids. **800/343-3618; www.asahi-america.com.**

BECK, HAROLD & SONS

BECK electric actuators from **Beck, Harold & Sons** can quickly, accurately and consistently track the demand signal, allowing users to fully utilize a control system's capabilities, decreasing process variability, improving product quality, and reducing operational costs. The linear and rotary valve actuators feature a 100 percent continuous-duty motor that won't burn out. **215/968-4600; www.haroldbeck.com.**

BENSHAW

The **M2L 3000** medium-voltage variable-frequency drive from **Benshaw** is designed for industrial applications, but benefits from Curtiss-Wright's experience in defense and nuclear-related technologies, an arena where products must meet the most rigorous standards and where failure is simply not an option. Its topology, a modular multilevel converter (M2LC), is powered by state-of-the-art hardware and software control, and is extremely energy efficient and arc resistant. **412/968-0100; www.benshaw.com.**

THE BILCO COMPANY

Fall Protection Grating from **The Bilco Company** provides a permanent means of fall protection for the company's line of single- and double-leaf floor access doors. It is constructed of lightweight aluminum grating and stainless steel hardware for corrosion resistance. The grating panel has a safety yellow powder coat finish, and the system features a stainless steel hold-open device that secures each panel in the full 90-degree position, maximizing the door's usable access area. **203/934-6363; www.bilco.com.**

BIO-MICROBICS

The **MyFAST** wastewater treatment system from **Bio-Microbics** features a flow range of 10,000 to 160,000+ gpd, and integrates the advantages of a completely immersed fixed-film technology for microbial growth during low, average and peak usage. Increasing sludge settleabilty and eliminating sludge bulking, systems are easy to maintain and are reliable. The Fixed Integrated Treatment Technology (FITT) is high performance, low maintenance and better sludge management all in one tank. **800/753-3278; www.biomicrobics.com.**

BIOSCIENCE INC.

MICROCAT-ANL from **Bioscience Inc.** is an odor-control product applied in wastewater treatment plants, sludge processing facilities, sewer lines and lagoons to control hydrogen sulfide (rotten egg) odors that often occur under anaerobic or anoxic conditions. The microbes are light activated and also degrade organic compounds under anaerobic conditions. It can safely be used in natural settings, and was recently applied to deodorize an urban river in which naturally occurring sulfides were of volcanic origin. **800/627-3069; www.bioscienceinc.com.**

BLACOH FLUID CONTROL

SENTRY Revolution dampeners from **BLACOH Fluid Control** offer a solution for pulsation dampening in harsh and corrosive applications. These 10-cubic-inch pulsation dampeners are available in both PVC and CPVC for improved chemical compatibility, and feature threaded housings in place of traditional metal fasteners that can be damaged in corrosive environments. When needed, CPVC models have a considerably higher temperature rating (180 degrees F) compared to PVC models, with chemical resistance equal to or better than PVC. **800/603-7867; www.blacoh.com.**

BLUE-WHITE INDUSTRIES

The **Proseries-M M-2** peristaltic metering pump from **Blue-White Industries** has many features seen in more expensive pump models designed for large municipalities but at a smaller price tag. The gentle squeezing action of its valveless design results in near continuous injection of chemical for efficient water and wastewater treatment. Standard control features include an easy-to-use intelligent control systems design, permitting connection to SCADA systems and other remote controllers, for chemical dosing control via either 4-20 mA signal, high-speed digital pulse input or a slow pulse for batching type applications. **714/893-8529; www.blue-white.com.**

(continued)

BOERGER

Rotary Lobe Pumps from **Boerger** are self-priming, valveless, positive displacement pumps, ideal for the wastewater industry. They feature flow rates up to 5,000 gpm. The screw rotor design enables a pulsation-free and smooth flow operation, with fully reversible rotation. All wetted parts can be quickly maintained or replaced without the removal of pipe or drive system. Applications include sludge/biosolids, grease, primary sludge, WAS, RAS, digested sludge, thickened sludge, feed of thickening and dewatering devices, loading stations and sewage. **612/435-7300; www.boerger.com.**

BRIGHT TECHNOLOGIES

The **Belt Filter Press** from **Bright Technologies** efficiently dewaters biosolids for cost effective disposal or reuse. It typically produces 16 to 30 percent cake solids at rates up to 1,500 lbs/m. The inclined gravity deck, radius wedge zone and 50 percent open-area drainage roller make efficient use of the filter area, keeping the equipment footprint small. State-of-the-art controls aid in lowering labor cost and operator frustration. Stainless steel construction is standard for superior appearance and longevity. **269/793-7183; www.brightbeltpress.com.**

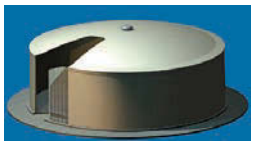
BURKERT FLUID CONTROL SYSTEMS

The insertion **EMF Type 8045** flowmeter from **Burkert Fluid Control Systems** offers a low-flow cutoff function that allows setting a limit below which the measurement value is set to zero, with consequences on the display, the totalizers and outputs. A digital input can be configured via the menu to reset the totalizer, to go into the HOLD mode, to start a zero-point calibration and to activate a replacement measurement value. It also has an adjustable backlit display and a third color-coded LED to allow viewing the device from a distance. It immediately signals if the device status is good or if a warning or an error is active. **800/325-1405; www.burkert-usa.com.**

CABOT NORIT

DARCO H_2S activated carbon from **Cabot Norit** was developed for removing hydrogen sulfide from air streams and eliminating sewage odors. It is produced by steam activation at high temperature using a proprietary process, which does not involve the use of any impregnant, thus greatly reducing the risk of bed fires due to exothermic reactions. It is produced as a 4x8 mesh granular carbon to provide a low-pressure drop in gas phase applications. **800/641-9245; www.norit.com.**

CALDWELL TANKS



Prestressed Concrete Tanks (PCT) from **Caldwell Tanks** are wire-wrapped, prestressed concrete storage tanks designed and constructed to meet the requirements of AWWA D110 and ACI 372. They are a proven, low-maintenance choice for a variety of applications, including potable water, municipal and industrial wastewater and thermal energy storage. They combine the reliability of a 125-year track record in liquid containment with decades of combined experience in the successful design and construction of prestressed concrete tank structures to provide customized storage solutions for customers. **502/964-3361; www.caldwelltanks.com.**

CENTRISYS CORPORATION

Through a combination of centrifugal forces and proprietary air manipulation, **Centrisys Corporation** has engineered its **THK Series** sludge-thickening centrifuge that controls cake solids output with no polymer on a multitude of sludge feeds. It has also demonstrated the ability to nearly double flow capacity with the supplementation of nominal polymer doses. It is 1/30 the footprint of other systems, and offers increased energy efficiency, digester capacity and cake manipulation. **262/654-6006; www.centrisys.us.**

CONTECH ENGINEERING SOLUTIONS

The **Magellan** decentralized wastewater treatment system from **Contech Engineering Solutions** is pre-engineered to treat 2,000 to 250,000 gpd. Single, multiple and containerized configurations meet site requirements for residential, commercial, industrial, restaurant or brewery. It features full engineering design support. **800/338-1122; www.conteches.com.**

CST COVERS

Clear-span **aluminum domes** from **CST Covers** provide cover to water and wastewater storage tanks located above and in-ground. Superior corrosion resistance provides an ideal solution for tough outdoor water challenges and corrosive wastewater environments. The lightweight structures offer great design flexibility, eliminate downtime with easy, fast installation, and provide excellent odor control. Structurally durable yet lightweight, they meet site-specific load requirements while accommodating process equipment either underneath or above the covers. Custom domes are available up to 1,000 feet in diameter for most new and existing tanks. **913/621-3700; www.cstcovers.com.**

CUES INC.

The **CUES Digital Universal Camera (DUC)** is a high resolution, digital CCTV, side-scanning camera designed for rapid and detailed condition assessment of a water or wastewater system. Inspect and assess 5,000 feet or more per day, increasing revenue while reducing expenses. The system produces a high-resolution digital video scan of internal pipe conditions in 6- to 60-inch pipe, and a flat unfolded view of the pipe to facilitate rapid assignment of observations. An expanded flat unfolded view of the pipe is provided for measurement purposes. This low-maintenance camera has no moving parts and is driven through the pipe without the need to stop or pan and tilt. **800/327-7791; www.cuesinc.com.**

DATA FLOW SYSTEMS

The **TAC II SCADA System** from **Data Flow Systems** features user-friendly HMI software, no-cost SCADA software licenses, a plug-and-play design, ease of integration, durability in harsh environmental conditions and a three-year lightning warranty. The system provides a true obsolescence-proof solution, in which all new products maintain a downward compatibility with all older versions, allowing a utility to maximize their investment in SCADA over the long term. **321/259-5009; www.dataflowsys.com.**

DN TANKS

DN Tanks specializes in the design and construction of **AWWA D110** prestressed concrete tanks used for potable water, wastewater, chilled water and other liquids. With over 2,500 tanks ranging in capacity from 40,000 gallons to 40 million gallons, they offer expanded construction capacity, unmatched technical expertise and proficiency in multiple types of proven tank designs to provide customized liquid storage solutions. Tanks are designed to meet varying project requirements with the ability to withstand seismic activity, extreme climates and severe site conditions. **800/826-8306; www.dntanks.com.**

DSI DYNAMATIC

The eddy current variable-speed **drive system**

from **DSI Dynamatic** consists of a constant-speed AC induction motor and an electromagnetic clutch, governed by a small, simple controller. Systems are available with simple, yet versatile, digital control options for simplified pump-drive system programming. Existing eddy current clutches can be remanufactured to factory new condition, or retrofitted with new controls for increased monitoring capabilities. **800/548-2169; www.dynamatic.com.**

DUPERON CORPORATION

The **Duperon FlexRake** flexes and pivots around unexpected debris, including logs, tires and sewer plugs that are captured alongside typical waste and discharged. This flexing and pivoting action assures that debris is removed at the bar screen, by the bar screen, so no alarms or operator intervention is necessary. The flexible link material contains a series of stainless steel links, which bend in only one direction, much like an elbow, enabling the unit to act as a frame and connection point for scrapers. The entire unit can be driven by a single sprocket above the deck. **800/383-8479; www.duperon.com.**

ECC LLC

Floating ball covers from **ECC LLC** are designed for use in municipal drinking water applications. They are NSF 61 certified hollow and water-filled plastic ball covers for bird control for municipalities, industrial wastewater plants, recyclable containers, rentals and curtains. **910/245-2241; www.eccllc.us.**

ENDRESS+HAUSER

The **Proline Prosonic B 200** from **Endress+Hauser** measures the flow rate and methane content of wet biogas, landfill or digester gas, and other types of low pressure, wet or contaminated gas. Intrinsically safe and explosive-proof, it is approved for Class I, Division I areas. This loop-powered two-wire device provides multivariable measurement of volume flow rate, temperature, and methane content, and supports 4-20 mA HART communication. Using precisely measured sound velocity and an integrated temperature sensor, it is now possible to simultaneously measure the methane content directly in the pipe and calculate related parameters, such as calorific value and energy flow, without the need for additional devices. **888/363-7377; www.us.endress.com.**

ENDURO COMPOSITES

Pre-packaged **biofilter units** from **Enduro Composites** are supplied and installed by the same company, saving time and money by going directly to the source of a vertically integrated company. These fully functioning biofilters are painlessly delivered and installed by the contractor in one straightforward transaction. **800/231-7271; www.endurocomposites.com.**

ENPRO TECHNOLOGIES

The **ParaDyne PD Series** from **EnPro Technologies** is an inline liquid polymer feed system intended for use in smaller applications up to 10 gpm. The multi-zone mixing chamber includes a high shear zone that eliminates recirculation after inversion of the neat polymer with a low shear secondary activation zone. Utilizing simplistic controls for local and remote start and pacing, it is adaptable to most control applications. It features a small footprint, diaphragm pump, thermal flow switch for loss of water flow protection, automatic flush cycle after shutdown, clear activation chamber and "stay clean" check valve. **816/350-5237; www.enpro-tech.com.**

ENVIRO-CARE COMPANY

The **Flo-SeptageStation DM** from **Enviro-Care Company** is a screening system specifically designed for septage receiving. Dual drives and the unit's 25-degree angle of inclination increase solids capture and removal rates. The drum screen rotation is reduced for better solids capture, and the auger speed is increased for faster solids removal that equates to faster unloading. The design eliminates brushes, screen support arms and requires no rock traps or grinding. A two-stage tank prevents sedimentation. The unit is available in three sizes with flows from 525 to 875 gpm, and utilizes a perforated plate drum screen with 5 or 6 mm openings. **815/636-8306; www.enviro-care.com.**

ENVIRONETICS

Defender filter covers from **Environetics** prevent algae growth, contain odor and maintain operating temperatures. Opaque covers block UV light, prohibiting algae growth to keep filters clean. A mechanical attachment system provides a positive seal for effective odor containment. A low-profile design minimizes internal volume, reducing odor treatment requirements. Covers isolate thermal air masses to maintain operating temperatures and eliminate freezing. An optional insulation system is available. Modular construction enables rapid installation. **815/838-8331; www.environeticsinc.com.**

FCI - FLUID COMPONENTS INTERNATIONAL

The **ST100** flowmeter from **FCI - Fluid Components International** features a wide choice of communication options, with 4-20 mA analog, frequency/pulse, alarm relays and fully approved digital communications: HART, Foundation Fieldbus, Modbus and Profibus. It combines flow-sensing performance with feature- and function-rich electronics. It includes plug-in card replacement that can be changed out by technicians in the field to adapt to a plant's changing network communication needs. **800/854-1993; www.fluidcomponents.com.**

FIBERGLASS FABRICATORS

Composi-Cover from **Fiberglass Fabricators** is a flat odor-control cover system that's an alternative to aluminum covers. It is easy to install, and works equally well with rectangular and round tanks, as well as functioning as an algae/weir cover system. In addition, long unsupported spans can be accommodated. The system includes large, lightweight access hatches and a variety of penetration options. It offers resistance to chemicals, corrosion and UV. After installation, the cover requires little to no maintenance. The company includes complete drawings and comprehensive engineering in a submittal package. The system adheres to the ASCE standard. **888/593-3552; www.fibfab.com.**

FILTERONE USA

The **F1 InFloMax** continuous screen from **FilterONE USA** incorporates the company's new "extended head" design, which insures a high screenings capture rate. It is designed with operators in mind, and the life of all key components is maximized with minimal O&M. **954/757-9741; www.filteroneusa.com.**

FLOWROX

The **progressive cavity pump** from **Flowrox** features shaft seal technology for use in demanding industrial slurry and waste pumping applications, especially with high viscous or shear sensitive liquids and sludges. The pumped medium continuously shifts spaces (progressing cavities)

(continued)

between the rotor and the stator, enabling nearly pulsation-free pumping. Features include a high flow rate and pressure, low life cycle costs and power consumption, long service intervals and fast maintenance. **410/636-2250; www.flowrox.us.**

FLYGT – A XYLEM BRAND

The **Experior** wastewater pumping system from **Flygt – a Xylem Brand,** offers energy savings in a package that is simple to install and easy to operate. Its Adaptive N-technology allows the impeller to move axially upward when necessary to permit bulky materials or tough debris to pass through smoothly, reducing stress on the shaft, seals and bearings. It is available with efficient motors that have been optimized for wastewater pumping applications, including some models featuring LSPM design. SmartRun intelligent controls enable it to be pre-programmed and preset, optimizing energy use and reducing energy consumption. **704/409-9700; www.flygtus.com.**

