TREATMENT PLANT OPERATOR

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DECEMBER 2021

SPECIAL FEATURE:
PLANT PROFICIENCIES
PAGE 15

TECHNOLOGY DEEP DIVE:
Real-time nutrient analysis | 56

SUSTAINABLE OPERATIONS:
Controlling algae with ultrasound | 76

Von Eggers
Plant Operator
Richland, Wash.

A Humble Servant

VON EGGERS IS READY TO TACKLE ANY ASSIGNMENT THAT COMES HIS WAY | 70

IN MY WORDS:
Insights from a third-generation operator | 64

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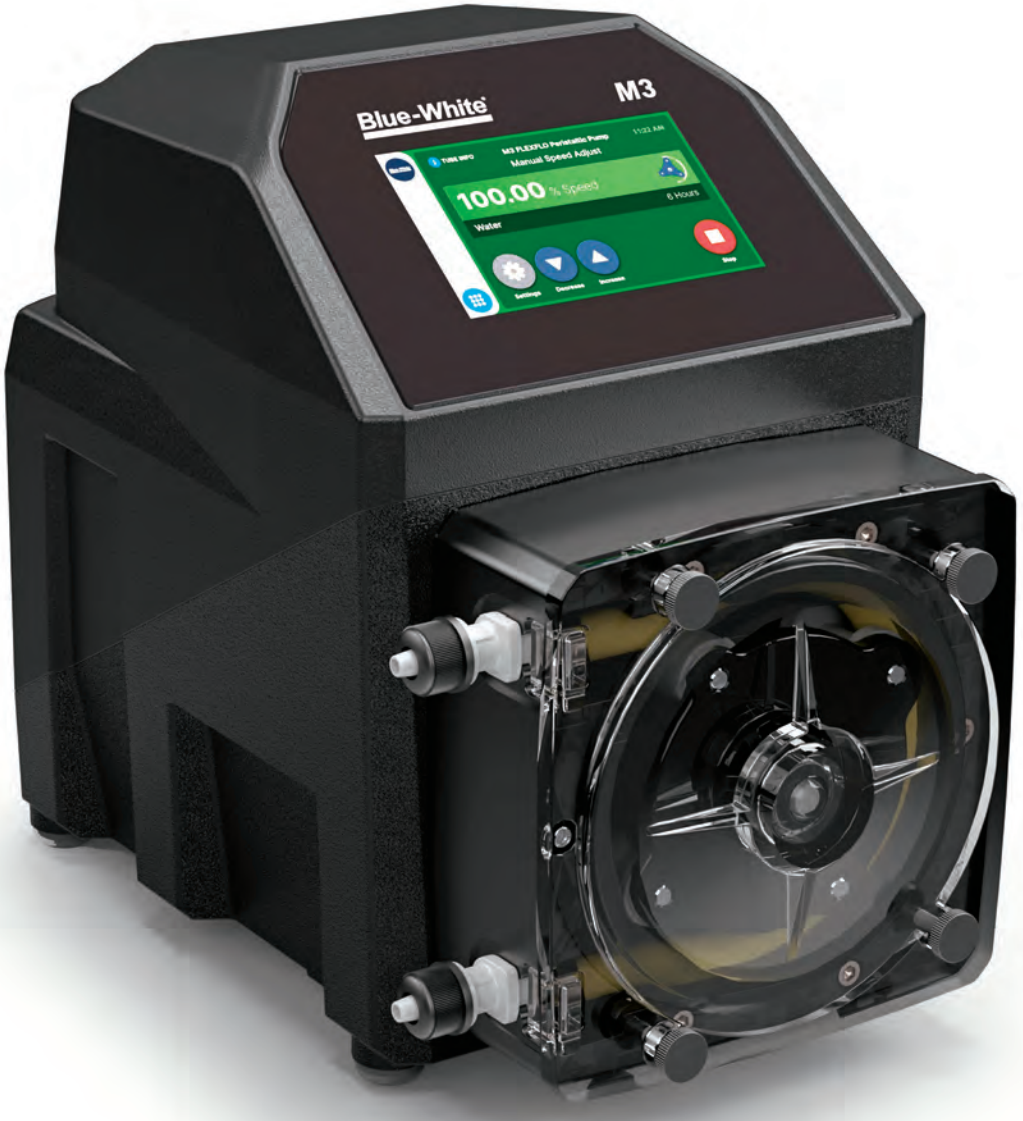

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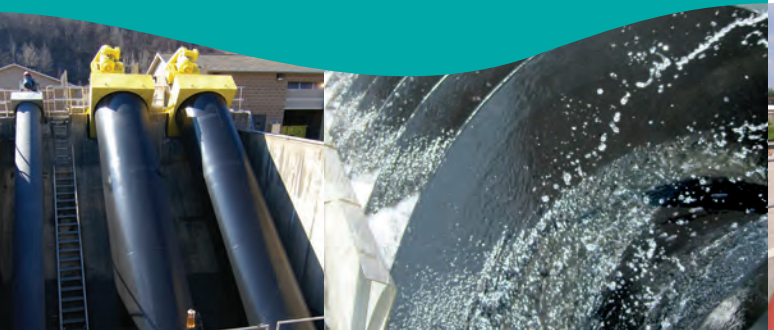

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- Enclosed Screw Pumps

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The Basics of Chloramination:

From Plant to Distribution System

December 8, 2021 11 am EST

DESCRIPTION:

Explore the challenges that come with initial chloramine creation, common issues in chloraminated distribution systems, and how to mitigate nitrification and water quality break down. By the end of this webinar, participants will gain an understanding of the following topics:

- The disinfection byproduct rule
- The history of chloramination
- How plants implement chloramine
- Best practices for measurement and control
- Distribution system challenges

SPEAKERS:

Julie Dawson
Chemical Engineer, Subject Matter Expert

Julie Dawson is a Chemical Engineer with over 20 years' experience with water chemistry and analysis. A graduate of the University of Alabama (Roll Tide), Julie has worked with Nalco, Hach Company, Thermo Fisher Scientific and now HF scientific. Some of Julie's accolades include the 2013 Water Environment Federation Laboratory Analyst Excellence Award.

Chris Schuermann
Electrical Engineer, Subject Matter Expert

Chris Schuermann is an Electrical Engineer with over 40 years of experience with control and automation systems. A graduate of Oklahoma State University, Chris has been specializing in water treatment automation systems for the past 20 years and has vast experience in chloramination and rechloramination stations.

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contents December 2021

SPECIAL SECTION: plant PROFICIENCIES

15

top performers

coming next month: January 2022 FOCUS: **Reuse, Recovery and Energy Management**

» Let's Be Clear: There's Only One Water » TOP PERFORMERS: Wastewater Plant: Water reclamation in Peoria, Arizona | Water Operator: Lydia Perry, Truckee Meadows Water Authority | Wastewater Operator: Scott Milholland, Gardner, Kansasy » How We Do It: Innovative FOG separation in Wareham, Massachusetts » In My Words: Promoting diversity, equity and inclusion » Sustainable Operations: An energy-saving journey in Washington State » Hearts and Minds: Water Drop Alerts in Metro Milwaukee » Technology Deep Dive: A new generation of chemical feed pumps

Decisions, Decisions

HAVE YOU EVER WONDERED WHAT YOUR LIFE MIGHT BE LIKE IF, AT CERTAIN CAREER AND PERSONAL CROSSROADS, YOU HAD MADE DIFFERENT CHOICES?

By Ted J. Rulseh, Editor

"Two roads diverged in a wood, and I —
I took the one less traveled by.
And that has made all the difference."
— Robert Frost

"When you come to a fork on the road, take it."
— Attributed to Yogi Berra

When you get to a certain age, you tend to look back on decisions that got you to where you are.

Some seemed momentous even at the time you made them. Others might have seemed trivial in the moment but turned out to affect the course of your life profoundly. Still others were decisions involving you that someone else made.

I suppose some people are so focused early on in life that they make each decision in a careful and calculated way, everything plotted in detail. My late younger brother, for example, wanted to be an engineer. He earned his college degree, went to work for a manufacturing company, stayed there, and rose through the ranks to executive vice president — all according to plan.

But many if not most of us follow less structured paths, and so random decisions along the way can take us places we never thought we would go. For example, I always thought I would be a writer of some sort, but didn't picture myself editing water and wastewater magazines, as I've done for the past 20-plus years.

GETTING STARTED

I graduated college with a degree in English, emphasis on writing, but having little idea what to do with it. A placement counselor suggested I go for a summer internship on the local daily newspaper; I did so, got it, and so began a seven-year stint as a journalist.

Well, not right away. In the meantime, I won acceptance to journalism graduate school, decided not to attend and just moved to the college town, planning to work odd jobs for a year to clear my head and escape the pressure of constant studying for a while.

There I landed I part-time gig as a stringer for a weekly newspaper. The publisher liked my work and so, when another publisher called to ask if he knew a good young person looking for a reporter job, he recommended me.

I interviewed, got the offer, for a weekly paper in a town I had never heard of, and agonized over whether to accept: The job actually paid less than I was earning as a banquet set-up crew member at a hotel. A good friend told me, "You really have to take this job." So I did. Where might I have been if I had stayed at the hotel? Banquet manager or something?

MOVING ON

Four years into my newspaper job I wanted a change. I answered an ad for news bureau director at a college in another state, was just about ideally qualified, and was invited for an interview. But while the college people dilly-dallied over scheduling the trip, my girlfriend had to decide whether to sign her next year's contract as a teacher. We decided it was best if she did (bird in the hand and all that) and I had to forget the college job. Where might I be now if I had taken it?

I stayed in the news business for three more years, then went job shopping again and ended up with simultaneous offers, as a newsletter editor for an electric utility, and with a public relations agency as a team member on a clean-water utility's public participation program for land application of biosolids.

With some trepidation I chose the latter; that's how I got my first experience in this industry, and it's a major reason I am here today. It turns out than many people in the water professions wound up here not through deliberate career planning but, by chance, out of the need for a steady job. And now they have great and rewarding careers. As do I.

ANOTHER DECISION

And as for that girlfriend I mentioned? Well, during my newspaper years I met her through a photography assignment, taking pictures for a preview of a modern dance show she was directing at the high school. That summer at a July 4 celebration I bumped into her in the beverage tent. She offered me a drink in gratitude for my photography. I accepted.

Forty-three years, a son and daughter, and two grandsons later, here we are. If I had turned down that drink, where would I be today? tpo

TREATMENT PLANT OPERATOR tpo

DEDICATED TO WASTEWATER & WATER TREATMENT PROFESSIONALS

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GOOD PUBLIC OUTREACH

Virtual Reality Tours

In an excellent example of public outreach, the East County (California) Advanced Water Purification program recently unveiled a new virtual reality tour video, which allows viewers to explore water/wastewater facilities. Read more about it and take the tour in this online exclusive article.

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OVERHEARD ONLINE

"More than 2 billion people live in water-stressed countries and suffer lack of access to safe drinking water and sanitation. We need to wake up to the looming water crisis."

Wake Up to the Looming Water Crisis, Report Warns

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GRANT-FUNDED RESEARCH

Scientist Hunts Wastewater Viruses

The Environmental Protection Agency recently awarded a Tulane University microbiologist a $1.24 million grant to develop more efficient ways to test and measure viruses in wastewater so engineers can evaluate how to best eradicate them. The goal is to validate these purification treatments to set standards for future water reclamation projects.

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NEW SANITATION SYSTEM

Solar-Powered Recovery

The latest version of the University of South Florida's NEWgenerator is on its way to South Africa to begin the process of entering mass production. The solar-powered machine generates nutrients, energy and water by safely recovering them from human wastewater — a technology built to address global sanitation concerns.

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Effluent is subjected to UV disinfection (WEDECO) at the Midland Water Reclamation Facility.

An Ideal Marriage

A NEW WATER RECLAMATION FACILITY FULFILLS A CRITICAL NEED FOR A WEST TEXAS CITY WHILE SUPPLYING RELIABLE, AFFORDABLE WATER TO AN OIL AND NATURAL GAS PRODUCER

STORY: **Ted J. Rulseh**
PHOTOGRAPHY: **The Oilfield Photographer, Inc.**

The Texas city of Midland needed a new clean-water plant. Pioneer Natural Resources needed an alternative to groundwater for its oil and gas fracking operations.

The result is the Midland Water Reclamation Facility, completed last March and now producing 10 mgd of tertiary-treated water that meets or outperforms Texas Type II reuse requirements — a tenfold improvement in effluent quality over the previous facility.

Pioneer has built a pipeline network that enables it to pump water to its various operations throughout West Texas. Cory Moose, assistant utilities director for Midland, calls the facility a huge win-win for the city and Pioneer.

"The upgrade limits the need for freshwater for oil and gas operations in the area," says Moose. "It creates an affordable, reliable, long-term source of water for Pioneer, while providing the city with necessary infrastructure improvements. In an area where water resources are scarce and depleting, this project was critical to securing the water needs of the oil industry."

A comprehensive training program has helped the plant team members adjust quickly to a treatment process with which few had previous experience. The plant went online in April 2021.

SIGNIFICANT UPGRADE

Before building the new facility, the city operated with preliminary and primary treatment only. Wastewater was delivered to a set of eight facultative lagoon cells where settling reduced the BOD content to about 30 mg/L, well below the permit level of 100 mg/L.

The effluent from the ponds was applied by spray irrigation on some 3,000 acres owned by the city and leased to farmers who raise alfalfa and other crops for animal feed. The same land was used for land-applying biosolids.

In 1974 the city built a 6.0 mgd (design) secondary treatment facility with mechanical aerators and clarifiers to supply reuse water to golf courses. "But it couldn't remove nitrate to a level where it could prevent the grass from burning," Moose says. It remained in minimal operation as insurance toward meeting the BOD permit limit.

In time, nitrate levels began to rise in the groundwater table below the land application field, "So we were looking at something to be more environmentally friendly," Moose says. "We were looking at ways to stop using that land."

Midland (Texas) Water Reclamation Facility

www.midlandtexas.gov

BUILT:
March 2021

POPULATION SERVED:
142,000

FLOWS:
15 mgd design, 10 mgd average

TEAM MEMBERS:
20 at reclamation facility, 4 in lab, 4 at land application site

TREATMENT LEVEL:
Tertiary

TREATMENT PROCESS:
Activated sludge, cloth disc filtration

WATER USE:
Process water for oil and gas operation

BIOSOLIDS:
Landfilled/land-applied

ANNUAL BUDGET:
$4.4 million (operations)

Ben Jordan, left, plant superintendent, and Chris Andrews, operator, at a secondary clarifier (Walker Process).

> "The facility creates an affordable, reliable, long-term source of water for Pioneer, while providing the city with necessary infrastructure improvements."
>
> **CORY MOOSE**

Meanwhile, "People were starting to get a bad taste in their mouth from oil and gas companies pumping water out of the ground for fracking." In 2014, the city issued a request for proposals seeking an oil and gas company to purchase 100% of the effluent from a new state-of-the-art water reclamation facility. The city chose Pioneer as the best-qualified bidder to install the infrastructure needed to accept the water.

BRAND NEW PROCESS

The plant was constructed by Jacobs under a design-build contract. "Once we knew that Pioneer was going to invest in the secondary and tertiary parts of the plant, we upgraded our primary portion," Moose says. Influent passes through a RakeMax bar screen and RotoMat rotating drum screens (Huber Technology), followed by a PISTA Grit system (Smith & Loveless) and a cyclone grit washer (Jim Myers & Sons). Shaftless screw conveyors move screenings and grit; existing grit pumps were replaced with submersible pumps (Flygt, a Xylem brand).

Ben Jordan looks at the return activated sludge pumps (Flowserve).

Screw presses (Huber Technology) dewater biosolids before landfilling.

New primary sludge pumps (Trillium Pumps USA - WEMCO) feed primary sludge to the anaerobic digesters, and the primary clarifiers have new mechanisms (Walker Process). The primary treated water passes through a junction box to three bioreactor basins with oxic and anoxic zones and a swing zone with Flygt mixers.