FORSTA FILTERS

Self-cleaning filters from **Forsta Filters** provide efficient and reliable filtration solutions for a wide range of municipal and industrial applications. With screens ranging from 5 to 4,000 micron, stainless steel screen filters are ideal for secondary or tertiary effluent, RO pre-filtration, UF pre-filtration and process-cooling filtration. They fit pipe sizes from 3/4 to 30 inch, and are capable of flowing up to 8,000 gpm in a single unit. Filters operate at pressures as low as 15 psi. **888/936-7782; www.forstafilters.com.**

FOURNIER INDUSTRIES

The **Fournier Rotary Press** is a dewatering technology that combines cake dryness, a completely enclosed system, low power and water consumption, ease of operation and expandability. It is capable of being expanded from a single dewatering channel to six channels within the same footprint, and has been successfully utilized in the dewatering of municipal sludge as well as pulp and paper waste, agricultural waste (manure), food processing waste and more. **418/423-6912; www.rotary-press.com.**

FRANKLIN MILLER

The **Dimminutor7** from **Franklin Miller** provides automatic screening and grinding of wastewater solids in straight through channels and wet wells. It reduces plastics, wood, rags and other solids to fine bits, enhancing plant operation and improving the reliability of pumps and other downstream equipment. It employs a smooth, continuously rotating design with high torque. Three bidirectional rotary cutters intermesh at close clearance with stationary cutters, finely reducing solids to a size small enough to pass through a sizing screen. With no gaps or openings between the screen and cutters, output is controlled and complete reduction assured. **973/535-9200; www.franklinmiller.com.**

GF PIPING SYSTEMS

The **Signet 46302** free chlorine analyzer system from **GF Piping Systems** is designed to measure free chlorine in applications with stable pH, temperature and chlorine levels. Designed with amperometric-based sensing technology, it incorporates a clear flow cell, flow regulator, sensors, filter, and rotameter in one compact unit for use in water distribution, ground and surface water, boiler feed water, graywater dechlorination, food and beverage, RO membrane protection and swimming pools. It is EPA 334.0 compliant and has reagent-free measuring, a built-in flow regulator, a panel that includes 100–240 VAC power supply, two 4–20 mA outputs, two mechanical relays and optional automatic pH/temperature compensation. **800/854-4090; www.gfpiping.com.**

GFG INSTRUMENTATION

The **G460** multi-sensor atmospheric monitor from **GfG Instrumentation** features a concussion-proof boot, along with a highly dust- and water-resistant housing. It has completely automatic calibration, one-button operation, top-mounted display, interchangeable battery packs, a highly configurable smart sensor design and data logging and event logging are standard. Options include dual-range infrared combustible gas sensor, motorized pump operable in diffusion or sample draw mode and up to seven channels of detection. **800/959-0329; www.gfg-inc.com.**

GORMAN-RUPP PUMPS

Designed to deliver all the benefits of our sound-attenuated silent pumps, the **ReliaPrime** emergency bypass station from **Gorman-Rupp Pumps** operates on natural gas, making it quiet, efficient and environmentally friendly. It features a 6-inch Super T Series pump capable of passing a 3-inch spherical solid, and offers a sound-proof lightweight aluminum enclosure with lockable door panels that can be removed for maintenance of the pump or engine. It is a complete backup package, ready for hook-up in emergencies and power outages, primary pump repair and additional pumping capacity. **419/755-1011; www.grpumps.com.**

HACH COMPANY

The **RTC103-N** real-time control for nitrification from **Hach Company** is designed for continuous-flow plants, continuously monitoring ammonia in the aeration basin and automatically adjusting blowers to maintain the most effective DO set point for the nitrification of an incoming ammonia load. Controlling aeration based on changes in ammonia load rather than a static DO setpoint allows technicians to run blowers at the most efficient level for the process, reducing costs related to energy consumption. This complete solution ensures compliance, real-time control and operational efficiency. **800/227-4224; www.hach.com.**

HALOGEN VALVE

The **Hexacon Model III** control system from **Halogen Valve** has an optional programmable relay interface module and SCADA informational output to provide active and timely notifications. The optional second battery provides for quicker and more reliable valve closures. The microprocessor system applies a torque of 30 ft/lb for test or 50 ft/lb for emergency valve closures for up to six cylinder and ton container valves. All fire codes recognize and approve its automatic-closing fail-safe shutoff valve system in lieu of a scrubber. The SCADA option provides actuator closure status and error codes to quickly analyze problems. **877/476-4222; www.halogenvalve.com.**

HAWK MEASUREMENT

The **Sultan Sonar Sludge Bed Level Transmitter** from **Hawk Measurement** provides reliable bed level measurement in clarifiers at sewage treatment facilities. It utilizes an acoustic wave sonar technology to provide accurate and reliable measurement of the bed level in clarifiers. It can provide a sewage treatment plant with useful information on when the sludge bed level is rising beyond control, and prevent any suspended solids in excess of the permit values to overflow the launders. **978/304-3000; www.hawkmeasure.com.**

(continued)

TECHNOLOGY LEADERSHIP FROM THE BEGINNING

DECADES OF DELIVERING LONG-TERM, SUSTAINABLE RESULTS

THE WORLD HAS CHANGED A LOT IN THE LAST 50 YEARS, BUT THE IMPORTANCE OF RELIABLE VALUE, REMAINS UNCHANGED

From day one, Ashbrook Simon-Hartley has focused on providing water and wastewater solutions that get the job done in a cost-effective way. This has always meant bringing knowledge, experience and the right technology to your project or facility.

Over the years, this has meant everything; from choosing the right materials and components to customizing the treatment process to meet specialized requirements; from innovative solutions to retrofits that stretch your budget; and from individual replacement parts to "influent-to-effluent" process design.

Now, after decades of experience with the smallest of projects in our own backyard to world-changing projects at the ends of the earth (and almost everywhere in-between), we are fully prepared to support you in meeting the new challenges of providing clean water to your world.

If you have a goal, a plan, or just a question, simply contact your area Ashbrook Simon-Hartley representative and we'll show you what our knowledge, experience & technology can do for you—now, and in the future.

Join us in Booth No. 1031 at

weftec 2013
the water quality event™

TREATMENT PLANTS
DEWATERING
CLARIFIERS
DISINFECTION
FILTRATION
AERATION
MEMBRANE TECHNOLOGIES
MUNICIPAL
INDUSTRIAL
FLOW CONTROL
CLASS A BIOSOLIDS

www.as-h.com

NORTH AMERICA:
Ashbrook Simon-Hartley
800.362.9041
fax: 281.449.1324
11600 East Hardy
Houston, TX 77093-1098
USA

EUROPE, ASIA, AND THE AFRICAS:
Ashbrook Simon-Hartley Ltd.
+44 (0) 1782 578650
fax: +44 (0) 1782 260534
10/11 Brindley Court
Lymedale Business Park
Newcastle-under-Lyme
Staffordshire
ST5 9QH UK

SOUTH AMERICA:
Ashbrook Chile S.A.
+56 (2) 224 7858
fax: +56 (2) 224 9525
Avenida Presidente Kennedy 5757
Torre Oriente, Oficina 501
Comuna de Las Condes
Santiago, Chile

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®

KNOWLEDGE, EXPERIENCE & TECHNOLOGY

CERTIFIED 9001 USA | United Kingdom | Chile | Brazil

Ashbrook Simon-Hartley is a registered trademark of Ashbrook Simon-Hartley Operations LP.

HEADWORKS INC.

The **Mahr Bar Screen** from **Headworks Inc.** is an all stainless steel, front-raked, front-return bar screen designed to withstand tough applications. It operates automatically and with virtually no maintenance in tough and corrosive environments. With over 21 million hours on the job, the Mahr Bar Screen has never had to be replaced. **713/647-6667; www.headworksintl.com.**

THE HELLAN STRAINER COMPANY

Fluid strainers from **The Hellan Strainer Company** are offered in a variety of materials and sizes for all filtration applications. They capture the debris on the outside of the screen. The screen is then rotated against a scraper blade or brush to remove all debris. No disassembly is required during the 15-second cleaning cycle. All strainers are manufactured to ISO-9001 and meet all international codes (i.e., ASME, CE/PED, Lloyds, MIL, etc.). **888/443-5526; www.hellanstrainer.com.**

HF SCIENTIFIC

The **0.02-10NTU MicroTOL** online turbidimeter from **HF scientific** is ideal for applications such as drinking water where a measurement range greater than 10NTU is not required. Calibration points are at 0.02, 1.0 and 10NTU. Models are available for Turbidity Method 180.1 and ISO7027 and with or without ultrasonic autoclean. **888/203-7248; www.hfscientific.com.**

HOBAS PIPE USA

Centrifugally cast, fiberglass-reinforced, polymer mortar pipe from **HOBAS Pipe USA** is inherently corrosion resistant and lasts 100 years or more, providing a very low life cycle cost. Key applications are sanitary and storm sewers, corrosive environments and potable water. It features leak-free, push-together joints that reduce installation time and costs. Benefits include superior hydraulics, light weight, high strength and long, maintenance-free service life. Installation methods include open cut, sliplining, jacking, microtunneling, two-pass tunnel, casing carrier and above-ground. Sizes range from 18 to 126 inches for both pressure and gravity applications. **800/856-7473; www.hobaspipe.com.**

HUBER TECHNOLOGY

The **RoS3Q** inclined screw press from **Huber Technology** effectively handles thin sludge. The technology uses a very fine porosity drum in three sections to accept very thin sludge and produce ideal dryness of cake and capture rates. **704/949-1010; www.huber-technology.com.**

ICS - POWERGRIT

The **Utility** chainsaw from **ICS - PowerGrit** addresses operator safety with grinding technology which eliminates rotational kickback and offers improved operator positioning when cutting pipe. Utilized by public, private water and wastewater departments worldwide, it is designed to cut a variety of materials from ductile iron to plastic pipe with far less excavation. The ability to cut up to 24-inch pipe without changing position reduces the difficulty of the job. **800/797-4748; www.powergrit.com.**

INTERNATIONAL PAINT - DEVOE COATINGS

Bar-Rust 234P from **International Paint - Devoe Coatings** is a solvent-free epoxy, low-temperature potable water tank lining system designed for low VOC compliance. The 100 percent solids, high-build system features a fast cure, 2:1 mixing ratio and single coat application capability, even in temperatures as low as 35 degrees F. It carries an NSF/ANSI 61 certification for potable water use and cures to a hard, high-gloss finish. It is applied with a plural airless sprayer directly to the water tank's carbon or stainless steel interior. **440/234-2900; www.international-pc.com.**

IPEC

The **SLB Series** sewage screenings compactor from **IPEC** removes trash solids from primary effluent ahead of biological process cells. The auger-style screen removes solids down to 500 micron, followed by washing and compacting of solids for land disposal. The unit consists of an auger with cleaning brushes, fixed perforated plate screen cylinder, structured wedgewire element for extraction of pressate, automatically operated cleaning shower, solids discharge spout and a mechanical gear drive and motor. It is sized to accept effluent directly from small sewage pumps, with a maximum of 2-inch solids. **800/663-8409; www.ipec.ca.**

JUMO PROCESS CONTROL

The **AQUIS touch S** modular multichannel measuring instrument for liquid analysis from **JUMO Process Control** displays and processes sensor signals for pH or redox value, electrolytic conductivity, resistance of ultrapure water, temperature, flow rate, disinfecting measurement parameters, and free chlorine, chlorine dioxide, ozone, hydrogen peroxide and peracetic acid. A 5.5-inch color touch screen displays parameters to operate and configure the device. Single and double relay cards, semiconductor switches and Photo-MOS relays are available as switching outputs. The integrated paperless recorder features four analog and three binary signals, which can be recorded in two groups and displayed as a graph on the screen. **315/437-5866; www.jumousa.com.**

JWC ENVIRONMENTAL

The **Vertical Auger Monster** screening system from **JWC Environmental** fits inside cramped pump stations and provides complete pump protection. It safely and easily screens, cleans and conveys rags and flushable wipes straight up and out of the sewer system, giving collection system managers an affordable way to remove debris before it clogs sewage pumps, and eliminate the wasted time and expense of de-ragging a pump. **800/331-2277; www.jwce.com.**

KELLER AMERICA

The **LevelRat** non-fouling level transmitter from **Keller America** features a Kynar diaphragm that combines the non-stick properties of Teflon with superior resistance to puncture and abrasion. The result is a small, non-fouling level transmitter fit for use in even the worst environments, without the need for bulky protective cages. It includes guaranteed lightning protection standard on all 4-20 mA units. **877/253-5537; www.kelleramerica.com.**

KOMLINE-SANDERSON

Komline-Sanderson offers complete **biosolids drying systems** capable of handling in excess of 1,000 tons of wet cake per day. The dryer's shaft, hollow paddles and trough are heated with steam or thermal fluid. The design results in reduced maintenance costs. Indirect drying using the airtight dryer results in minimal off-gas volume, allowing simplified odor control systems and safe operation. It is versatile enough to produce material for Class A exceptional quality and a granular product for various agricultural uses, and can operate as a scalper to generate an autogenuous product to be used as a green fuel. **800/225-5457; www.komline.com.**

(continued)

RELIABLE
ACCURATE
SIMPLE TO USE

NEW PT4
FCE TEMP.

PT3
ORP TEMP.

PT2
pH TEMP.

PT1
CONDUCTIVITY TDS
SALINITY TEMP.