Four turbo blowers (Sulzer) deliver air by way of fine-bubble diffusers (Sanitaire, a Xylem brand). The flow then passes to three circular secondary clarifiers (Walker Process), followed by two Aqua MegaDisk cloth filters (Aqua-Aerobic Systems) and two UV disinfection channels (WEDECO).

The vast majority of the final effluent is delivered to a pump station owned by Pioneer. The plant retains the option to send effluent to the existing ponds, or discharge via cascade post-aeration to the Midland Draw, an intermittent creek.

In addition, influent can be diverted to the ponds if ORP probes at the junction box or at the end of the biological process indicate something out of the ordinary. "If somebody dumps a toxic load, gates will automatically shut off the water and send it out to our ponds," Moose says. "We do that to protect our secondary process."

The solids side includes a return and waste activated sludge pump station (Flowserve), aerated sludge holding (Flygt decanters), two anaerobic digesters heated by Cleaver-Brooks boilers and Walker Process heat exchangers, a gas handling and flare system (Varec Biogas), and five screw presses (Huber) for biosolids dewatering. Most biosolids are landfilled, and plans call for 100% landfilling, after contracts with farmers for land application expire in 2022.

Biological treatment is regulated by way of dissolved oxygen measurement, or direct measurement of ammonia with online probes in the basins. All online instrumentation is from Hach; all flow- and pressure-measurement devices are from Endress+Hauser. "We tried to make all the equipment as universal as possible," says Moose. "Maintenance is easier when there are fewer manufacturers." A new SCADA system uses Wonderware software (AVEVA).

PREPPING THE TEAM

Bringing operators up to speed was a critical challenge; training began at an early stage.

"As construction was going on, we had the operators on shift accompany the superintendent on site, or the startup and commissioning manager," says

Chris Andrews (left) and Ben Jordan view the dissolved oxygen level in the bioreactors on a Hach SC200 controller.

Moose. "They walked around to see where everything was, the current construction activity, where the valves and piping were located, what each process did, why it was important, what to look for."

The Jacobs process engineer started formal training two months before startup. Operators received training on each piece of equipment, broken down into two sessions. Operations and maintenance training was conducted multiple times so all staff could attend. It covered the preliminary, primary, secondary and tertiary processes.

"We have facility training scheduled again at one year," says Moose. "This will give the operators a chance to ask questions about the issues they're seeing in the field. It's difficult to know what questions to ask during initial training because you have never operated the equipment before."

Moose notes that the team members caught on quickly: "They went from strictly mechanical treatment to a biological system where they have to pay attention to bugs." An instructor gave basic microscopy training to the operators and a more advanced version to the lab staff.

To guide the staff, the city hired Bennie Jordan as plant superintendent; he came with nearly three decades of experience with activated sludge plants and having trained hundreds of operators in how to run them. "We brought him on board so he could keep an eye on things," says Moose. "We didn't have anybody with activated sludge experience. We'd been reading about it in books, but it's different when you're out there smelling it, feeling it, doing it."

COLLABORATIVE LEADERSHIP

As construction proceeded, Moose held meetings with the staff to share the plans and specifications and to seek their input on the SCADA system and instrumentation. "That helped create buy-in," he says. "If they have some say-so in what's to be put in, people tend to take care of it better."

> "We have facility training scheduled again at one year. This will give the operators a chance to ask questions about the issues they're seeing in the field."
> **CORY MOOSE**

Construction proceeded smoothly, without delays. "It was one of the most professional construction jobs I've ever been on," Moose says. "The Jacobs team did a lot of homework up front, and it showed.

For maintenance the facility taps into the Cityworks program Midland uses for its wastewater collection and water distribution systems. "We're putting all the maintenance on Cityworks so it will generate work orders for us and we can track everything," Moose says. "We have limited maintenance staff, so we want to make sure we're not missing anything. We have all the assets identified and GPS-tagged."

The scheduled preventive maintenance program is augmented by predictive maintenance, using tools such as quarterly infrared thermography on motors, motor control centers and termination panels, and vibration analysis on rotating equipment such as motors, pumps and blowers. Maintenance contracts cover major process equipment including the blowers, UV disinfection systems, bar and drum screens and screw presses. Moose expects that comprehensive approach to enable equipment to exceed its normal life expectancy.

CRITICAL LAB ROLE

Moose cites the lab team, led by Angelica Olivas, lab administrator for environmental compliance, and Alma McCammond, quality assurance/quality control manager, for playing a critical role in startup and in continuing operations.

(continued)

THE PIONEER SIDE

Pioneer Natural Resources staff members were intimately involved in the creation of the Midland Water Reclamation Facility.

"They were out there on site every day," says Cory Moose, assistant utilities director for the city. "They had their own construction oversight. We had a really good working relationship with them. We never had issues of any kind."

Reuse water from the Midland plant is delivered by way of a Parshall flume to a Pioneer pump station equipped with submersible pumps (Flygt, a Xylem brand). From there, Pioneer can distribute the water through a pipeline network to wherever it is needed.

The company also has an agreement with the City of Odessa, about 20 miles west of Midland, to take most of that community's wastewater effluent (about 5 mgd). Waters from Midland and Odessa are blended and delivered to area fracking locations.

Pioneer Natural Resources operates exclusively in the Permian Basin of West Texas, home to the world's second-largest oilfield. According to the company's website, some estimates hold that the basin's untapped resources could rival the supply of what is now considered the world's largest oilfield in Saudi Arabia.

The company proclaims a deep commitment to environmental stewardship and operates a Stewardship365 program with foundational principles that include respect for air, land and water; considering the environment in decision-making; empowering team members and contractors to do the right things; creating value through efficiency and innovation; and continually reducing its environmental footprint.

Chris Andrews pulls up a readout screen for the Sulzer HST 9500 turbocompressors that deliver oxygen to the bioreactors.

Midland Water Reclamation Facility
PERMIT AND PERFORMANCE

	PERMIT BEFORE NEW FACILITY	PERMIT FOR NEW FACILITY	EFFLUENT FROM NEW FACILITY
BOD	100 mg/L	10 mg/L	1.0 mg/L
TSS	N/A	15 mg/L	1.5 mg/L
Ammonia	N/A	3 mg/L	.02 mg/L

> "This facility also serves as an example of how public and private entities can maximize conservation efforts and resources by working together."
> **CORY MOOSE**

"The increase in the lab's workload was significant," he says. "We have to meet Type 2 effluent requirements if we send the effluent to Pioneer. That's a different standard than if we discharge to the draw, and there's a different standard if we send it to the land application site.

"So based on where it's going and what we're doing, we have to monitor different parameters. That increased load the on the staff in grabbing the samples. And because the plant has doubled in size, from 11.5 to 20.5 acres, their rounds take twice as long with the same number of people. Before all this was built, they took about 1,200 samples a month. Now take about 3,150 samples to meet the different requirements we have.

"There was a point where the lab was working 12 or 13 hours a day. They did a lot of the startup testing on the performance criteria. They did that for about three months during startup to make sure everything was in compliance and the equipment was meeting the manufacturer specifications. Now that the plant is running, there is constant communications between the operations and lab staffs."

RUNNING THE SHOW

The Midland facility is staffed 24/7/365 with 12-hour shifts. To meet the challenge of finding qualified operations staff, the city offers competitive wages along with pay increases for each advancement in licensure. "We've also created a leveling scheme so that operators don't feel stuck at one level until someone leaves or retires," says Moose. "There is opportunity for advancement even if the retention rate is 100%."

The plant requires an operator with at least a Class B license (second highest in Texas) on every shift. As of last May, six operators had reached or exceeded that level. Operators take advantage of local training programs and have a training room on site where they can access online classes. "We've been fast-tracking them, giving them as much training as they can handle, so they are able to advance quickly in licensing," Moose says.

Team members still at the land application site are being cross-trained to operate the plant, "because eventually the land application site is going away."