WEFTEC Booth #4660

MYRONL.COM 760-438-2021

MADE IN USA

MYRON L COMPANY
Water Quality Instrumentation
. . . Since 1957

Chemineer Model 20 Agitators

Reduce Inventory Requirements and Maintenance Costs

- Ideal for flocculator, flash/rapid mixer, digestors, and other wastewater mixer applications
- Advanced design provides high energy efficiency
- Field-proven reliable performance and long service life
- Modular design requires fewer replacement parts for additional cost savings
- Beam and pedestal mounted options
- Reversible rotation to meet a wide range of process requirements

For more information, visit **www.chemineer.com/model20.**

For the nearest sales office, call **1-800-643-0641** or go to **www.chemineer.com/sales.**

Visit Us at
WEFTEC
Booth
#2017

Chemineer
Reliability & Technology in Mixing

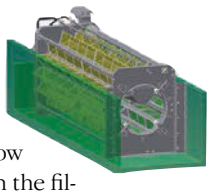
www.chemineer.com

NOV Mono

THE KUPFERLE FOUNDRY COMPANY

Intelligent Flushing Systems (IFS) from **The Kupferle Foundry Company** incorporate a chlorine analyzer and programmable logic controller into the design. They allow users to program minimum and desired chlorine residual levels that can be automatically maintained while only flushing the exact amount of water necessary to achieve these programmed parameters. They use an amperometric analyzer (no reagents required), and capture all initial and ending chlorine residual levels per sampling sequence, as well as time of day and flush duration. Data is easily downloaded onto a formatted micro-SD card, and can be downloaded into preformatted spreadsheet templates for analysis. **800/231-3990; www.hydrants.com.**

LAKESIDE EQUIPMENT



The **MicroStar Filter** from **Lakeside Equipment** enables process water to flow into a drum and then through the filter media. As the process water flows from the inside to the outside of the drum, solids are captured by the filter media. At a predetermined water level, the backwash cleaning sequence automatically initiates, utilizing a dual spray system to remove the captured solids. **630/837-5640; www.lakeside-equipment.com.**

LANDIA

The **AirJet** aspirating jet aeration system from **Landia** is ideal for aerating oxidation ditches and lagoons. It utilizes a heavy-duty chopper pump as its driving force, which guarantees durability, minimal maintenance and no plugging of the venturi, maintaining aeration efficiency. It does not require the tank to be drained. **919/466-0603; www.landiainc.com.**

LIQUID WASTE TECHNOLOGY

The **PIT HOG** from **Liquid Waste Technology** is an electrically powered, remote-controlled dredge designed to remove sediments from the bottom of wastewater lagoons and settling ponds. It is available with a standard 40-hp, high-efficiency pump. Its Solids Sense and Auto Sense automation is easy to use, resulting in the maximum production of solids. The Bottom Sense feature minimizes damage to lined ponds by following the bottom contours of the pond automatically. **800/243-1406; www.lwtpithog.com.**

LUDECA

VIBCONNECT RF from **LUDECA** is a wireless condition monitoring system for plant machinery. Simply install a sensor unit consisting of a radio module and two combined sensors for vibration and temperature at the machines. The sensor unit monitors machine vibration, bearing condition and temperature and transmits the relevant data to a bridge where it is evaluated. Each bridge caters to as many as 50 sensor units located within the large radio range of the system. It not only monitors the condition of roller bearings and other rotating components, but also detects damage caused by cavitation, enabling the detection of damage to machine components at an early stage. **305/591-8935; www.ludeca.com.**

LUMINULTRA TECHNOLOGIES

LuminUltra Technologies offers a **microbiological test method** that provides rapid quantification of the active biomass population at any point in a wastewater treatment process. Rather than relying on solids measurements that do not isolate what is alive and are slow to detect changes in the biomass, this test enables cause-and-effect relationships to be identified and trended to achieve total process optimization. When coupled with the PhotonMaster Luminometer and LumiCalc software, data is generated immediately and trends are revealed through graphing and statistical tools for enhanced process control. **506/459-8777; www.luminultra.com.**

LUTZ-JESCO AMERICA

The **MAGDOS LP** from **Lutz-JESCO America** is a solenoid actuated diaphragm pump with a wide capacity range for accurate dosing. Features include a capacity range of 0.13 to 3.96 gph, up to 232 psig; batch dosing with both interval and timer functions; an easy-logic menu with graphical display; and eco-settings to optimize energy and chemical usage. Its dosing rate can be adjusted by changing the stroke frequency manually or by using a 0/4-20 mA signal. **800/554-2762; www.jescoamerica.com.**

MET-PRO ENVIRONMENTAL AIR SOLUTIONS

The **BIO-PRO** biological odor control system from **Met-Pro Environmental Air Solutions** is designed to remove H_2S and reduced sulfur compound (RSC) odors generated during the treatment of municipal wastewater at pump stations, headworks and dewatering applications. It utilizes Bio-AirSPHERE media technology, a combination of synthetic and organic medias, which provides the proper environment for promoting bacteria growth to eliminate odorous compounds. **989/725-8184; www.mpeas.com.**

MET-PRO GLOBAL PUMP SOLUTIONS

The **Fybroc Series 5530** vertical pump from **Met-Pro Global Pump Solutions** is a corrosion-resistant pump suitable for handling the most difficult dry pit applications including acids, bleaches and caustics. It is ideal for use on odor-control scrubber systems. Features include mounting outside the tank, an FRP construction and FRP-wrapped 1/8-inch shaft, heavy-duty column, shaft and bearings, and optional high-pressure shaft seal. **215/723-8155; www.mp-gps.com.**

MILLER LEAMAN

The automatic **Turbo-Disc Filter** from **Miller Leaman** is a fully automatic, self-cleaning disc filter system. Available in multiple color-coded micron sizes, the lightweight three-dimensional polypropylene disc media uses a minimal amount of backwash water. The filter comes packaged with or without a pump on a stainless steel skid assembly. An onboard controller monitors the differential-pressure across the filter, initiating an automatic backwash when dirty. The filter housings (pods) are backwashed sequentially, maintaining downstream flow during the backwash cycle. It is used in a range of applications across many industries, including reuse water and stormwater harvesting. **386/248-0500; www.millerleaman.com.**

MOYNO INC.

The **InviziQ** pressure sewer system from **Moyno** is an alternative to conventional gravity sewage options. It utilizes grinding and pumping technology to efficiently and responsibly move sewage to treatment facilities, no matter the terrain, slope, environment sensitivity of the area or complex topography of the region. **877/486-6966; www.inviziq.com.**

MPC CONTAINMENT

Collapsible storage bladders from **MPC Containment** are available in sizes ranging from 250 to 210,000 gallons and larger. They can be used for potable, gray, and black water. They are fabri-

(continued)

seepex.com
all things flow

weftec 2013
the water quality event™

Why replace when you can adjust?

seepex **Smart Conveying Technology** extends the life of your stator. Adjustment of the retaining segments takes just 2 minutes and restores 100% pump performance.

Tests have shown up to 3x stator life compared to conventional progressive cavity pump design Join the smart revolution and test our innovation "Smart Conveying Technology".

Please visit seepex at WEFTEC in booth 425!

seepex Inc.
511 Speedway Drive
Enon, Ohio 45323

sales@seepex.net
www.seepex.com

The Next Generation of Intelligent Process Analysis

NEW AquaSelect

Multi-Input Process Analyzer

Highly sophisticated and extremely flexible, the new HF scientific AquaSelect analysis platform meets the needs of a wide range of complex process operations.

- **Large color display**
- **Up to four sensor inputs**
- **Multiple digital communication protocols**
- **Up to six alarm/control relays**
- **Compatible with a wide range of analog and digital sensors**
- **Front panel USB port**

Visit us at WEFTEC 2013 booth #3075

HF scientific
toll free: 888-203-7248
fax: (239) 332-7643 e-mail: HFinfo@Watts.com

A Watts Water Technologies Company

For more information visit our web site:
www.hfscientific.com

cated using military-grade materials and NSF certified potable water-grade materials. All flexible bladders are available in custom designs and sizes, and include fittings as required. **800/621-0146; www.mpccontainment.com.**

ORENCO SYSTEMS

Pre-fabricated **fiberglass shelters** from **Orenco Systems** are strong, lightweight, super-insulated shelters that safely house equipment, chemicals, controls and workers. Standard sizes are 8 feet tall, 4 to 16 feet wide and up to 42 feet long. Features include structural foam-core fiberglass walls (2 to 4 inches thick), a weather-proof watertight structure, insulation value up to R24, chemical and corrosion resistance, a roof structure rated up to 100 psf and field or factory assembly. **800/348-9843; www.orenco.com.**

ORIVAL INC.

The **ORE/A** automatic self-cleaning screen filter from **ORIVAL Inc.** simplifies controls while increasing reliability and performance. Troublesome limit switches, expensive reversing motors, extra contactor, a second overload protection device and complex controllers have been eliminated. Self-adjusting nozzles (with no springs) maintaining light contact with the screen surface during the automatic rinse cycle for maximum cleaning and minimum water loss come as standard equipment. It comes in sizes from 2- to 24-inches, and filtration degrees from 5-3000 microns. **800/568-9767; www.orival.com.**

PACE DEWATERING SYSTEMS

Centrifuge-based **dewatering systems** available for rent from **Pace Dewatering Systems** are available in ranges from 25- to 29-inch bowl diameters, which sit on mobile stands. Units come with control buildings that provide a weatherproof environment to operate the dewatering system from a comfortable location. Renters can reduce capital costs, perform a pilot test prior to committing to purchase and can have short-term dewatering during construction or emergency events. **800/465-2115; www.paceds.com.**

PHOENIX CONTACT

The **PT-IQ** surge protection device from **Phoenix Contact** offers multi-stage remote monitoring, ideal for SCADA systems typical in water/wastewater systems. It provides proactive functional monitoring for signal interface surge protection devices. The system informs the user if a plug replacement is needed long before the components fail due to overload. This can prevent unnecessary service costs, while ensuring system availability and signal quality. **800/322-3225; www.phoenixcontact.com.**

PMC ENGINEERING

The zero-maintenance sewage **lift station monitoring and control system** from **PMC Engineering** includes a stainless steel sink weight incorporating a removable VL2000 ceramic open-faced transmitter. This non-clogging design is ideal in treating effluent with increased FOG (fats, oils and greases). The transmitter is connected to the PMC TE11 termination enclosure via a fully molded/sealed Kevlar-reinforced cable of customer-specified length. The sealed enclosure incorporates the MP11 moisture protection component providing zero maintenance. **203/792-8686; www.pmc1.com.**

PROBIOTIC SOLUTIONS

BIO ENERGIZER from **Probiotic Solutions** is a specialized micro carbon complex that is used in municipal and industrial systems to reduce sludge, odor, BOD/CODs, FOGs and costs in wastewater treatment plants and lagoons. At less than one-tenth the typical cost of dredging, handling and hauling, and less than one-hundredth the cost of building a treatment plant, it can help operators save in operating costs. It increases volatile solids destruction and improves decant volume and settleability for greater digester and reactor capacity, giving operators more capacity to waste solids. **800/961-1220; www.probiotic.com.**

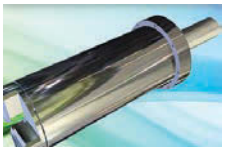
PURAFIL INC.

The **Biological Air Treater (BAT)** from **Purafil Inc.** provides efficient and cost-effective odor abatement, with quality hydrogen sulfide (H_2S) and VOC treatment. Its dual-phase bio-support structure prevents plugging and channeling, providing a lower pressure drop and requiring little or no maintenance. It features a fully optimized and tunable support structure providing better wetting characteristics, predictable mass transfer and air distribution, and high loading and removal capacities. This fixed-film biotrickling filter technology has proven to be effective and economical in varied odor-control applications over the past 15 years. **770/662-8545; www.purafil.com.**

RAVEN LINING SYSTEMS

Raven Lining Systems are 100 percent solids, ultra high-build epoxies used to protect against corrosion in new construction and to rebuild deteriorating infrastructures. They are moisture tolerant and environmentally friendly, providing continual support to those looking for long-term protection and infrastructure renewal. **800/324-2810; www.ravenlining.com.**

REAL TECH



M1000 probes from **Real Tech** are beneficial for many heavy organic-laden monitoring applications, as well as for monitoring UVT for wastewater UV disinfection applications. They are specifically designed to provide increased accuracy and reliability in open channel or non-pressurized wastewater applications, while maintaining affordability and ease of use. They overcome the inherent challenges of UV254 real-time organic monitoring. **877/779-2888; www.realtech.ca.**

ROCKWELL AUTOMATION

Allen-Bradley NEMA and IEC CENTERLINE Motor Control Centers (MCCs) from **Rockwell Automation** are available with embedded EtherNet/IP, giving utilities access to production information throughout the enterprise. Plant engineers can access more detailed data allowing them to predict potential problems and prevent equipment failures, resulting in higher asset availability, improved productivity and reduced maintenance costs. Leveraging a single, standard network simplifies communication and provides users with the flexibility to control, configure and collect data from any point in the system. **414/382-2000; www.rockwellautomation.com/industries/water.**

ROSEMOUNT ANALYTICAL

The **56** four-wire advanced liquid analyzer from **Rosemount Analytical** integrates tools, tips and troubleshooting to solve problems on site. Its help screens allow users to clear faults and warnings with detailed instructions and troubleshooting in multiple languages. The data and event logger downloads process data and alarm conditions via USB 2.0 data port. A high-resolution full-color screen allows users to view process measurements and data trend graphs. It features PID and time-proportional capabilities, and HART and Profibus DP

(continued)

SEPTAGE RECEIVING...

DO YOU NEED A BETTER SOLUTION?

Automated Septage Receiving Stations

- ☑ Flexible designs to fit your budget
- ☑ Controls valves, scales, samplers, & gates
- ☑ Generates reports and monthly invoices
- ☑ High Return on Investment (ROI)

Over 100 installations

Enhanced Security at Stations

Solutions Enclosing Samplers

Extreme Cold Applications

Remote Unattended Sites

Custom Solutions for Multi-Lane Water Depots

PortALogic
A Product of EleMech, Inc.
630.499.7080
www.portalogic.info

weftec 2013
BOOTH #3784

ENSIGN 500
by THERN

Specifically designed with the water/ wastewater industry in mind, this portable crane will easily handle lifts up to 500 lbs. The Ensign joins a flock of Thern mixer lifts and pump hoists that are capable of lifting 500 to 3,000 lbs. It's no wonder why industries all over the world . . .

LEAVE THE HEAVY LIFTING TO US

THERN

Winona, Minnesota
info@thern.com www.thern.com

SEE THE ENSIGN AT WEFTEC - BOOTH #1681

digital communications. It is compatible with a Smart Wireless THUM Adaptor. **800/854-8257; www.rosemountanalytical.com.**

SCHREIBER

The **Fuzzy Filter** from **Schreiber** is a compressible media filter for water and wastewater treatment systems. Operating in an upflow or downflow design, it achieves an exceptionally high rate of solids removal through the use of synthetic fiber spheres. With loading rates of 40+ gpm/square foot the filter requires 20 percent of the space for sand filters. Applications include tertiary wastewater, pre-filtration to RO systems, water reuse (Title 22), CSO and many industrial process applications. **205/655-7466; www.schreiberwater.com.**

SEE WATER INC.

WS Series simplex and duplex control panels from **See Water Inc.** are designed for sewage pump applications, and come equipped with "smart board" integrated circuitry, complete pump monitoring and UL 508A or 698A certification. Models include demand, timed dosing and intrinsically safe. These products have a three-year warranty. **888/733-9283; www.seewaterinc.com.**

SEEPEX INC.

A piping-contained **cake transfer solution** from **seepex Inc.** can replace the open-air cake transfer method using conveyors. The pitch, diameter, and speed of the auger, which pushes the cake into the pumping element, can be adjusted to match the application while load cells automate the process. The hopper is fitted with sensors, which detect the increase in weight and adjust the speed of the pump accordingly. The system is also fitted with a pressure sensor, dry-run protection and a boundary layer injection system. A control panel can be provided to ensure properly functioning components. **937/864-7150; www.seepex.com.**

SHERWIN-WILLIAMS CO.