In the end, says Moose, "This facility also serves as an example of how public and private entities can maximize conservation efforts and resources by working together." tpo

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plant PROFICIENCIES

Skilled operators and innovative technologies make an unbeatable combination in water and wastewater treatment plants.

Explore the possibilities in this special section.

Keller's non-fouling level transmitter solves tough measurement problem

In wastewater measurement, accurate readings are essential to ensuring proper pump operation. A failure in this area can result in unhygienic liquid waste overflow and costly repairs to pump mechanisms.

In Newport News, Virginia, several restaurants were built in an area serviced by the same municipal wastewater lift stations. These restaurants introduced heavy grease content to the wastewater and caused the municipality's existing level measurement equipment to foul and fail.

ANTIQUATED SOLUTIONS

Before development of the commercial district, Newport News Waterworks and Hampton Roads Sanitation District relied on a combination of mechanical floats and traditional submersible level transmitters. However, with the restaurants in operation, the increased volume of grease clung to both instruments and, as a result, the primary and redundant level measurement failed to properly transmit level data to the pump controller.

The accumulation of grease to the submersible level transmitter clogged the pressure ports that blocked the free flow of liquid and proper application of hydrostatic pressure to the sensing diaphragm. On the redundant float switch, which should trigger the pump in the event of a failed level transmitter, the accumulation of grease blocked the mechanical operation of the float ball. With the level transmitter and backup system inoperable, the affected lift stations failed, either reading too much wastewater or too little, thus causing the pumps to run continuously or not at all.

IDEAL SOLUTION

Several instrumentation companies offer non-fouling solutions with only minor variations of the existing and unsuitable solutions. These instruments use a Teflon-coated elastomer diaphragm, which is relatively weak and prone to puncture. Their answer is to use a bulky protective cage, consisting of a shield mounted on bolts and standoffs. However, these shields can collect rags, grease and biosolids in the wastewater, which leads to erroneous readings.

Newport News officials contacted Keller America, whose LevelRat provided a unique approach to wastewater level measurement.

The tougher Kynar diaphragm used on the LevelRat provides superior abrasion and puncture resistance relative to other wastewater level transmitter solutions. This design also minimizes the 36 XKY profile, creating a sleeker design without the need for bulky shields. The result is a truly non-fouling instrument that provides superior operation in environments that would clog traditional level transmitters.

The LevelRat is specifically designed for extended service in lift stations and, thanks to Keller's guaranteed lightning protection, the unit is ideal for areas prone to chronic lightning damage. The LevelRat is assembled in the U.S. to customer specifications, including custom pressure ranges and cable lengths.

KELLER

Keller America is a leading manufacturer of level and pressure measurement instrumentation headquartered in Newport News, Virginia.
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Choose Peristaltic Metering Pumps for Fluids With Particulates or Chemicals That Off-Gas

A peristaltic metering pump is a type of positive displacement pump. Fluid is pumped through a flexible tube in a peristaltic motion. Rollers are attached to a rotor which is controlled by a motor. As the rotor turns, the rollers pinch the tubing to force the fluid through. When the tube is not compressed, the fluid flow is brought into the tube.

Peristaltic metering pumps excel at pumping dirty fluids that contain particulate matter into lower pressure systems because they have no check valves to clog. The gentle forces created during the peristaltic pumping action will not damage delicate fluids within the tube.

Peristaltic pumps are also extremely effective when pumping fluids that contain trapped gases. Fluids such as sodium hypochlorite and peracetic acid tend to release absorbed or occluded gases when subjected to a vacuum or changes in temperatures. Whereas a diaphragm pump can lose prime or vapor lock and fail when gasses build up in the pump head, peristaltic pumps are capable of pumping both fluid with particulates and those that off-gas without loss of prime or vapor lock.

Peristaltic pumps easily prime under maximum pressure, but are usually limited to maximum discharge pressures of around 125 psi. In addition, they are capable of injecting into a vacuum without the need for metal spring loaded valves. Their output volume does not change due to changes in the system pressure.

M3 PERISTALTIC CHEMICAL DOSING PUMP FEATURES

The advanced performance features of Blue-White's new M3 Peristaltic Chemical Dosing Pump include a bright, easy to access and highly responsive 5-inch display screen. The screen is as simple to operate as a cell phone, even with gloves on, and the text is easy to read. Icons are quickly recognizable.

In addition to legacy communications such as 4-20mA, the M3 offers advanced communication protocols, including Profibus, Modbus TCP and Ethernet IP. The superior design of the M3 includes firmware that can be field updated.

Additionally, M3 may be ordered with Blue-White's exclusive FlexAPrene multichannel tube technology, which saves maintenance time and expense. These innovative pump head tubes provide optimal performance while operating at higher pressures than conventional single tube designs. The multi-tube design delivers tube life up to four times greater than average single tubes, according to the manufacturer.

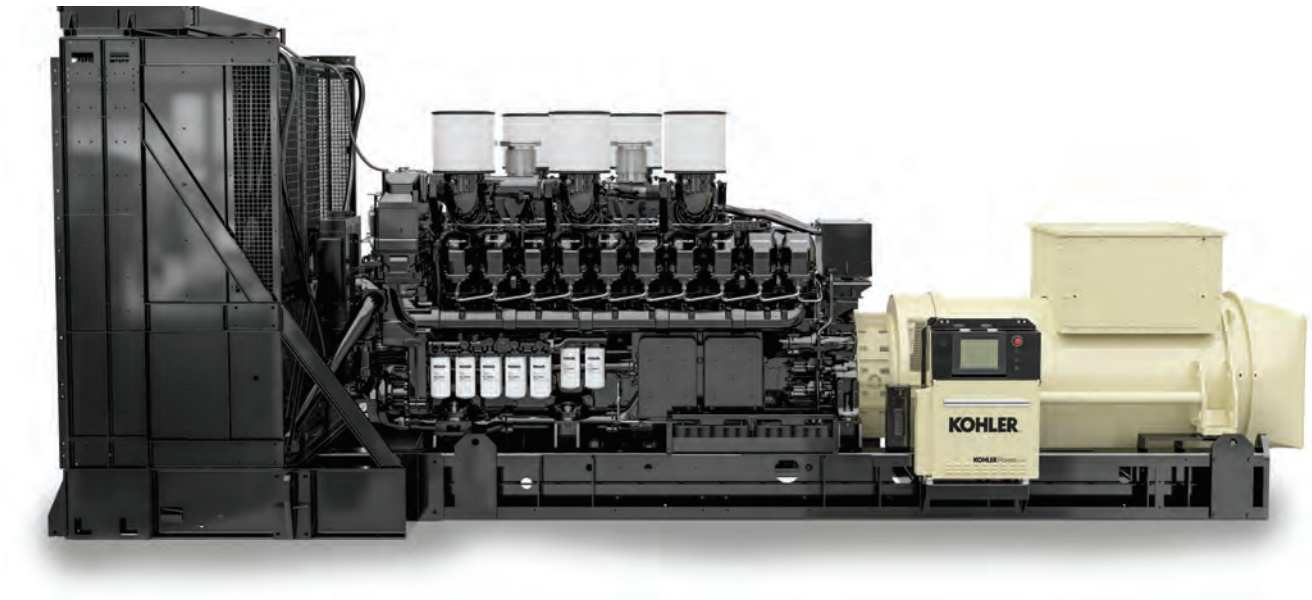
Should a tube rupture, the FLEXFLO M3 is equipped with Blue-White's built-in Tube Failure Detection system. This technology detects a wide range of conductive chemicals with no false triggering. If the TFD detects tube failure, the pump will automatically shut off and energize a relay switch. This permits communication with external equipment, such as a back-up pump or alarm. It also serves to prevent chemical spills and added downtime.

FLEXFLO pumps can also be equipped with Blue-White's quick-disconnect fittings. They're designed to aid in ensuring operator safety by helping prevent chemical spills and splashing during tube changes.

In conclusion, peristaltic metering pumps have been proven to be accurate, dependable and tough in a multitude of commercial, industrial and municipal chemical metering applications. They are a suitable choice when pumping fluids that contain particulates or trapped gas. The constant flow and gentle peristaltic pumping action help deliver precise amounts of chemical to a system without loss of prime.

Blue-White® **Blue-White** has prided itself on cutting-edge technology, quality materials and excellent customer service since 1957. The company's approach is to simplify the chemical metering and fluid measuring process to give users peace of mind and to invent new technologies. The company has a worldwide network of factory authorized representatives, distributors, dealers and warranty centers.

714-893-8529 | info@blue-white.com | www.blue-white.com



KOHLER Power Is a Trusted Partner With Water Treatment Facilities

A global force in power solutions since 1920, KOHLER Power partners with water treatment facilities with standby power from its leading series of large diesel industrial generators. These gensets are highly customizable to provide a high level of proficiency for plant operators.

KOHLER is the only generator set company to manufacture and supply a completely integrated system from a single facility. The company is also committed to developing cleaner energy solutions with generators that lead the industry in power density and fuel economy, and contribute to a lower environmental impact.

POWER-DENSE PRODUCT PORTFOLIO

The KOHLER product portfolio includes the KD3500 (3,500 kW) and KD4000 (4,000 kW) generators, which represent the largest standby generator in the marketplace and deliver unprecedented power density and performance.

The units feature a newly developed K175 103-liter, 20-cylinder KOHLER diesel engine designed to provide extreme durability and ultimate reliability in a variety of emergency and prime applications. The compact and powerful diesel engines incorporate a modular design with common components, allowing for efficient servicing, reduced spare parts inventory, and more streamlined technician training. From a generator package design perspective, KOHLER's approach is to also keep many of the components the same in the new models as their counterparts including the control system, alternator, cooling system – but just a bit larger to accommodate their higher outputs.

The entire KOHLER KD Series is ideally suited for modern wastewater sites. The extensive lineup offers multiple sizes — between 800 and 4,000 kW — and options to ensure suitable performance for the most demanding applications. They are backed by a comprehensive three-year warranty, a full complement of genuine KOHLER aftermarket parts, and a 24/7 global service and support network.

PLANT EXPANSION INCREASES PRODUCTION CAPACITY

Reaffirming its commitment to being a trusted partner, KOHLER initiated a 155,000 square-foot expansion in March to its existing manufacturing facility in Mosel, Wisconsin. The project will include a state-of-the-art production and testing space of large generators above 2,000 kilowatts, increased warehousing space, as well as a world-class customer experience center.

This is the second major expansion in the last eight years at this United States manufacturing site following a decade of sustained growth, and addresses future capacity requirements to provide a safer, more efficient and seamless flow of integrated power system assembly, testing and enclosing — all under one roof.

KOHLER®
IN POWER. SINCE 1920.

KOHLER is committed to reliable, leading-edge products and comprehensive after-sales support. It provides complete power systems, including generators (portable, marine, residential, commercial and industrial), automatic transfer switches, switchgear, monitoring controls, and accessories for emergency, prime power and energy-management applications.
www.kohlerpower.com

No Lower Bearings, Sprockets, Bushings or Guides With Raptor FalconRake Bar Screen

The Lakeside Raptor FalconRake Bar Screen is an efficient, proven, cost-effective screen technology for inorganic solids removal providing protection to downstream equipment in municipal and industrial applications.

High removal efficiency and low headloss is achieved with multiple rakes continuously removing captured material. The Raptor FalconRake Bar Screen features a durable stainless steel chain-link design for solids removal without the need of lower bearings, sprockets, bushings or guides, thus eliminating any fouling or jam conditions in the channel.

The Raptor FalconRake offers a wide range of bar shapes and depths to ensure successful operation regardless of the application, creating an efficient, durable and dependable rapid debris-removal system.

DESIGN AND CONSTRUCTION

Product features include an all stainless steel construction to resist corrosion, and a low-horsepower energy efficient drive system. The unit requires minimal headroom above the operating floor.

The Raptor FalconRake offers bar spacing available from 1/4 inch, and features a variable speed to ensure quality cleaning and a durable cast stainless steel chain-link system.

Customers can optionally add a cover for odor control, an explosion-proof design or weather protection system, or teardrop-shaped bars for reduced headloss.

THE COMPLETE PACKAGE

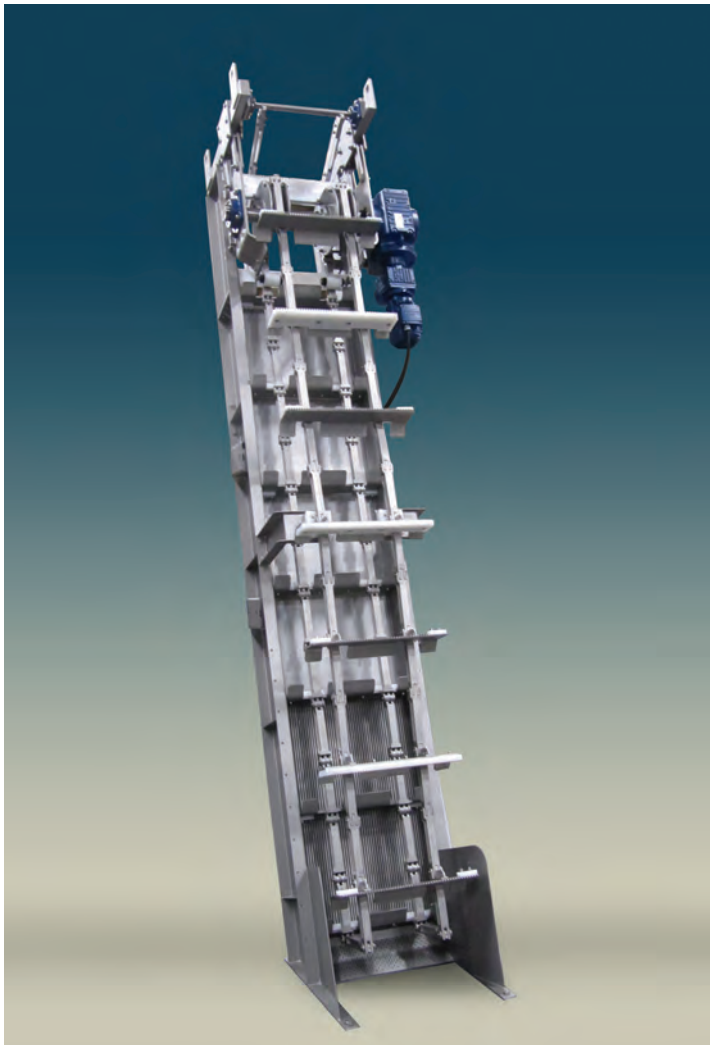
The Raptor FalconRake Bar Screen can be used in tandem with the Raptor Wash Press to wash, compact and dewater captured screenings. The screen and wash press equipment controls can be integrated into one control panel for smooth and efficient operation.

LOW MAINTENANCE, HIGH PERFORMANCE

The Lakeside Raptor FalconRake Bar Screen operation is simple. As wastewater flows through the screen, solids are captured on the face of the bar screen. Multiple rake heads with teeth that penetrate the bar screen transport solids to the top of the unit where a debris wiper blade removes solids into a discharge chute. Materials then fall from the chute into a conveyor, washer/compactor or dumpster for disposal.

The low-horsepower, energy-efficient drive operates at low or high speed to ensure the most effective capture/solids removal in the wastewater stream. Maintenance, although rarely needed according to the manufacturer, is easily achieved at the operating floor level since no part of the drive system is located below the water surface.

The Raptor FalconRake offers efficient, economical performance for municipal wastewater treatment plants, pump stations, surface water intake structures and combined sewer overflows.



LAKESIDE EQUIPMENT CORPORATION
Water Purification Since 1928

Cleaner Water for a Brighter Future®

Lakeside Equipment Corp. is an engineering and manufacturing company concentrating on helping to improve the quality of water resources. Lakeside started engineering water purification systems for municipalities and companies throughout North America in 1928. Today, the company operates globally. For more details on the design and performance of Lakeside's Raptor TalonRake Bar Screen, contact Lakeside Equipment Corp.