Dura-Plate 301, a solvent-free, surface and humidity tolerant two-pack modified epoxy from **Sherwin-Williams Co.,** can be applied over damp steel surfaces without dew point restrictions in treatment facilities with pipe galleries. It protects sweating pipes from corrosion, and also eliminates odor associated with coatings that contain high levels of solvent. It is suitable for marginal surface preparation, which prevents damage to equipment such as treatment pumps and motors that can be affected by abrasive blasting. **800/524-5979; www.sherwin-williams.com/protective.**

SIEMENS WATER TECHNOLOGIES

BioSphere Moving Bed Biological Systems from **Siemens Water Technologies** incorporate a biomass carrier into a moving bed fixed-film process that provides a protected, extremely high surface area environment for biofilm growth. The result is a system capacity increase of 200 percent or more, and ensures compliance with tightening permit limits, all within existing plant footprint. It is ideal for plant upgrades, retrofits or expansions of both municipal and industrial wastewater treatment plants. It can achieve BOD5 to less than 5.0 mg/L, and enhanced nutrient removal of total nitrogen (TN) to less than 3.0 mg/L. **866/926-8420; www.water.siemens.com.**

SINGER VALVE

The **ZS Strainer** from **Singer Valve** is designed to protect control valves and pipelines from foreign matter such as twigs, leaves and rocks that get caught in the flow and can cause blocks or equipment failure. It has a Z-plate design that provides a smooth laminar flow, which reduces downstream disturbance, making it ideal for locations ahead of automatic control valves. The corrosion-resistant 316 stainless steel screen allows for a large flow area and is easily removed. There are two body taps that allow for differential pressure measurement. It is available in 3-, 4-, 6- and 8-inch pipes sizes, 150-pound or 300-pound flanged. **604/594-5404; www.singervalve.com.**

SJE-RHOMBUS (PRIMEX)

The **ECO SMART STATION** control panel from **SJE-Rhombus (PRIMEX)** provides a safe, simple, energy-efficient solution for optimum pump control in municipal lift station applications. It integrates the Energy View controller with the latest variable-frequency drive technology into the multiple compartment ARC ARMOR enclosure to reduce exposure to arc flash and save energy. It is powered by kW Logix software. The color touch-screen HMI has the ability to provide level control, pump alternation, flow monitoring, data logging, alarm log and historical trending. The auto-tuning function will search for the Best Efficiency Frequency (BEF). **888/342-5753; www.ecosmartpanel.com.**

SPENCER TURBINE COMPANY

The **AyrJet Series** of high-speed turbo blowers from **Spencer Turbine Company** provide energy-efficient water and wastewater treatment aeration, with flows to 9,000 cfm and pressures up to 16 psig. They feature magnetic bearing technology, with best-in-industry wire-to-air efficiencies. This technology offers high thrust load capability and lower starting torque than air-foil bearings. Built-in monitoring and managing of the shaft position provides inherent fail-safe protection. It has a programmable logic controller, operator interface terminal, and flow-based, pressure-based or level-based control. Systems are prewired and pretested with built-in inlet filtration, oil-free air delivery and a sound-reducing enclosure. **800/232-4321; www.spencerturbine.com.**

SPER SCIENTIFIC

The **AquaShock** waterproof and shockproof water-quality meter from **Sper Scientific** is rechargeable, and floats if dropped in water. It is IP67 waterproof, and features waterproof probe attachment points that also accept standard (non-waterproof) BNC probes. They have a "soft-grip" surface to help prevent accidental drops, making them ideal for field use. Other features include a backlit LCD display, 99-memory review, min/max/ave, internal clock and calendar, auto-ranging and ATC. Models are available to measure dissolved oxygen, pH, mV, ORP, conductivity, TDS and temperature. **480/348-0278; www.sperdirect.com.**

SPX FLOW TECHNOLOGY

The **Lightnin Brand Clean Edge Impeller** from **SPX Flow Technology** can be used in all services where a ragless impeller is either specified or needed. Specifically designed for this demanding service, it remains free of fibrous debris while delivering performance equal to a hydrofoil impeller. In one application, after nine months of continuous operation, the impeller exhibited no rag buildup on the diameter, had the same power draw as when installed and caused no mechanical issues or problems while delivering the required mixing and suspension in an anoxic basin. **888/649-2378; www.spxft.com.**

STEWART SPREADING

Stewart Spreading provides full service **crop farm and residuals management.** They provide innovative and environmentally sound solutions with outstanding customer service. Services include beneficial recycling, custom farming, biosolids land application, mobile dewatering, digester and lagoon cleaning, EPA reporting and green industrial solutions. **815/695-5667; www.stewartspreading.com.**

(continued)

Municipal & Industrial
MAINTENANCE SERVICES

SEWER & CATCH BASIN CLEANING Single and double-pump jet-vac combination units with line jetting capabilities of 175 gpm. Catch basin cleaning available with per hour or per basin pricing.

SEWER TELEVISION INSPECTION
We have the CCTV equipment and experienced technicians to perform any type of mainline or service lateral inspection you need. Powered by the latest computers and software.

WET/DRY VACUUMING Jobs that used to take days are completed in hours. Our custom-built vacuum vehicles can quickly cleanup the toughest, dirtiest material, no matter where it's located..

Other Services Available:

- **Sewer Joint/Lateral Sealing**
- **GPS/GIS Data Collection**
- **No-Dig Cipp Point Repairs**
- **Manhole Rehabilitation**
- **Digester/Tank Cleaning**
- **Pit, Pond & Lagoon Cleaning**
- **Sludge Dewatering**
- **Water Blast Cleaning and much more.**

All Work Backed by Our Unmatched Guarantee: You must be satisfied or you pay absolutely NOTHING for our services.

weftec 2013
Booth 4554

Call Toll Free **1-800-621-4342**

CARYLON CORPORATION

2500 W. Arthington Street ▪ Chicago, IL 60612 ▪ Fax: 312-666-5810

Visit Us On the Web: www.caryloncorp.com

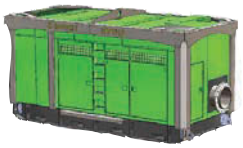
STRONGWELL

The fiberglass (FRP) **COMPOSOLITE** building panel system from **Strongwell** is a strong, lightweight, corrosion-resistant and easy-to-install alternative to traditional corrugated baffle wall systems. The design provides the ability to increase column spacing. For retrofits, panels can be mounted to existing columns or attached to H-beams or concrete walls for durability and cost effectiveness. It can be used in conjunction with EXTREN structural shapes to form an all-FRP composite system (except for the stainless steel fasteners). **276/645-8000; www.strongwell.com.**

SULZER PUMPS

The **ABS Turbocompressor HST 20** from **Sulzer Pumps** is a direct-drive high-speed turbocompressor with built-in inlet and outlet air silencers (less than 70 dBA). It features wire-to-air efficiency (advanced permanent magnet motors and digitally controlled magnetic bearings), an intuitive human-machine interface (HMI), advanced magnetic bearings and bearing control coupled with a self-diagnostic control system which optimizes performance and overall lower operating cost. **503/205-3600; www.sulzer.com.**

SUNBELT RENTALS



The 18-inch **Quiet Flow** sound-attenuated diesel trash pump from **Sunbelt Rentals** is ideal for temporary pumping, offering flows up to 12,500 gpm and a shutoff head exceeding 175 feet. The pump joins the Quiet Flow fleet, all of which boast sound attenuation and environmental containment. **800/736-2504; www.sunbeltrentals.com.**

TANK CONNECTION AFFILIATE GROUP

RTP Bolted Tanks from **Tank Connection Affiliate Group** combine bolted and field-welded tank construction in the RTP (rolled, tapered panel) tank design. Bolted RTP construction features exact manufacturing tolerances with sidewall plate thickness up to 1/2-inch plate. No external reinforcement webbies/web stiffeners are required on this design. Field construction is accomplished utilizing a synchronized, hydraulic screw jack process, which keeps field crews on the ground. This field construction process receives the highest industry ratings for quality control and safety in the field. Tanks are available in sizes up to 8 million gallons. **623/423-3010; www.tankconnection.com.**

TELOG INSTRUMENTS

Telog Instruments provides wireless lift station monitoring that can be installed inexpensively. The system provides real-time alarming and notification via SMS text or email, time-stamp event data, trend data, station flow history, pump cycle data, pumping rate history, pump energy efficiency history and site diagnostics. Data is transferred wirelessly to a host computer for web viewing. Also offered is a data hosting service that collects and manages remote telemetry unit (RTU) data, making it accessible from a certified, secure commercial data center. **585/742-3000; www.telog.com.**

THERMO FISHER SCIENTIFIC

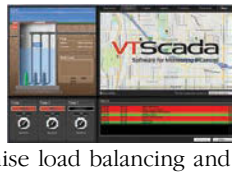
The **AquaPro** multi-input process analyzer from **Thermo Scientific** is an intelligent, flexible analysis platform for a wide range of water and wastewater treatment applications. Displaying the status of up to four measurement parameters simultaneously, a complete picture of process status can be displayed on a single instrument due to the analyzer's multi-channel capability, reducing the number of meters required, as well as installation and maintenance time. Its user-friendly interface and easy-to-use menus in seven languages enable simple, intuitive operation. Its plug-and-play architecture simplifies the addition of new features and parameters, allowing you to configure the exact analyzer for your needs. **800/225-1480; www.thermoscientific.com/processwater.**

THERN INC.

Models **5PA5** (500-pound capacity) and **5PA10** (1,000-pound capacity) **Ensign Series** davit cranes from **Thern Inc.** were designed for the water/wastewater industry. They feature a hook height and reach suitable to wastewater applications, along with a new boom adjustment system and reduced rotational effort, which is ideally suited for servicing pumps and mixers. **800/843-7648; www.thern.com.**

TRIHEDRAL ENGINEERING LIMITED

VTScada Version 11 from **Trihedral Engineering Limited** features open connectivity that supports all major PLCs or RTUs, and can replace polling with Master PLCs. One file installs all the components, and its server architecture offers no-compromise load balancing and failover using fewer computers. Application version control permits instant recovery from unexpected effects of configuration. The new lift station optimization features coordinate collections operations to reduce energy costs, increase response time and reduce surges. **800/463-2783; www.trihedral.com.**



ULTRAFLOTE CORPORATION

The **Ultradome** roof from the **Ultraflote Corporation** is a fully triangulated, spherical, space-frame structure designed to be self-supporting from its periphery with primary horizontal thrust contained by an integral tension ring. The framework is covered with attractive non-corrugated aluminum panels. It is virtually maintenance-free, as the aluminum alloys utilized are weather resistant and do not require coating. **713/461-2100; www.ultraflote.com.**

UNISON SOLUTION

BioCNG from **Unison Solutions** is a biogas conditioning system that converts biogas to a CNG equivalent fuel for vehicles. It utilizes a hydrogen sulfide removal system as the first step in the process. The biogas-conditioning skid includes equipment for gas compression, in addition to moisture, siloxane and carbon dioxide removal. Both the hydrogen sulfide removal and skid are rated for Class I, Division 1 environments. Other components include a glycol chiller and a Type 4, UL508A control panel. This system is used in conjunction with a vehicle fueling system to provide high quality fuel for CNG vehicles. **563/585-0967; www.unisonsolutions.com.**

USA TANK

Flat panel bolted **tanks** from **USA Tank** offer outstanding performance, reliability and ease of installation. Their flat seam, field assembled design eliminates leaky flange connections and lap gaskets in liquid tank applications. Using the latest sealant to replace all strip gaskets dramatically reduces the possibility of bolted panel seam leaks. Tanks are erected from ground level with a jacking system, improving safety at the construction site. **866/700-2500; www.usatanksales.com.**

VAL-MATIC VALVE & MFG. CORP.

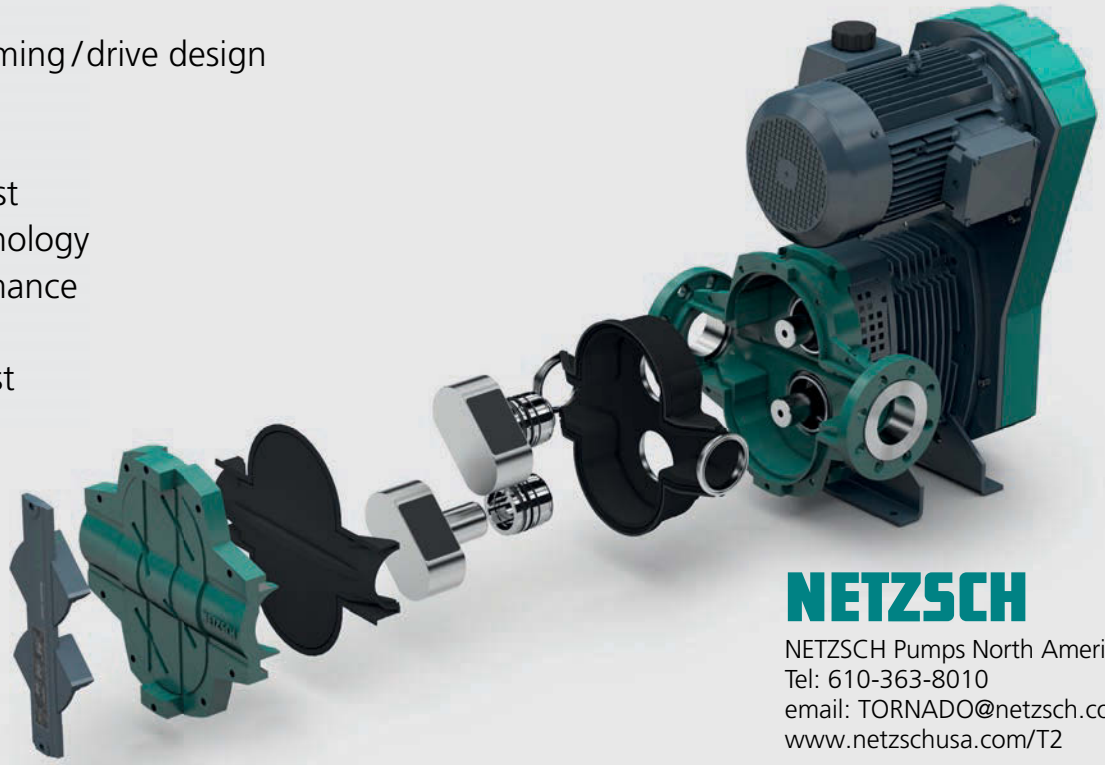
The **Cam-Centric Plug Valve** from **Val-Matic Valve & Mfg. Corp.** is ideal for systems where slurries, grit or solids are present. Its eccentric action allows the plug to rotate in and out of its seated position, mini-

(continued)

NETZSCH TORNADO® T2 Rotary Lobe Pump

New Metal Lobe / Rubber Liner Design!

- Ground-breaking timing / drive design
- Full service-in-place
- Replaceable liner
- Lowest life cycle cost
- Cartridge seal technology
- Exceptional performance
- Superior durability
- Compact and robust
- Low pulsation



Booth 1262
at WEFTEC
in Chicago,
Oct. 7 - 9, 2013

NETZSCH

NETZSCH Pumps North America, LLC
Tel: 610-363-8010
email: TORNADO@netzsch.com
www.netzschusa.com/T2

We know that
one degree matters.

Call Chromalox when process temperature maintenance is critical.

- **SELF-REGULATING HEAT TRACE CABLE**
  - Circuit lengths: Up to 780 ft (240M)
  - Process maintenance temperature: Up to 302°F (150°C)
  - Exposure temperature: Up to 420°F (215°C)
  - Power output: 3, 5, 8, 10, 15, and 20 W/ft (10, 16, 26, 32 48, and 65 W/m)
  - Voltages: 120 and 208 to 277V
- **HEAT TRACE DIGITAL THERMOSTAT (DTS)**
  - Freeze protection or process maintenance
  - Switches a full 30A
  - Good for Div. 2 Haz. areas
  - Selectable soft start feature to minimize in-rush for self-regulating cables
  - Programmable HI/LO temperature alarms
- **intelliTRACE™ CONTROL PANEL**

A complete control solution for heat trace applications, providing temperature control, monitoring, and power management in one package. The modular design of the control panel and components allows selection of only those features needed for a specific heat trace installation, minimizing cost and simplifying system configuration.

www.chromalox.com
1.800.443.2640
sales@chromalox.com

Chromalox®
PRECISION HEAT AND CONTROL

© 2012 Chromalox, Inc.

mizing rubbing or scraping. Features such as a heavy-duty fully rubber encapsulated plug, welded nickel seat, Grit-Guard seals, V-Type packing and Packing Overload Protection (POP) shims help make it operate leak-free. It meets AWWA C517 and is available in 1/2- to 54-inch sizes. **630/941-7600; www.valmatic.com.**

VAN LONDON – PHOENIX CO.

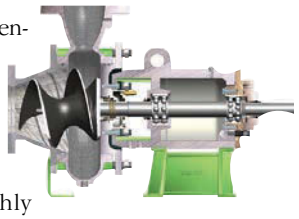
The **OD8325** optical dissolved oxygen probe from **Van London – pHoenix Co.** is a submersible probe designed to measure dissolved oxygen based on fluorescent technology. It consists of an optical device complete of fluorescent material, a dissolved oxygen and temperature-measuring circuit, two-wire 4-20 mA analog output, RS 485 digital output and nozzle for autoclean by external pressure air. The probe can be connected to a PLC or data logger without using amplifiers or other devices, and can be connected to any controller to power the probe. Applications include water quality monitoring, municipal and water treatment and aquaculture. **800/522-7920; www.vl-pc.com.**

VAREC BIOGAS

Varec Biogas has partnered with BioGasclean A/S for biological H_2S removal systems in North America. They can now provide a complete package for digester gas cleaning in municipal wastewater or industrial wastewater. The biological H_2S removal process handles higher flow rates and higher concentrations of H_2S, potentially reducing capital cost and footprint. The media used provides a longer bed life, resulting in an overall lower operating cost. The residual product from the biological process is a liquid sulfate solution that is normally mixed with the treated effluent or biomass from the biogas digesters, and recycled as valuable S-fertilizer. **866/424-6427; www.varec-biogas.com.**

VAUGHAN COMPANY

The **Triton** screw centrifugal pump from **Vaughan Company** features a high-efficiency, non-clog design. Its open-channel impeller is ideal for handling thick sludges, large or stringy solids, shear sensitive fluids and delicate or highly abrasive materials. Features include steep performance curves, non-overloading power characteristics, heavy-duty power frames, patented back cutter system and the flushless mechanical seal design to eliminate water flush requirements. A water-flushed mechanical seal or packing is also available. **888/249-2467; www.chopperpumps.com.**



VOGELSANG

IQ Series pumps from **Vogelsang** eliminate 50 percent of the parts that make up a typical rotary lobe pump wet-end. This means real cost savings in terms of spare parts cost, as well as associated labor. It also features an advanced flow-path design that improves flow and solids handling. The integrated flange design allows a flange to be used in a 90-degree or gooseneck arrangement, keeping the pump flooded to maintain prime and extended dry running. The flange arrangement is also very narrow. It delivers pulsation-free flow, low shear and high solids handling. **800/984-9400; www.vogelsangusa.com.**

WEG ELECTRIC CORP.

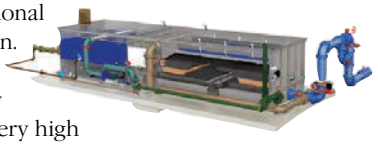
The **W22** electric motor from **WEG Electric Corp.** was designed to maximize performance and energy savings. It features an optimized cooling system, large and accessible terminal box, a bearing seal system, low vibration levels and a 1.25 service factor. **800/275-4934; www.weg.net/us.**

WEIDMULLER

Pre-configured **wireless enclosures** from **Weidmuller** feature NEMA 4X outdoor-rated stainless steel or plastic enclosures with either WiFi or radio frequency transmitters/receivers. The WiFi solution features a Weidmuller wireless Ethernet (WiFi) 2.4 Ghz modem, which can function as an access point, bridge, client or router. The radio frequency solution can transmit and receive two digital and one analog signal over a range of several miles. The two preassembled plastic enclosures each house a matched transmitter and receiver. They are preinstalled with a power supply, circuit protection, surge protection, terminal blocks, ground blocks, antenna, antenna connection cables and network and power connections. **800/849-9343; www.weidmuller.com.**

WESTECH ENGINEERING

The **Trident HS** package water treatment plant from **WesTech Engineering** provides multi-barrier protection for difficult-to-treat surface water, groundwater, industrial process water and tertiary wastewater. It consists of packaged high-rate settling, adsorption clarification, mixed-media filtration and optional UV disinfection. These innovations allow it to handle very high raw water turbidity and solids loading and achieve TOC reductions of up to 70 percent or more. In addition, all of these benefits can be achieved with a nearly 50 percent reduction in waste production. **801/265-1000; www.westech-inc.com.**



WESTFALL MANUFACTURING CO.

The **Model 2800** static mixer from **Westfall Manufacturing Co.** is a wafer-style fixed plate that rapidly mixes fluids through a combination of alternate vortex shedding and intense shear zone turbulence. Featuring a slim profile with a short laying length of only a few inches and integral injection assemblies, it achieves better than 98 percent injected fluid dispersion in only 10 pipe diameters downstream. For testing results, see Alden Labs report on Westfall's website. **888/928-3747; www.westfallmfg.com.**

ZOELLER ENGINEERED PRODUCTS

The **Model 7011** 2-hp grinder pump from **Zoeller Engineered Products** features a unique cutter design, with a superior star cutter that works with a rotational shearing action that changes direction each time the pump activates. This action results in a longer service life. Additionally, the roping effect that leads to clogs is virtually eliminated. **800/928-7867; www.zoellerengprod.com.** tpo

See Both Sides

Now there's a magazine for the drinking water side of the house. *Water System Operator*™ — with the same emphasis on the people who make it all work.

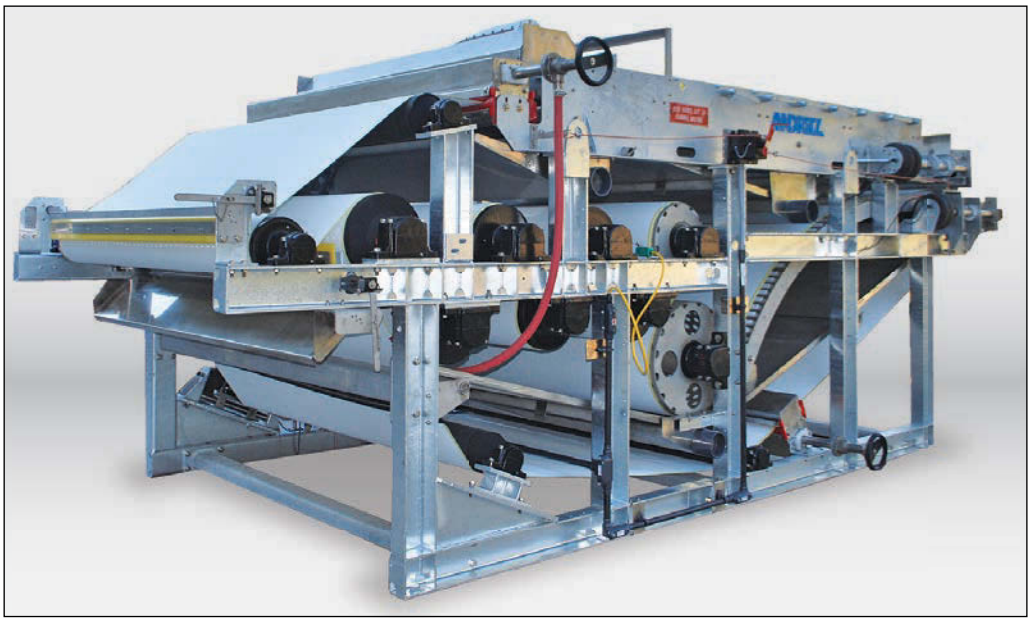
FREE subscription at wsomag.com

WSO WATER SYSTEM OPERATOR

Powered by Reliability

Performance guaranteed by experience

ANDRITZ Separation



As specialist's in the water and wastewater industries. ANDRITZ Separation offers the most comprehensive portfolio of technologies and services designed to increase performance and profitability.

- Our belt filter presses are designed to reduce overall operating and maintenance costs. Our range includes 1.5 to 3.0 meters in width and from 6 to 14 pressure rolls, with low and high pressure formats designed for your operating conditions.

Our other product offerings include:

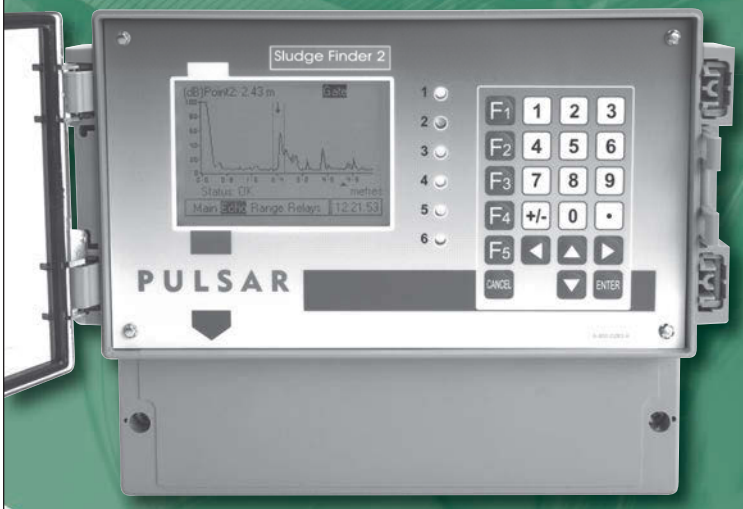
- Centrifuges
- Screens (Fine and Coarse)
- Filter presses (Plate and Frame)
- Thermal drying systems
- Conveying systems
- Gravity Belt and Drum Thickeners

ANDRITZ SEPARATION Inc.
1010 Commercial Blvd. South, Arlington TX 76001, USA
Phone: +1 (817) 465 5611, Fax: +1 (817) 468 3961, separation.us@andritz.com

weftec 2013
Booth 2002

www.andritz.com

SLUDGE INTERFACE DETECTION



SBR's, primary, secondary and tertiary clarifiers as well as settlement tanks/basins.

- Remote monitoring – no need for site visit
- On screen echo and tank profiles, status and level, in up to two tanks simultaneously
- Self cleaning and maintenance free

Tel: +1 850 279 4882
info.usa@pulsar-pm.com
www.pulsar-pm.com

Booth #5231

pulsar PROCESS MEASUREMENT

Wildlife habitat improvements at the Crowders Creek plant include development of 2.4 acres of open space as a wildflower meadow, and installation of wood duck boxes, purple martin condos and a hawk perch.

PHOTOGRAPHY BY BETH CUNNINGHAM

Stewardship Certified

A NORTH CAROLINA TREATMENT PLANT GAINS CERTIFICATION UNDER A PROGRAM THAT BRINGS INDUSTRY AND WILDLIFE TOGETHER

By Jeff Smith

Wildlife stewardship is important to the operators at the 6 mgd Crowders Creek Wastewater Treatment Plant, and they have a certificate to prove it.

In February 2012, the plant received the Certified classification from the North Carolina Wildlife Federation for practicing the tenets of the federation's Wildlife and Industry Together (W.A.I.T.) program, an effort to enhance wildlife habitat and provide educational opportunities for employees and the public.

"It has been a very positive thing for our staff," says Stephanie Scheringer, assistant division manager of wastewater treatment operations for Two Rivers Utilities (TRU), the utility entity serving Gastonia, N.C. The journey began in 2009 when Janet Maddox, pretreatment coordinator, read an article describing the steps required to become W.A.I.T. certified. "She brought the idea forward, it was approved by our management, and the operations and maintenance staff just ran with it," says Scheringer.

> "Like everything we do, success is determined by the work and commitment of the staff. They really love nature and the animals, and it really shows in the great work they've done with the program."
>
> **STEPHANIE SCHERINGER**

The process required the formation of an employee committee to develop a three-year plan for review by a W.A.I.T. inspection team, which included Beth Cunningham, Sibyl Brotherton and Kevin Graves, plant operators; Charlie Graham, senior plant operator; Martin Lynn and Tim Hall, plant mechanics; Sara Sims, laboratory technician; and Adam Evatt, landscape technician.

The plan's eventual approval classified the plant as a Participating Member of W.A.I.T., indicating a commitment to meet the requirements for full certification. "One thing I like about the W.A.I.T. program is that it's an inexpensive way to naturally enhance the environment and the native species," Scheringer says. "We didn't spend a lot of money on it, and it provided us the opportunity to partner with the community and increase the environmental education."

The plan included development of 2.4 acres of open space near the plant as a wildflower meadow for wildlife. Members of the Piedmont Area Wildlife Stewards (PAWS) conservation group in Gaston County built wood duck boxes. Caleb Bynum, son of Mike Bynum, TRU engineering division manager, built and installed several purple martin condos and a hawk perch as part of an Eagle Scout project.

To meet the program's educational requirement, the plant team created an on-site library with books on native species and photos of wildlife seen on the site. Dr. Steve Tracey, a member of the Charlotte Audubon Society, has surveyed 34 bird species at the facility. Plant tours are also a big part of the outreach initiative.

"We conduct tours of the whole facility, so we're not only teaching folks how the wastewater treatment plant operates, but also about the local wildlife," says Scheringer, who also serves as temporary senior operator of the treatment plant. Tours are for the general public, but schools are the biggest attendees. A local middle school sent 324 eighth graders. Maddox, Scheringer and any of the committee members conduct the tours, which include a visit to the laboratory.

Wastewater Treatment and Sludge Management Solutions from Komline-Sanderson

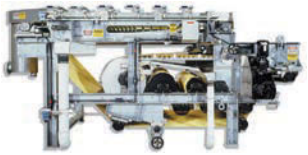
Pump. Thicken. Dewater. Dry.

Paddle Dryer

- indirectly heated
- produce Class A product
- high efficiency

Belt Filter Press

- sludge dewatering
- high cake solids
- low polymer cost



Gravity Belt Thickener

- sludge thickening
- high rates
- low polymer cost

Dissolved Air Flotation

- sludge thickening
- wastewater clarification
- high float solids

weftec 2013
Booth 3631

Rotary Vacuum Filter

- sludge dewatering
- wastewater clarification
- continuous operation

Plunger Pump

- sludge transfer
- positive displacement
- high suction lift

Komline-Sanderson

"We walk around the entire facility and explain how each of the treatment units work, and they see things like the wood duck boxes," Scheringer says. "We show them our SCADA system and look at microorganisms in the microscope, and typically give a PowerPoint presentation that provides more detail about things that otherwise would be difficult to see."

Two other TRU plants are working toward W.A.I.T. certification. "We are really proud of our plant," Scheringer says. "Like everything we do, success is determined by the work and commitment of the staff. They really love nature and the animals, and it really shows in the great work they've done with the program." **tpo**

PHOTOGRAPHY BY NANCY MATHERLY

The team at the Crowders Creek facility includes, from left, Stephanie Scheringer, assistant division manager, wastewater treatment operations; Tim Hall and Martin Lynn, plant mechanics; Charlie Graham, senior plant operator; and Kevin Graves, TJ Johnson, Sibyl Brotherton and Beth Cunningham, plant operators.

PHOTOGRAPHY BY BETH CUNNINGHAM

Janet Maddox, pretreatment coordinator.

Digital Technology

By Craig Mandli

Computerized and digital technology can help operators make their treatment plants run more efficiently. Here is an assortment of technologies that are helping bring wastewater treatment into the digital age.