630-837-5640 | sales@lakeside-equipment.com
www.lakeside-equipment.com

Vaughan Is a Reliable Source for Chopper Pumps and Pump Systems

With a focus on quality, Vaughan takes the time on each project to ensure that its pumps and/or mixing systems are properly configured for each installation, which translates into a prolonged operating life and minimal maintenance over the equipment's lifetime.

VAUGHAN CHOPPER PUMP

The Vaughan Chopper Pump is a centrifugal pump with the unique ability of chopping all incoming solids prior to pumping. This not only protects the pump from clogging, but also provides added benefits to downstream components, processes, and the environment.

Chopping is accomplished by the scissor action of the leading edges of the impeller vanes cutting against the opposing edges of the cutter bar. All solids are chopped as they enter between the cutter bar and the impeller vanes. The smaller solids are easily pumped by the centrifugal action of the impeller.

All wear components are cast-steel and heat treated for maximum impact and wear resistance. These heavy-duty patented components create a suitable pump for handling severe solids.

VAUGHAN ROTAMIX SYSTEM

The Vaughan Rotamix System is a reliable and cost-effective means of mechanical hydraulic mixing for sludge tanks, digesters and other high-volume applications.

Combining high-velocity mixing nozzles and the Vaughan Chopper Pump, Rotamix creates a multizone mixing pattern while simultaneously chopping all accumulated solids. That means no more floating mats or solids settled at the bottom of your tank. The Vaughan Rotamix System produces an easy-to-pump, homogenous mix.

The solutions Vaughan offers start here. There are several other product specifications and combinations to consider when approaching a project. The best way to find the right fit for your needs is to contact the pump experts directly.

Unmatched Reliability
Vaughan®

Vaughan Co. is a global industry leader in reliable chopper pumps and mechanical hydraulic mixing systems, providing products for nearly all industry applications and processes where wastewater solutions are needed. Family owned and operated since 1960, Vaughan remains committed to providing customers with the most dependable product solutions in the world and outstanding lifetime service and support. The company's products are made in the United States.

888-249-2467 | info@chopperpumps.com | www.chopperpumps.com

CLOGS?

NOT ON OUR WATCH.

Chopper

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

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

Vaughan®
Unmatched Reliability

MADE IN AMERICA

888-249-CHOP | **ChopperPumps.com**

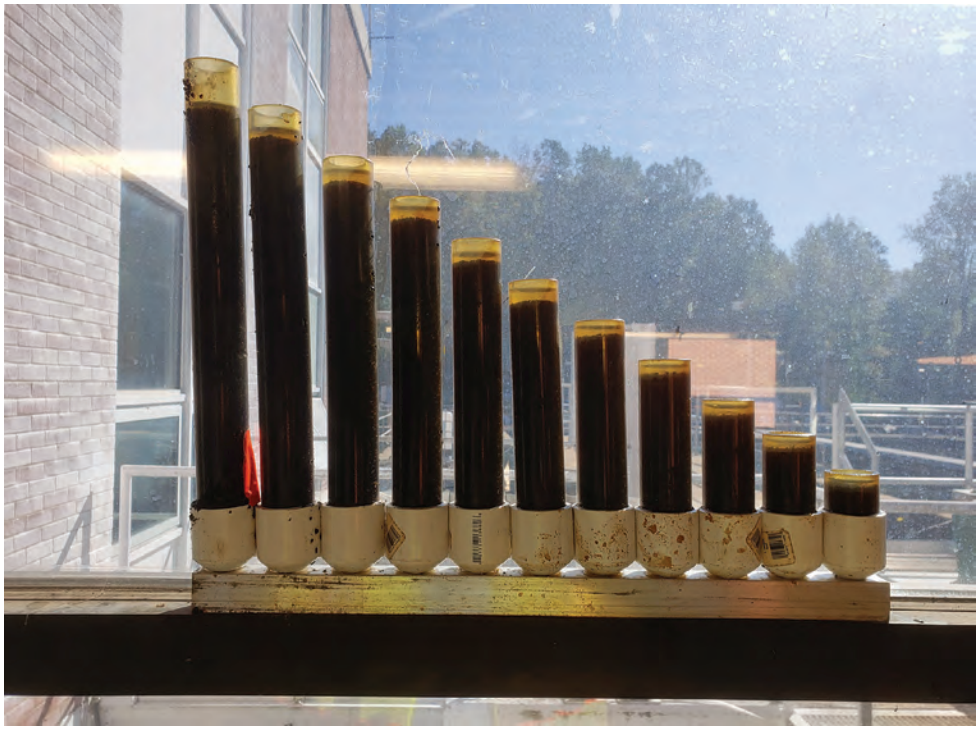
EXPEDITED DELIVERY | SIX CHOPPING FEATURES | FLUSHLESS MECHANICAL SEAL

FilterSmart Reveals Common Media Expansion Measurement Errors

Analytical Technology's Entech FilterSmart Backwash Monitor is becoming a popular tool for managing backwashes in gravity filters. In two recent customer trials in Virginia and Colorado, FilterSmart revealed what may be a common error in the manual measurement of the media level (media expansion) during the backwash.

It's common to use a set of "pan pipes" or "organ pipes" — a long-handled device with graduated-length cylinders across the bottom — to measure the expansion of the media during a wash.

In typical use, the measurement tool is lowered to the elevation of the top of the static media and a mark or datum is made on the handle corresponding to the top guardrail or a concrete walkway. Then, during the high rate portion of the backwash, the device is lowered to this datum, and the successive cylinders will fill until the upper limit of the expansion (usually 20% or so of the media depth) is reached. So, if each cylinder is a multiple of 1-inch, the media for a bed 30 inches deep might fill up all the cylinders up to 6 inches in length, but no higher. The tool is then simply withdrawn, and the cylinders are visually inspected for media. The tool can then be emptied and the process repeated several times during the high rate portion of the wash.



ERROR DISCOVERY

What was recently discovered in these two locations, however, was that the tool was lowered into the filter at the beginning of the wash. Each facility has air scour, so when the backwash went into the air scour part of the process, the media was carried up and into the longest cylinders of the expansion tool, thereby overstating the degree of expansion in the filter during the wash. This of course was a potential problem in that the facilities' high flow rates were adjusted accordingly, resulting in artificially low expansion rates, which can lead to mud-ball formation and poor overall filter health.

When the plant measurements were compared to the FilterSmart trends of each wash, it was clear there was disagreement. A simple review of each plant's processes and procedures made it clear what was happening. Each plant subsequently lowered the expansion tool after the air scour had terminated, but during the high rate, and results were compared again. This time there was no disagreement (see image).

REAL-TIME MEASUREMENT

FilterSmart can enable you to see into your process like never before, with real-time measurement of media level and turbidity. If you would like a free trial of ATI's FilterSmart Backwash Monitor, use the contact info below.

Automatic Sensor Cleaning

Dissolved Oxygen Monitor

Optical Sensor with Q-Blast

The Q-Blast Dissolved Oxygen System provides nearly maintenance free operation by automatically cleaning the sensor using a high pressure air system.

This system is ideal for aeration basin control, resulting in improved process performance and energy savings!

FEATURES

- The Q-Blast Package includes: Monitor, Sensor, and High Pressure Cleaner
- Available with Optical Luminescence or Membraned Sensors
- Factory Assembled for Easy Installation

Q-Blast

Total Chlorine Monitor

Reagent Free Measurement

The Q46/79PR is ideal for controlling chlorine addition in disinfection chamber.

FEATURES

- Submersible or Flowcell Type Sensor
- Optional pH Measurement
- Easy Installation and Low Operating Cost

Sludge Blanket Monitor

Interface Level Analyzer

Continuous sludge level measurement supports effective process control.

FEATURES

- Prevent sludge washout
- Control blanket loss from over-pumping
- Maintain underflow sludge density

Toxic/Combustible Gas XMTR

"Smart Sensor" Technology

Model D12 Gas Transmitters provide the ultimate in application flexibility.