Control/Electrical Panels/Drives

CAL 2000 electromechanical gas generator from Advanced Calibration Designs

ELECTROMECHANICAL GAS GENERATOR

The handheld, battery-powered CAL 2000 electromechanical gas generator from Advanced Calibration Designs is microprocessor-controlled and uses precision components to deliver exact concentrations of calibration gases in quantities up to 100 times that of a single typical calibration gas cylinder. Gases that are provided include hydrogen, hydrogen sulfide, hydrogen cyanide, chlorine, chlorine dioxide, ozone and ammonia. **800/737-0223; www.goacd.com.**

EDDY CURRENT DRIVE DIGITAL CONTROLLER

EC-2000 digital controller from DSI Dynamatic

The EC-2000 digital controller from DSI Dynamatic replaces all makes of eddy current variable-speed drives, regardless of coil voltage or speed feedback format. It enables digital or analog integration with digital process control systems, SCADA systems or PLCs. A flexible keypad enables simple and intuitive programming. It achieves responsive, accurate speed control, controlled acceleration and deceleration, selectable local/remote or manual/automatic speed control, external signal following and programmable PID speed control. **800/548-2169; www.dynamatic.com.**

RA-1000 digital controller from Eagle Microsystems

DIGITAL CONTROLLER

The RA-1000 digital controller from Eagle Microsystems lets users monitor residual concentrations of free or total chlorine, chlorine dioxide, or potassium permanganate. It offers eight field-selectable ranges, all-digital controls, self-cleaning electrodes and fully automatic control capability. A sample of water or wastewater containing the target chemical is pumped to a reservoir, where it is gravity-fed to an amperometric measuring cell along with a pH buffering agent, where a small current is developed. The output is processed by an onboard microprocessor-based digital controller, and the residual value is displayed on the LCD readout. **610/323-2250; www.eaglemicrosystems.com.**

PUMP STATION LEVEL CONTROLLER

The PSL 5.0 pump station level controller from Greyline Instruments uses redundant level sensing. It includes a non-contacting ultrasonic sensor; a loop-powered pressure sensor can be connected for redundant sensing in applications with foam or grease. It is designed for sewage lift stations, wet wells and storage tanks. Calibration and relay set points are easy to enter through the keypad and menu system. An automatic pump run time logging and reporting system helps operators to plan pump maintenance and identify lazy pumps before they fail. **888/473-9546; www.greyline.com.**

PSL 5.0 pump station level controller from Greyline Instruments

TCOM modular telemetry controllers from Orenco Systems

SCADA-ENABLED CONTROL PANEL

TCOM modular telemetry controllers from Orenco Systems combine the functions of relays, timers and meters into a single device. They can be used as SCADA patches to connect peripheral equipment to an existing SCADA system. They include built-in communication protocols, and color touch screens with built-in programming and real-time data acquisition and control over an Internet, cell or phone-line connection. **800/348-9843; www.orencocontrols.com.**

ADJUSTABLE-SPEED DRIVE

P9 drive from Toshiba International Corp.

The P9 low-voltage adjustable-speed drive from Toshiba International Corp. uses virtual linear pump (VLP) technology that creates a linear system curve by automatically tuning the drive to the system and assigning maximum and minimum operating points. Using transducer feedback, its process control mode maintains a setpoint with minimal rise time and virtually no overshoot, settling time or steady-state error. Benefits include running the device at its best efficiency point, load-sharing over multiple devices, sleep timer control and the ability to turn on secondary devices. **800/231-1412; www.toshiba.com/ind.**

Flow Monitoring

HYDROSTATIC LEVEL MEASUREMENT DEVICE

Level Mate III from AMETEK PMT Products

The Level Mate III from AMETEK PMT Products consists of a stainless steel submersible hydrostatic sensor with cable and a fully calibrated microprocessor-controlled digital meter within a NEMA 4X enclosure. Installation is simple; all programming is done at the factory. The device operates in depths from 3 to 690 feet and at pressures up to 300 psi. **215/355-6900; www.ametekusg.com.**

ULTRASONIC CLAMP-ON FLOWMETER

Arrow Hunter Plus flowmeter from ECHO Process Instrumentation

The Arrow Hunter Plus ultrasonic clamp-on flowmeter from ECHO Process Instrumentation accurately measures clean or dirty liquid flow in metal or plastic pipes. It uses advanced DSP technology to measure flow velocity from 0.03 to 82 feet per second. Accuracy is +/- 0.5 percent. It offers multiple modular input/output cards and current inputs for mass flow measurements. **850/609-1300; www.echopi.com.**

LEVEL CALIBRATION TOOL

QuickCal level calibration tool from ELAN Technologies

The QuickCal level calibration tool from ELAN Technologies provides accurate level measurement for open-channel stormwater flow monitoring. It consists of a 26-inch tapered edge aluminum ruler with 0.01-foot and 0.1-inch markings alongside an inset indicator strip and comes with extension pole. The tapered edge reduces flow disturbance, providing a more accurate reading. The level indicator strip darkens when wet, giving an easy-to-read line for water level. **815/463-8105; www.elantechnologies.net.**

REDUNDANT-LEVEL FUNCTIONALITY FLOWMETER

FL900 Series flowmeters from Hach Flow Meter Products & Services

FL900 Series flowmeters from Hach Flow Meter Products & Services offer level-only alarming and redundant-level functionality. In addition to ultrasonic level sensor technology, radar, electromagnetic and acoustic Doppler velocity technologies are available. The plug-and-play design allows for up to four sensor connections with auto-detection of sensor type, allowing users maximum flexibility. **800/368-2723; www.hachflow.com.**

VALVED FLOWMETER

Model 106-SPI-MV flowmeter from Singer Valve

The Model 106-SPI-MV single-point insertion electromagnetic flowmeter from Singer Valve is installed and calibrated with a Singer valve to provide an accurate flow rate. It is available for valves from 4 to 36 inches. With no moving parts and a single-piece design, its sensor contains nothing to wear or break, and is generally immune to clogging by sand, grit or debris. **604/594-5404; www.singervalve.com.**

MEASUREMENT SYSTEM

DataStick from Thermo Fisher Scientific Water Analysis Instruments

The plug-and-play DataStick measurement system from Thermo Fisher Scientific Water Analysis Instruments easily integrates into programmable logic controllers. By mixing and matching interchangeable components, it can be custom-configured for applications such as water and wastewater treatment disinfection control, drinking water turbidity and plant effluent monitoring. It provides universal conversion of sensor signals and can be remotely configured, calibrated and diagnosed. **800/225-1480; www.thermoscientific.com/processwater.**

Monitors

CHLORINATION/DECHLORINATION PROCESS ANALYZER

ChemScan UV-2150/DC process analyzer from ASA Analytics

The ChemScan UV-2150/DC process analyzer from ASA Analytics provides chlorination/dechlorination monitoring. It detects both residual chlorine and dechlorination chemicals from appropriate points in the treatment process, at concentrations as low as 0.05 ppm. **800/665-7133; www.asaanalytics.com.**

RESIDUAL SULFITE MONITOR

Model Q46S/66 residual sulfite monitor from Analytical Technology

The Model Q46S/66 residual sulfite monitor from Analytical Technology provides dechlorination control for wastewater effluent. Contact outputs include two programmable relays for control and alarm modes. A sensor cable connects the chemistry module and the monitor, and the separation can be increased to 100 feet by the use of a junction box and additional signal cable. **800/959-0299; www.analyticaltechnology.com.**

BACTERIAL ANALYSIS DEVICE

GreenLight bacterial analysis instrument from Baseline

The GreenLight compact bacterial analysis instrument from Baseline can calculate the total aerobic bacteria count in any water supply in as little as 45 minutes, ensuring a safe water supply. It is especially useful for verifying that wastewater discharge meets NPDES disinfection limits, confirming that drinking water plant disinfection pretreatment is reducing active bacteria without producing disinfection byproducts and determining whether industrial waste discharged to a treatment plant will inhibit the treatment process. **303/823-6661; www.baseline-mocon.com.**

VIBRATING ROD LEVEL SENSOR

VR SED vibrating rod from BinMaster Level Controls

The VR SED vibrating rod from BinMaster Level Controls measure the level of solids that have settled in a tank. It detects when solids reach a specific level in a tank. It vibrates in water until the solids reach the level of the probe, then stops vibrating and sends an alert via a horn or alarm panel. **402/434-9102; www.binmaster.com.**

SOLIDS MEASUREMENT DEVICE

SMART Turbo System from CEM Corporation

The SMART Turbo System from CEM Corporation provides automated microwave total solids determination in less than three minutes. It measures TSS and total solids in wastewater and sludge. Its IntelliTemp temperature feedback system ensures fast, accurate and reproducible results. **800/726-3331; www.cem.com.**

CHLORINE RESIDUAL ANALYZER

REGAL Model CRA 5000 chlorine residual analyzer from Chlorinators Incorporated

The REGAL Model CRA 5000 chlorine residual analyzer from Chlorinators Incorporated continuously measures the level of free and/or total chlorine in water and wastewater disinfection. It can be used exclusively to monitor chlorine residual levels or may be integrated with the REGAL Model 7009/7010 SMARTVALVE for compound loop (feedback) chlorination and/or feed-forward dechlorination. **772/288-4854; www.regalchlorinators.com.**

(continued)

FLOW SWITCHES

RF-2500 Series RotorFlow flow switch sensors from Gems Sensors & Controls

RF-2500 Series RotorFlow flow switch sensors from Gems Sensors & Controls include a one-piece composite rotor, strong unibody construction, ceramic shaft and secure sealing. For specific flow setpoint switching, the RFS-type flow switch features setpoints that are fully adjustable over the specified flow range. For users who want simple visual confirmation of flow, flow indicators provide a low-cost answer. **800/378-1600; www.gemssensors.com.**

Preciseline from Keller America

DIGITAL PRESSURE TRANSMITTER

The Preciseline from Keller America uses microprocessor technology to provide accurate, thermally compensated outputs for use in pump control and pressure monitoring applications with pressures up to 15,000 psi. Users can choose between 4-20 mA or VDC analog outputs, while the digital output provides an RS485 connection that simplifies connection to a PC. **877/253-5537; www.kelleramerica.com.**

REMOTE SENSING TECHNOLOGY

iTrans 2 remote sensor from Oldham (An Industrial Scientific Company)

The iTrans 2 remote sensor from Oldham (An Industrial Scientific Company) is fitted with sensors placed remotely in a bar screen area. Its 4-20 mA output can be used as a direct input to the SCADA system to monitor for combustible gas, H_2S and oxygen levels. An audio-visual alarm can be added to alert the operators to dangers of combustible gas, H_2S or an oxygen-deficient condition. **800/338-3287; www.oldhamgas.com.**

PD6080 and PD6081 digital panel meters from Precision Digital

DIGITAL PANEL METERS

PD6080 and PD6081 multi-purpose digital panel meters from Precision Digital can display 16 process variables, including Modbus registers, and up to two analog inputs. They are programmable as Modbus RTU masters, slaves or packet sniffers and can accept both current and voltage signals. They can read up to 16 slave devices, scale their data and display the results. Three of the front panel buttons can be custom-programmed for a specific operation. **800/343-1001; www.predig.com.**

DIFFERENTIAL PRESSURE TRANSMITTER

Differential pressure transmitter from Primary Flow Signal

The battery-powered differential pressure transmitter from Primary Flow Signal provides accurate flow measurements without an external power source. It provides flow rate and totalization readings for applications including gas, water, chemicals and air with temperature limitations. It suits remote locations where power is not available and can be applied to PFS meters such as the WedgeType flow meter and Venturis. **401/461-6366; www.primaryflowsignal.com.**

UV ANALYZER

UV254 M2000 analyzer from Real Tech

The UV254 M2000 analyzer from Real Tech provides continuous, real-time testing of UV transmission in water. Monitoring allows for UV disinfection output adjustment to save on energy and UV lamp life. The analyzer is available in path lengths to serve different types of waters — longer paths for drinking water and shorter paths for wastewater. **877/779-2888; www.realtech.ca.**

TX-2000 pH/mV transmitter from Sensorex

PROCESS MONITORING TRANSMITTER

The TX-2000 pH/mV transmitter from Sensorex monitors changes in fluids, displaying pH or ORP and temperature for accurate control. Its dual-output design (one for pH or ORP and one for temperature) eliminates a separate temperature transmitter. A large backlit LCD screen displays both parameters, and two adjustable relay contacts deliver results to automated process control systems. **714/895-4344; www.sensorex.com.**

LABORATORY MEASUREMENT DEVICE

MultiLab 4010-3 laboratory instrument from YSI, a xylem brand

The MultiLab 4010-3 three-channel laboratory instrument from YSI, a xylem brand, measures pH, ORP, BOD or conductivity in any combination of three parameters. It has an antibacterial keypad, graphic color display and data storage capability. All sensors are intelligent design sensors (IDS), allowing for digital sensor recognition and digital signal processing. **800/765-4974; www.ysi.com.**

Operations/Maintenance/ Process Control Software

ReadCenter Analytics software from Badger Meter

PROACTIVE UTILITY MANAGEMENT SOFTWARE

ReadCenter Analytics software from Badger Meter provides water utilities with easy access to timely metrics and information. It uses metering data to facilitate information-driven decisions. Its Web-based advanced metering analytics (AMA) solution helps utilities optimize operations to increase productivity, improve customer service, conserve resources and generate more revenue. An enhanced dashboard provides an immediate system overview so that personnel can see issues such as leaks, tampering and reverse flow. **800/876-3837; www.badgermeter.com.**

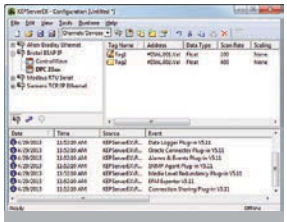
MOBILE WORKFORCE AUTOMATION

FlexOps mobile workforce automation package from FlexSystems

The FlexOps mobile workforce automation package from FlexSystems facilitates plant operations inspections. It addresses the blind spots of SCADA systems by standardizing manual procedures with touch screen-guided, PDA-based inspections,

ending transcription errors and secondary data capture and validating data at the point of entry. It provides an electronic method of performing critical manual inspections. Supervisors receive secure, validated data through automated reports that include daily activity, work order requests, fire safety and exception reports delivered to them by email. **303/684-8303; www.flexops.net.**

COMMUNICATIONS PLATFORM



KEPServerEX from Kepware Technologies

KEPServerEX from Kepware Technologies, manages communication through a platform that supports an array of proprietary communication protocols, APIs, various automation systems interfaces and open standards such as OPC and SNMP. The single server platform supports more than 150 drivers, providing more than 250 unique protocols. This allows consolidation of data from various sources, helping to ensure data consistency and reliability, reduce network traffic and provide a platform for automation communications. **207/775-1660; www.kepware.com.**

Process Control software from LabLite

PROCESS CONTROL SOFTWARE

LabLite Process Control software serves facilities with repetitive processes and testing requirements. Based on user rights, operators see only what they need to do their tasks. When an operator enters a result, it is immediately compared to color-coded and named limits for fast recognition. If they make a mistake, a red flag alerts them to trouble. The program can also be set up to capture instrument and/or SCADA data and include this information in reports. **888/954-5483; www.lablite.com.**

ALARM-MESSAGING SYSTEM

MetroMail alarm-messaging system from Metropolitan Industries

The MetroMail alarm-messaging system from Metropolitan Industries sends email and text messages based on the status of eight individual alarm inputs. It can monitor any electrical or mechanical system. Users plug the Ethernet port into an Internet-enabled network or cell modem, configure the device with the appropriate text and/or email settings and begin receiving notifications. The system can be integrated into any control system including SCADA systems, data acquisition systems, flow monitoring equipment and control/electrical panels. **815/886-9200; www.metropolitanind.com.**

StruxureWare for Water software from Schneider Electric

ENERGY MANAGEMENT SOFTWARE

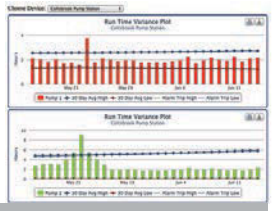
StruxureWare for Water software from Schneider Electric includes an easily configurable dashboard tool that allows for ad hoc reporting and analysis. At the operations level there are several tools that aggregate energy and related data into a single platform to analyze and find energy savings opportunities. And at the control level, the power monitoring functions deliver data as actionable information through a customizable, user-friendly interface accessible from computers and handhelds on the network. This helps maximize system reliability through alarming and predictive tools, while focusing on optimization of operational efficiency. This functionality can be scaled from small systems up to the largest of municipal or industrial systems. **770/329-3878; www.schneider-electric-water.com.**

SCADA Systems

SCADA SYSTEM

SCADA systems from Kruger USA

SCADA systems from Kruger USA use 3-D graphics that realistically represent process components such as pumps, motors, instruments and valves. An easily navigable architecture lets users change screens and access information such as status, set points, alarms and historical trends. A password hierarchy provides varying degrees of system access. Authorized users can start/stop equipment and adjust set points. All operator actions are logged so that alarm acknowledgement, equipment start/stop and setpoint adjustments are recorded for review. **919/677-8310; www.krugerusa.com.**



M800 system from Mission Communications

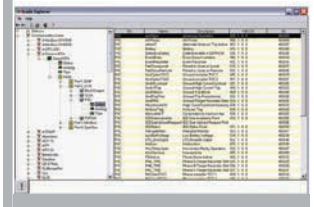
MONITORING/SCADA SYSTEM

The M800 system from Mission Communications provides real time, advanced monitoring and managed SCADA for water and wastewater systems. It uses cellular communications for reliability and fast deployment. Versatile scheduling options are included for efficient notification to staff. Alarm notifications are delivered by voice calls, text messages, emails, faxes and pagers. Users can access, analyze and download data through secure web portals, accessible on any computer, tablet or mobile device. **877/993-1911; www.123mc.com.**

SCALABLE SCADA SYSTEM

Scalable SCADA system from Revere Control Systems

The wireless Scalable SCADA system from Revere Control Systems provides flexibility for growth. Non-proprietary hardware and communications protocols eliminate common restrictions on growth, application and supplier. Protocol choices include cellular, radio, modem and landline. Standard features include built-in serial and Ethernet ports, Web pages and data logging with FTP transfer to a server. **800/536-2525; www.reverecontrol.com.**



SmartSCADA from Survalent Technology

REAL-TIME SCADA SOFTWARE

SmartSCADA from Survalent Technology provides real-time control and data acquisition for utilities with no limits for status points, control points, analog points or communication lines. It includes a SCADA Explorer database editing application and WorldView graphical user interface. Features include rapid polling of RTUs for exceptions, select "before operate" control execution, variable control durations for momentary controls, automatic interleaving of multiple priority messages, scheduled accumulator freezes and polls, scheduled integrity (general interrogation) polls, time synchronization of the RTUs and sequence of events data uploading and processing. **905/826-5000; www.survalent.com.** tpo

By Craig Mandli

Management system solves pump run-time issues

Problem

The City of Winter Park, Fla., was experiencing excessive pump run times and unacceptable pressures because of multiple lift stations pumping into a single force main.

Solution

The city implemented **Symphony – Harmonious Pump and Flow Management from Data Flow Systems,** which coordinates the systemwide operation of lift stations to reduce force main pressures and equalize flow. It corrects the random operation of stations and synchronizes pumping on a minute-by-minute basis.

RESULT

The city significantly reduced energy costs and resolved its daily peak flow and pressure spikes. Research continues to improve the pumping algorithm and enhance the gains. Initially, average run-time reductions were 24 percent and the energy cost reduction was 39 percent. Recent run times are reduced 34 percent and energy costs 42 percent. **321/259-5009; www.dataflowsys.com.**

Radio telemetry keeps sanitary district usage data in order

Problem

The Parkland Sanitary District No. 1 in South Range, Wis., extended low-pressure sanitary sewers to nearly 350 rural customers, many of whom had failing onsite wastewater treatment systems. Officials required a volume-based method for billing customers, rather than a flat fee.

Solution

Each customer has a pump monitored in real time for status, and the volumes pumped are measured and recorded. A **SCADA system from Energenecs** uses a meshing radio telemetry network to upload customer data automatically to a master SCADA computer for automated invoice generation and status monitoring.

RESULT

The volume-based automated billing system saves the district nearly $25,000 annually in invoice generation, and the telemetry provides substantial additional savings in early detection of system troubles. **262/377-6360; www.energenecs.com.**

Cellular network provides reliable communication

Problem

The Northwest Bergen County Utilities Authority in Waldwick, N.J., used leased lines to connect the remote terminal units in its distributed pumping stations to the master SCADA system at its treatment plant. The leased lines were unreliable.

Solution

The authority worked with **Phoenix Contact and its distributor, GCF of Northvale, N.J., to design a new system that communicates over the cellular network.** The new remote terminal units rely on GSM/GPRS Ethernet modems, which establish secure VPN communications through the cellular network and Internet. Each modem also functions as a firewall, protecting the industrial control system from cyber threats.

RESULT

While the authority added a Phoenix Contact FL mGuard router as a back-up communications path, the cellular network has proven reliable. The new RTUs work with the existing Wonderware SCADA interface, providing continuity, so that the operators could focus on running their process efficiently, rather than learning new hardware or software. **800/322-3225; www.phoenixcontact.com.**

Non-PLC system allows for user installation

Problem

The Lakes Region Sanitary District (LRSD) in Lake County, Ill., needed to replace a failing SCADA system. The integrator was no longer in business, leaving no source for replacement equipment. As units failed, the district lost the ability to monitor its stations, leading to high overtime expenses. The district needed a cost-effective replacement installed and operational as quickly as possible.

Solution

After a public bidding process, the district selected the **Scadata-Pac packaged SCADA system from Precision Systems,** a non-PLC system. The system's simplicity allowed the district to install it in-house and save money.

RESULT

LRSD personnel installed the system on time and under budget. It monitors 20 lift stations with more than 200 inputs, delivering detailed alarm messages to operators' cellphones and performing complete trending and historical analysis of all connected processes, features not available with the old system. **708/891-4300; www.precison-systems.com.** tpo

McNISH
CORPORATION

CIRCULAR
CLARIFIER DRIVES

Direct From Factory
Aurora, IL USA
www.mcnishcorp.com

Sauereisen names research manager, office staff

Sauereisen promoted Greg Maloney to research manager, overseeing the company's C. Fred Sauereisen Laboratory. It also promoted several members of the office staff. Kim Galley was named finance administrator and Vicki Abell was promoted to billing, credit and collections administrator. Pam Semgo joined the accounting department as financial assistant to the controller and Patti Kenzie joined the company as executive assistant and human resource generalist.

Greg Maloney

Kim Galley

Vicki Abell

Patti Kenzie

Pump Solutions Group opens Shanghai office

Pump Solutions Group, a business unit within Dover Corp., opened a commercial sales office in Shanghai, China. The office will provide sales, marketing and technical product support for the region, with an emphasis on growth the next three to five years.

Altra Industrial Motion launches wastewater website

Altra Industrial Motion launched a website (www.altrawastewater.com) for engineers and technical professionals in the wastewater industry. The site has 19 application-specific categories, including bar screens, sedimentation tanks, aerators and blowers, augers and screw conveyors, sludge thickeners and pumps and sand separators.

Xylem opens Dewatering Solutions branch

Xylem opened its newest Dewatering Solutions branch in Blountville, Tenn. The branch will serve southwest Virginia through Knoxville, Tenn., and will be managed by Charlotte, N.C., branch manager Adam Nichols. The new facility has a 15,000-square-foot shop, 3,000 square feet of office space and three acres of paved yard space.

UV Superstore launches website

UV Superstore launched a new website, www.uvsuperstore.com, featuring replacement ultraviolet lamps, quartz sleeves and other items for ultraviolet water and air treatment systems.

Hyde Marine names distributor for water management systems

Hyde Marine, a wholly owned subsidiary of Calgon Carbon Corp., named W&O Supply its exclusive sales distributor in the U.S. and Canada for Hyde Guardian ballast water treatment systems.

WILO director of engineering/sales manager passes away

Joseph Melton, director of engineering/national sales manager-water management for WILO USA, passed away in May. He was 53.

FreeWave celebrates grand opening of new headquarters

FreeWave Technologies celebrated the grand opening of its new corporate headquarters in Boulder, Colo. The 45,000-square-foot facility — 80 percent larger than its previous building — includes increased manufacturing space and product testing center.

ThinQk supplies aftermarket pump components

ThinQk is a new supplier of aftermarket parts for air-operated double diaphragm (AODD) pumps . Manufactured in Europe and the United States, components are made to conform to current technical standards.

Electro Static offers AEGIS grounding ring repair handbook

The 36-page AEGIS shaft grounding ring motor repair handbook from Electro Static Technology describes best practices for protecting motor bearings from electrical damage. The book explains how to diagnose electrical bearing damage caused by variable-frequency drives (VFDs), also known as inverters. It can be downloaded at www.est-aegis.com/bearing.

Armchem launches lighting division

Armchem International, a business-to-business provider of specialty industrial and maintenance products, launched a new commercial lighting division that will carry 4,000 varieties of lighting products, including LED, halogen, compact fluorescent, metal halide, high pressure sodium, miniatures and ballast. All lines are made in the U.S. and are UL-listed.

Gorman-Rupp receives export award

Gorman-Rupp Co. received the President's "E" Award for Exports from U.S. Acting Secretary of Commerce Rebecca Blank. A total of 57 companies received the award this year. It is the highest recognition a U.S. entity can receive for making a significant contribution to the expansion of U.S. exports.

Endress+Hauser launches online store

Endress+Hauser launched E-direct, www.e-direct.us, an online store offering pressure transducers and switches, temperature switches and thermometers, paperless recorders, digital displays, level switches and flowmeters, pH, conductivity and oxygen analytical transmitters.

Headworks International names vice president

Headworks International promoted Afnan Din to vice president. He joined Headworks BIO in 2010 as vice president and process manager for the Middle East and North African division and has 10 years of experience in the water industry in both Europe and the Middle East.

National Oilwell Varco completes Robbins & Myers acquisition

National Oilwell Varco of Houston completed the acquisition of Robbins & Myers, suppliers of engineered equipment and systems for the municipal and industrial markets, including Moyno pumps and Chemineer fluid agitation products.

Meltric releases 2013-14 catalog

Meltric Corp.'s 2013-14 product catalog features Decontactor Series switch-rated plugs, receptacles and connectors. The 239-page catalog also provides information about the company's other plug and receptacle offerings.

Brown and Caldwell promotes senior managers

Brown and Caldwell promoted Jay Patil, P.E., to director of client services and Cindy Paulson, PhD, to director of technical services. Marc Damikolas, P.E., was promoted to senior vice president and business unit manager for the California region, replacing Patil. Robert Ash, P.E., was promoted to senior vice president and the new role of enterprise risk management. Jeffrey Theerman, P.E., was promoted to lead the newly combined utility performance, operations & maintenance and information technology group. **tpo**

ENVIRONMENTAL DYNAMICS INTERNATIONAL

weftec 2013 Booth 1236

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

Aeration for Life™

Depend on the Leader

Composting Performance

ROTO-MIX®

Waste Pro Series Mixers quickly and efficiently process food waste, cardboard and yard waste.

Take time today, call for more information!

Patent Pending

5000 Cyclone Compost Series with double flighted twin vertical augers mix in half the time.

Staggered Rotor Industrial Series Mixers
All mixers available in truck, trailer or stationary.

Patented Staggered Rotor

Watch action videos on-line
www.rotomix.com

Made in U.S.A.

Cell 620.408.8330

ROTO-MIX® LLC • 2205 E. WYATT EARP
DODGE CITY, KS 67801
620.225.1142 • FAX 620.225.6370

TREATMENT PLANT OPERATOR tpo

CLASSIFIED ADVERTISING

SEPTEMBER

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

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)

Better Accuracy. Better Efficiency.

Neptune® and Fluid Dynamics™ improve operational efficiency through precise metering and blending in wastewater treatment plants. Technology and innovation you can rely on.

Neptune® – 500 Series Hydraulically Actuated Diaphragm Metering Pumps

- Delivers precise amounts of chemicals every time
- Highly reliable with chemicals that can off-gas
- Simplified design delivers improved flow

CE

Fluid Dynamics™ – dynaBLEND™ Liquid Polymer Blending Systems

- Flow ranges of 40 to 21,000 gph
- Can handle difficult-to-blend polymers
- Dry systems from 1 to 15,000 lb/day

UL

See us at WEFTEC Booth #2605

Neptune
Part of Pump Solutions Group
A DOVER COMPANY

Fluid Dynamics
Part of Pump Solutions Group
A DOVER COMPANY

Neptune
295 DeKalb Pike
North Wales, PA 19454
USA
O: +1 (215) 699-8700
F: +1 (215) 699-0370
info@neptune1.com
www.neptune1.com

Fluid Dynamics
Division of Neptune Chemical Pump Co.
295 DeKalb Pike
North Wales, PA 19454
USA
O: +1 (215) 699-8700
F: +1 (215) 699-0370
www.dynablend.com

PSG PUMP SOLUTIONS GROUP A DOVER COMPANY

people/awards

Zeeland (Mich.) Clean Water Plant Supervisor **Glenn Berghorst** was recognized for his 35 years of service. A Zeeland native, he started as an entry-level employee shortly after completing a bachelor of science degree in biology from Spring Arbor College.

Ann F. Hobbs, wastewater operator and laboratory manager for the South Coastal Regional Wastewater Facility near Bethany Beach, was named the Delaware Wastewater Operator of the Year.

The **Town of Warren Wastewater Treatment Plant** was named Illinois 2012 Plant of the Year by the Illinois Rural Water Association.

The **Holcim plant in Theodore** received an Excellence in Operations Award from the Alabama Water Environmental Association. The award honors companies that obtain perfect or near-perfect regulatory records as dictated by the state Department of Environmental Management.

The **Village of Shannon wastewater treatment plant** was named the Illinois 2012 Group 4 Wastewater Plant of the Year by the Illinois Association of Water Pollution Control Operators in April.

The **South Dakota State Penitentiary** received a 2012 Operation and Maintenance Wastewater Treatment Award from the South Dakota Department of Environment and Natural Resources.

The **City of Madison (S.D.)** received a 2012 Operation and Maintenance Wastewater Treatment Award from the South Dakota Department of Environment and Natural Resources.

The **City of Ashdown** won a Special Systems Wastewater Award (for systems serving fewer than 5,001) from the Arkansas Water Works and Water Environment Association.

The Illinois Association of Water Pollution Control Operators presented these awards at its annual conference awards banquet:

- Group 1 Plant of the Year: **Village of Glendale Heights**
- Group 2 Plant of the Year: **City of Genoa**
- Group 3 Plant of the Year: **Village of Edinburg**
- Group 4 Plant of the Year: **Village of Shannon**
- Industrial Achievement: **Tyson Fresh Meats Inc., Joslin Plant**
- Operator of the Year: **Fredrick Dale,** Salt Creek Sanitary District
- Clarence Klassen Outstanding Service Award: **Bruce Butler,** Urbana Champaign Sanitary District

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

California

The California Water Environment Association has an Elements of a Winning Collection System seminar in Belmont Sept. 19 and Oct. 17. Visit www.cwea.org.