FEATURES

- Interchangeable "Smart Sensors"
- Internal Data-Logger
- Automatic Sensor "bump test"

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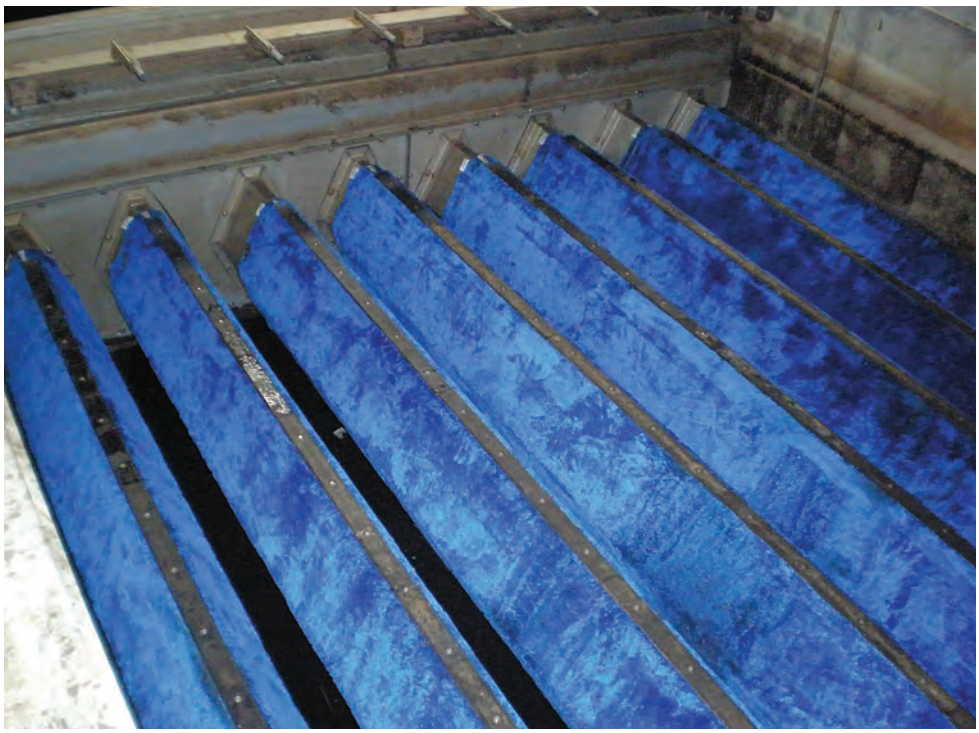
ATI
ANALYTICAL TECHNOLOGY, INC.

AquaDiamond Cloth Media Filters Use Microfiber Media to Achieve 0.1 mg/L Total Phosphorus Limit



With the current national emphasis on restoring urban water quality, the City of Brockton (Massachusetts) Advanced Water Reclamation Facility wanted to stay ahead of the regulatory cycle — in particular, phosphorus discharge limits set forth by the National Pollution Discharge Elimination System program of the U.S. Environmental Protection Agency. For this region of the country, the EPA has proposed total phosphorus discharge limits of 0.1 mg/L.

The Brockton plant's existing treatment scheme included physical settling (primary treatment), activated sludge treatment (secondary treatment) and final filtration (tertiary treatment) using two AquaDiamond cloth media filters from Aqua-Aerobic Systems. Even though the filters performed to a level well below the current phosphorus discharge limit of 0.2 mg/L, plant superintendent Dave Norton began looking for ways to not only improve the plant's removal efficiency to meet the anticipated 0.1 mg/L limit, but to achieve it with minimal equipment modification and without raising operating costs with chemical addition.

FULL-SCALE TESTING

Following preliminary analytical evaluations of incoming phosphorus levels, the Brockton AWRF staff, working with Aqua-Aerobic Systems, conducted full-scale tests using OptiFiber PES-14 microfiber cloth media installed on one of the AquaDiamond filtration units and compared its performance to the unit using the existing OptiFiber PES-13 pile cloth media. Each unit provides 238 square meters (2,560 square feet) of filtration area and is rated for a nominal average daily flow of 1,900 cubic meters per hour (12 mgd) and a maximum daily flow of 3,800 cubic meters per hour (24 mgd).

Throughout the four-month evaluation period from December 2012 to April 2013, the two filters received common influent from the plant's secondary clarification system (which was treated with ferric chloride prior to settling). Feed quality and discharge quality were monitored for phosphorus as well as total suspended solids, turbidity, pH, iron and alkalinity. Testing was conducted in three phases to explore filter performance:

1. During normal operating conditions of approximately 6 cubic meters per hour per square meter (2.4 gpm per square foot).
2. At the average design hydraulic loading rate of 8 cubic meters per hour per square meter (3.25 gpm per square foot).
3. At the peak hydraulic loading rate conditions approached 16 cubic meters per hour per square meter (6.5 gpm per square foot).

STUDY RESULTS

The two filter units operated under identical flow and loading conditions during the full-scale study. The results show that the OptiFiber PES-14 microfiber media consistently reduced phosphorus levels to below the 0.1 mg/L target. Additionally, the microfiber media outperformed the existing pile cloth media with respect to final total suspended solids, turbidity, particle size distribution and iron concentrations and fared well during average design and peak hydraulic loading rate testing.

The plant has not observed any negative hydraulic impacts in going from the original pile cloth media (PES-13) to the microfiber media (PES-14). "We all anticipated a potential 20-25% reduction in hydraulic pressure loss across the filters," says Norton. "I don't believe we saw that. Also, I do not believe we have seen the increase in backwashing volume which was predicted."

By taking the initiative, Brockton AWRF demonstrated it can meet anticipated future discharge standards. Because of this demonstrated success, the plant has installed and commissioned a third and fourth AquaDiamond CMF with the OptiFiber PES-14 microfiber media. The AquaDiamond filter unit fitted with the original pile cloth media (the control unit in the full-scale test) is also being retrofitted with the microfiber media.

INNOVATION BY APPLICATION

OPTIFIBER® PILE CLOTH MEDIA FILTRATION

With more than 3,000 installed units at more than 1,400 facilities worldwide, OptiFiber® pile cloth media filtration provides plants with superior effluent quality, energy savings and the lowest lifecycle cost for applications ranging from tertiary treatment and phosphorus removal, to primary filtration and wet weather treatment. Ongoing research and testing of OptiFiber media continues to advance this technology into new and emerging applications, providing plants with a progressive filtration solution for micro-plastic removal, micro-pollutant removal and the treatment of coal pile runoff.

Trust the leader in pile cloth media innovation for the most versatile and effective filtration technology.

OptiFiber® pile cloth media is available on these recognized brands:

AquaDisk® | Aqua MegaDisk® | AquaPrime® | AquaStorm® | AquaDiamond® | Aqua MiniDisk®

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

www.OptiFiberMedia.com | 815-654-2501

Monster Stack — The Right Cutter at the Right Location

The debris in wastewater varies. There are hard, abrasive materials such as rock and sand that are pushed along the bottom of the waste stream, and then there are materials that float in the waste stream, such as stringy wipes and food scraps. And above the wastewater, the air is often high in hydrogen sulfide, which creates a corrosive environment.

Choosing a single cutter type for a grinder often addresses one operational challenge while ignoring others. This leads to dissatisfaction with grinder performance and operational life when the grinder does not address all the needs of the installation.

The Monster Stack is JWC's solution to this problem — a customized cutter stack with individual cutters to address the specific challenges of your installation. A Monster Stack will mix and match the right cutter at the right location to optimize grinder performance and unit longevity.

INDIVIDUAL VS. MONOLITHIC CUTTERS

Individual cutters can be machined to very tight tolerances as the whole cutter surface is accessible for the machining processes necessary to achieve extremely flat cutter surfaces. These finishing techniques cannot be used on the cutter surfaces of a monolithic cutter stack.

So why is it important for the cutter surfaces to be very flat? It has to do with shearing action. Think about how scissors perform. When the scissor pivot screw is tight — such that the blades have minimal distance between them — the shearing action between the blades results in a clean cut. But when the pivot screw is loose, increasing the distance between the blades, the scissors can no longer effectively shear, resulting in poor cutting. The blades need to pass close to each other to shear effectively without touching each other as interference could cause damage.