Florida

The University of Florida TREEO Center is offering these courses in Gainesville:

- Sept. 10-11 – Water Reclamation and Treatment Processes
- Sept. 17-18 – Pumping Systems Operations and Maintenance
- Sept. 17-19 – Activated Sludge Process Control and Troubleshooting
- Sept. 19 – Unidirectional Flushing Workshop
- Oct. 15-16 – Sequencing Batch Reactor Operation: Make It Work for You
- Oct. 29-31 – Microbiology of Activated Sludge
- Nov. 5-6 – Flow Meter Calibrations
- Nov. 13 – Energy Conservation at Water and Wastewater Treatment Facilities
- Nov. 14 – Science of Disinfection
- Jan. 21-23 – Process Control of Advanced Waste Treatment Plants

Visit www.treeo.ufl.edu/wastewater-courses.aspx.

Georgia

The Georgia Association of Water Professionals has a Backflow Prevention Specialty Workshop in Marietta Dec. 11. Visit www.gawp.org.

Illinois

The Illinois Water Environment Association is offering these courses:

- Nov. 14 – Collection Systems Seminar, Lisle
- Nov. 21 – Biosolids Seminar, location to be announced

Visit www.iweasite.org.

Michigan

The Michigan Water Environment Association is offering these courses in East Lansing:

- Sept. 17 – Collections Seminar
- Oct. 30 – Health and Safety Seminar
- Nov. 6 – Process Seminar

Visit www.mi-wea.org.

Nebraska

The Nebraska Water Environment Association is offering these courses:

- Sept. 12 – Wastewater Training, Sidney
- Oct. 7-9 – Wastewater Certification Training, Lincoln

Visit www.ne-wea.org.

New England

The New England Water Environment Association has a Northeast Biosolids and Residuals conference in Concord, N.H., Oct. 29-30. Visit www.newea.org.

New York

The New York Water Environment Association has a Portable Pumps: Uses, Sizing and Planning seminar in Babylon Oct. 23. Visit www.nywea.org.

Ohio

The Ohio Water Environment Association is offering these courses:

- Sept. 25-26 – Operations/Laboratory Analysts Workshop, Grove City
- Dec. 5 – Biosolids Workshop, Lewis Center

Visit www.ohiowea.org.

Wisconsin

The University of Wisconsin Department of Engineering-Professional Development has a Wastewater Treatment Processes and Technologies course on Sept. 24-26 in Madison. Visit http://epdweb.engr.wisc.edu. **tpo**

TPO *invites your national, state, or local association to post notices and news items in the Worth Noting column. Send contributions to editor@tpomag.com.*

JDV Equipment Corporation
Incorporating Ralph B. Carter 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
weftec 2013
Booth 3443
One Princeton Ave. Dover, NJ. 07801 Tel: (973) 366-6556 Fax: (973) 366-3193
www.jdvequipment.com

ClearSpan fabric structures
Sustainable design-build solutions for water treatment facilities, covered sludge beds & more!
MADE IN USA
Buildings available up to 300' wide.
Low in cost per square foot.
Natural daytime lighting.
Easy to relocate.
Expandable.
Call one of our ClearSpan specialists today at 1.866.643.1010
or visit us at www.ClearSpan.com/ADTPO.

CALENDAR OF EVENTS

Sept. 8-11
Rocky Mountain Water Environment Association Annual Conference, Keystone, Colo. Visit www.rmwea.org.

Sept. 11-13
South Dakota Water and Wastewater Association Annual Conference, Aberdeen. Visit http://sio.midco.net/sdwwa.

Sept. 29-Oct. 1
Atlantic Canada Water & Wastewater Association Annual Conference, Crown Plaza, Fredericton Convention Center, Fredericton, New Brunswick. Visit www.acwwa.ca.

Oct. 5-9
2013 Water Environment Federation Technical Exhibition and Conference, McCormick Place South, Chicago. Visit www.weftec.org.

Oct. 22-25
Wisconsin Wastewater Operators Association Annual Conference, Holiday Inn, Stevens Point. Visit www.wwoa.org.

Nov. 12-13
Georgia Association of Water Professionals Fall Conference and Expo, Athens. Call 770/419-6336 or visit www.gawp.org.

Jan. 21-22
Water Environment Association of Texas Collection Systems Conference and Expo. Visit www.weat.org.

Feb. 25-28
Water Environment Federation 2014 Utility Management Conference. Call 703/684-2441 or visit www.wef.org.

WSO WATER SYSTEM OPERATOR
FREE subscription at wsomag.com

BIOGAS CONDITIONING SYSTEMS
See us at WEFTEC – Booth 5050
Janesville WWTP, Janesville Wisconsin
• Hydrogen Sulfide Removal
• Capstone Turbine Distributor
• Biogas to Vehicle Fuel Systems
• Compressor Skids
• Moisture Removal
• Siloxane Removal
• Blower Skids
BioCNG™
563-585-0967
www.unisonsolutions.com
UNISON SOLUTIONS
Leaders in Biogas Technology

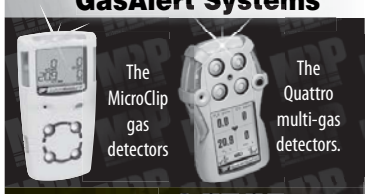
TREATMENT PLANT OPERATOR

tpo Marketplace Advertising

SAFETY FIRST!
12" Plastic Axial Blower

The ONLY 12" Plastic Blower With A Canister On The Market!

GasAlert Systems



The MicroClip gas detectors

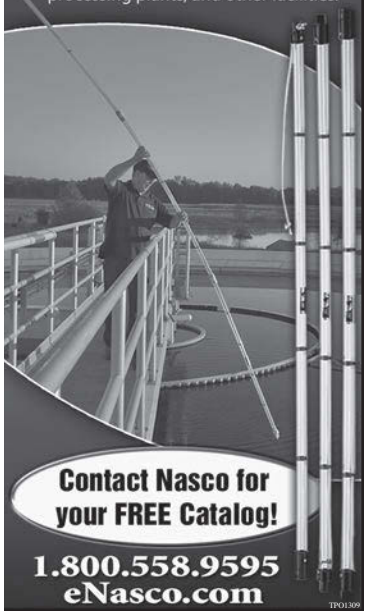
The Quattro multi-gas detectors.

MRP MILWAUKEE RUBBER PRODUCTS
Call Toll-Free
1.800.325.3730
MilwaukeeRubber.com

The Sludge Judge®
Exclusive by Nasco
Dedicated to Delivery

Available in three versions:
•Original Sludge Judge® (3/4" diameter)
•Sludge Judge II (1 1/4" diameter)
• Sludge Judge® Ultra (made of strong polycarbonate)

The Sludge Judge® will take accurate readings of settleable solids in a variety of liquids at any depth – clear 5-ft. plastic tubing that screws together. – for waste water treatment, chemical, and food processing plants, and other facilities.



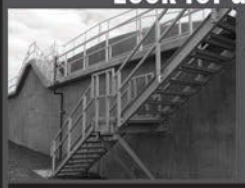
Contact Nasco for your FREE Catalog!
1.800.558.9595
eNasco.com
TPO1309

Fibergrate
Composite Structures

The Only Complete Water Treatment Plant Solution.

Contact Us Today
info@fibergrate.com
(800) 527-4043

Look for us at WEFTEC! Booth # 2071



See our platforms at the Operations Challenge!

Fibergrate Composite Structures Offers Fiberglass Reinforced Plastic (FRP) Products:

- Grating
- Stair Solutions
- Handrail
- Ladders
- Structural Shapes
- Baffles
- Weir Plates
- Troughs
- Launder Covers

Benefits of Fibergrate®

Corrosion Resistant
Slip Resistant
Light Weight
Low Maintenance

NSF Ask us about our NSF Standard-61 Certified Products
(972) 250-1633
(800) 527-4043
www.fibergrate.com
info@fibergrate.com
An RPM Company

15th Year Anniversary

H Series
REGENERATIVE BLOWER

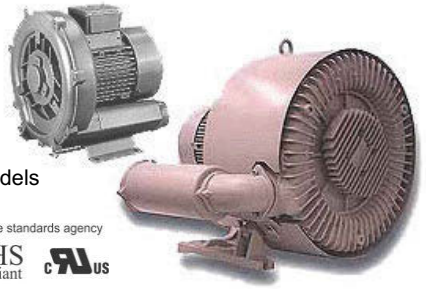
All-Star is celebrating their 15th year anniversary by introducing the "H" series blowers as standard*

"H" Series Temperature Comparison

	All-Star	Competition
Motor Insulation	355° F	265° F or 315° F
Bearing Grease	380° F	280° F
Seal	500° F	280° F

* No additional charge for these premium features

- 1/4 to 30 HP
- Pressure to 11.5 psig
- Flow to 900 SCFM
- Oil-free clean air
- Vacuum or Pressure
- Single and Two Stage Models



Registered and approved by one or more of these standards agency

CE ETL ISO 9001 RoHS Compliant c UL us

ALL-STAR™
Process Blowers
Vacuum Pumps
Process Compressors

Visit All-Star at **www.all-star-usa.com** for additional details and assistance in selecting the best regenerative blower for your applications as well as viewing All-Star's other products.

High Capacity, Unmatched Versatility

KUHN KNIGHT
Invest in Quality!

PSC ProSpread Commercial Box Spreaders
610, 710 & 810 heaped cu. ft. capacities

- Monitor and document application rates and locations with Digi-Star Nutrient Tracker™ and GPS technology
- Consistent, even spreading of a broad range of solid and dry, flowable material with your choice of discharge options

Vertical Beaters

Spinner Discharge

Horizontal Beaters

Call today for information on our industrial spreaders and mixers
Kuhn North America • Brodhead, WI • 608-897-2131

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.

DRAGON

Make it happen.

U.S. owned and operated. Founded in 1963. 1-800-231-8198 www.dragonproductsltd.com

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

weftec 2013
Booth 1248

Vaughan®

QUALITY CHOPPER PUMPS SINCE 1960.

phone: (360) 249-4042 FAX: (360) 249-6155
email: info@chopperpumps.com web: www.chopperpumps.com

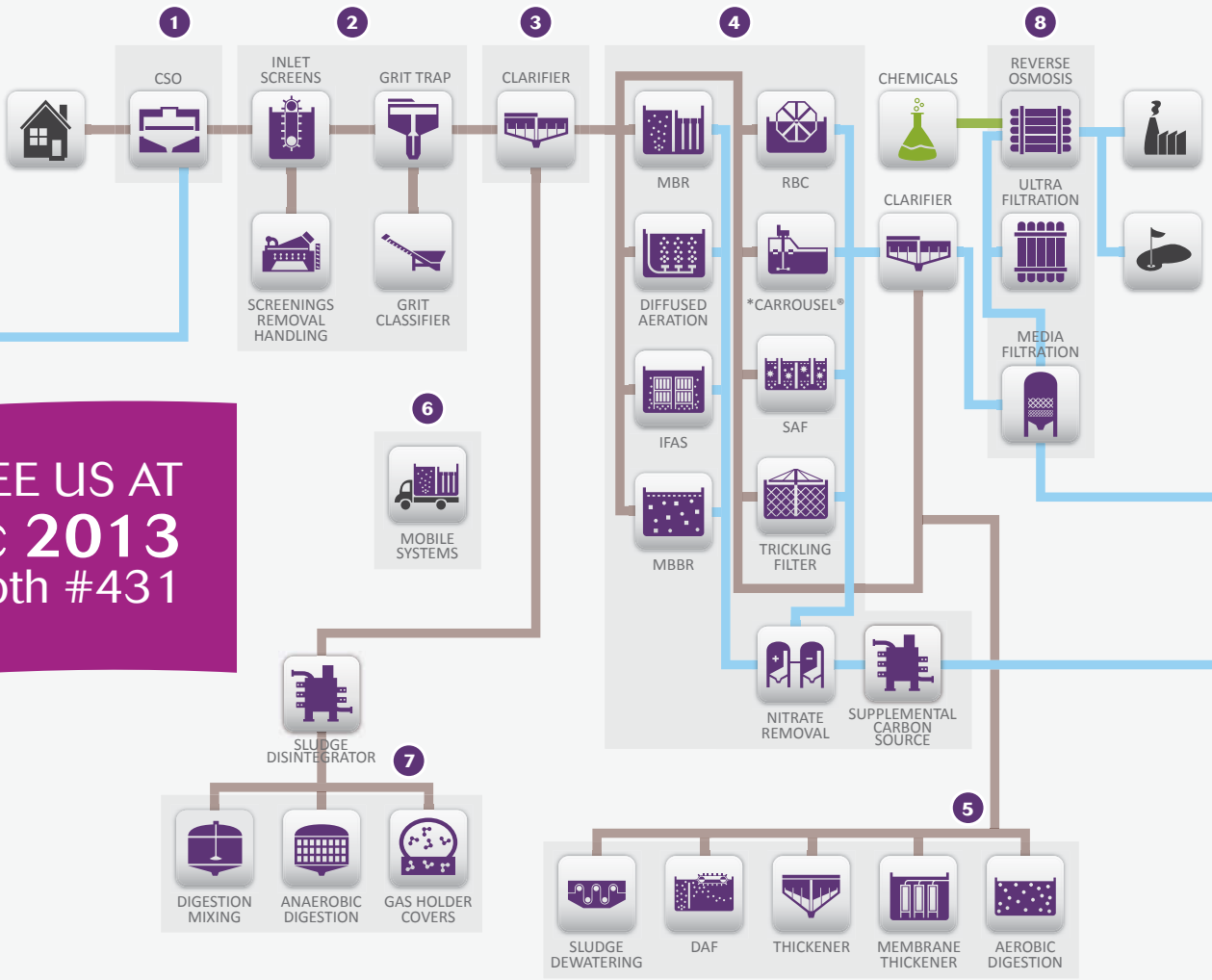
OVIVO
Bringing water to life

GO WITH THE OVIVO FLOW!

At Ovivo, we continually seek to formulate new methodologies to ensure extremely high levels of plant performance. We also work to develop and supply economic, efficient and environmentally friendly water treatment technologies.

OUR SOLUTIONS
MUNICIPAL WASTEWATER

1 - CSO Stormwater
2 - Headworks
3 - Clarification \ sedimentation
4 - Aerobic treatment \ nutrient removal
5 - Sludge treatment
6 - Mobile systems
7 - Anaerobic treatment
8 - Wastewater reuse



SEE US AT
weftec 2013
booth #431

BRACKETTGREEN ADVANCED WATER SCREENING TECHNOLOGY | JONES+ATTWOOD | EIMCO WATER TECHNOLOGIES | CHRIST Christ Water Technology Group | Enviroquip

Scan the QR Code
For further information

visit us online at :
ovivowater.com

*Carrousel® is a registered trademark of HaskoningDHV Nederland B.V

weftec 2013
the water quality event™

Visit us at
WEFTEC 2013
October 7 - 9
Chicago, IL
Booth 2613
Your partner for sustainable solutions in water treatment
BASF understands today's global water management challenges and is responding by delivering world-class technologies and sustainable solutions. From water production, through water use and water purification, BASF has leveraged its expertise and extensive capabilities to protect, conserve and sustain the earth's most precious resource — water. As the world's leading chemical company, we are dedicated to your success by bringing to you over 100 years of comprehensive experience, technology, innovation and commitment. At BASF, we create chemistry.
www.watersolutions.basf.com
BASF
The Chemical Company