The effectiveness of a grinder's shearing capability follows the same principles. To achieve minimal spacing, cutters need to be manufactured to consistent and precise dimensions to realize the required spacing without making contact. Individual cutters can be manufactured to tight tolerances that are not possible with a monolithic design.

CRUSHING TOUGH SOLIDS

Does your waste stream have a high level of rocks, grit and other heavy debris at the bottom of the waste stream? The Monster Stack solution is a seven-tooth cutter configuration to crush these tough solids.

Are the cutters at the top of your grinder exposed to a high level of hydrogen sulfide? The Monster Stack solution installs corrosion-resistant stainless steel cutters in the region from the expected water line to the top of the grinder. The stainless steel will not be as susceptible to corrosion as a typical alloy steel cutter.

Why not select an all stainless steel stack when operating in an acidic environment? With a Monster Stack, you have the ideal cutters to address the specific challenges above and below the waterline — stainless steel for the exposed cutters in an acidic environment above the waterline and alloy steel for the cutters grinding solids in the waste stream.

Monster Stack can solve your unique waste stream challenges. If you have a problem with wipes, the Wipes Ready cutter is specifically designed to shred wipes into pieces that will not reweave. For small particles, a thin high-tooth-count cutter can shred solids into small particles. For plants with a variety of solids, a general purpose cutter can serve well.

JWC Environmental™
A Sulzer Brand

JWC Environmental is a world leader in solids reduction, removal systems and product destruction for municipal and industrial applications. JWC Muffin Monster sewage grinders protect vital sewage pumping stations and sludge system equipment, and JWC headworks screens protect essential treatment plant equipment from debris in wastewater. Plants globally turn to JWC systems like Auger Monsters and Screening Washer Monsters for unique all-in-one packaged solutions for solids separation and dewatering. Founded in 1973, the company has built and shipped more than 40,000 Monster grinders, shredders and screens to customers worldwide.

833-912-3331 | www.jwce.com/tpo-monster-stack

Since materials in the waste stream vary, grinders often need to address multiple challenges from the bottom to the top of the grinder. JWC's Monster Stack™ addresses those specific challenges. No longer do you need to settle on a single cutter type. The Monster Stack mixes and matches the right cutter at the right location to optimize grinder performance and unit longevity.

The Right Cutter at the Right Location

www.jwce.com/tpo-monster-stack | 833.912.3331

Protecting pumps and system components from clogging, blockages, and damage for almost 50 years.

MUFFIN MONSTER®

JWC Environmental®
A Sulzer Brand

Aeration Crisis: Sulzer's HST Turbo Blowers Fly in to Save the Day

Aeration processes in the wastewater treatment industry are essential in meeting water quality figures, so the blowers need to be reliable and as efficient as possible. For one facility in California, repeated maintenance issues led to the decision to remove the existing turbo blowers and install Sulzer's HST units, which in turn reduced energy consumption for the site.

Equipment reliability is at the forefront of concerns for plant owners, especially when the backup machines are due for retirement as well. In this case, the treatment works had previously invested in two new 400 hp (300 kW) turbo blowers to replace aging diesel-powered units. This decision also supported the site's objectives relating to the local Environmental Protection Agency and air-borne emissions.

COST ASSESSMENTS

After an initial period of trouble-free operation, both frontline blowers experienced reliability issues following their installation 10 years earlier and eventually suffered catastrophic failures, caused by high dust levels in the local area. According to the treatment plant management team, support from the original equipment manufacturer to repair the blowers was going to cost upwards of six figures in U.S. dollars. To add insult to injury, the treatment plant was compelled to run the diesel-powered blowers to maintain the aeration processes.

This could only be a short-term solution due to the increased pollution levels and stringent Californian laws. The local EPA was already threatening possible fines for continued use of the diesel-powered blowers.

Faced with these considerable challenges, the plant management and maintenance teams made the decision to move away from the original supplier and contacted Sulzer to discuss the options and timings for replacement blowers. Sulzer's HST product line has an excellent reputation in Southern California for reliability as well as efficiency, according to company officials.

The management team from the wastewater treatment plant — as they were doing their research and investigating a variety of options — visited another Sulzer installation site in the state that operates six HST units. The operators and management staff at that plant provided further support for the blowers, confirming their low operational costs and continued reliability.

HIGH-SPEED SOLUTION

Having completed a site survey, Sulzer proposed two 250 hp (186 kW) HST30 units. This solution quickly resulted in a purchase order with the additional request of air freight for the units to minimize project timings as much as possible.

Rick Barile, Sulzer's regional sales manager, says "Sulzer's HST30s were able to meet the requirements of the plant's aeration processes. Using 250 hp blowers instead of 400 hp units also resulted in a considerable energy saving for the site."

Sulzer's range of HST turbo blowers feature magnetic bearing technology and a high-speed motor, which provide wear-free operation with low noise levels and high energy efficiency. With a compact footprint, they can be easily installed in existing buildings and connected to the aeration infrastructure. They can be integrated with other blower designs, if necessary, to ensure a smooth transition during an upgrading project.

The HST range can be specified for a variety of different installations and control configurations that ensure the aeration process is optimized both in terms of biological efficiency and energy efficiency. Sulzer's experts can provide customers with design support, detailed specifications and options that will maximize project savings and highlight the return on investment.

For more information about Sulzer's range of turbo blowers and other equipment designed for water treatment plants, contact Sulzer.

SULZER

Sulzer is a global leader in fluid engineering. The company specializes in pumping, agitation, mixing, separation and purification technologies for fluids of all types. Sulzer has been headquartered in Winterthur, Switzerland, since 1834.
www.sulzer.com/en

Time for
Change

Maintenance just got a whole lot easier!

No need for worrying about constantly maintaining your blower equipment. You can just let it do its job. With minimal maintenance required, the HST™ Turbocompressors just run, leaving more time for you to do the things you'd rather be doing. With thousands of HSTs running and installations operating for over 20 years, means that we are in a unique position to make this promise.

In addition to minimal maintenance and long-term reliability, the HST™ design offers the highest energy efficiencies in the market. Don't you think it's time for change?

Learn about these benefits and more at www.sulzer.com/timeforchangehst

SULZER

U.S. Nutrient Recovery Technology Helps Facilities Meet Phosphorus Regulation Limits

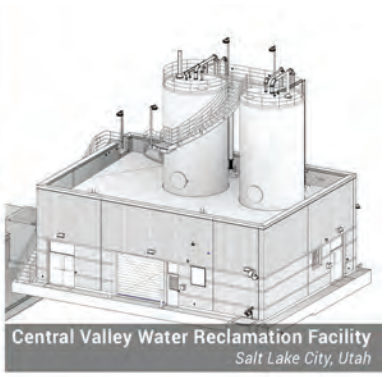
Seven MagPrex nutrient recovery systems are currently operational or under construction in the United States. MagPrex provides treatment plants with a high orthophosphate removal efficiency, which helps plants meet phosphorus regulation limits.

Struvite precipitation is detrimental to treatment plants. MagPrex prevents crystallization in downstream biosolids by forming struvite as it strips out CO_2, elevates the pH, and adds MgCl2 to augment Mg2+ in a controlled environment. MagPrex fits between the anaerobic digester and the dewatering equipment. Struvite crystals — the converted orthophosphate within the digestate — can be harvested and used as fertilizer.

MagPrex removes struvite and significantly improves treatment efficiency, and according to the manufacturer, it reduces polymer consumption up to 30%; reduces disposal costs up to 20%; reduces phosphate recycle loads up to 90%; reduces maintenance costs up to 50%; and no sodium hydroxide is required for pH change

"It's because of our USA installations. We raised the bar to deliver plant-specific results in municipal and industrial applications," says Gerhard Forstner, Centrisys/CNP president. "Our U.S. team works hard on the continuing development of MagPrex and the reuse of the struvite fertilizer. We understand the diverse requirements of North American customers. As a U.S.-based company, we've addressed critical factors in wastewater and industrial applications by leveraging our extensive experience, unique process capabilities and cost efficiencies."

Metro Water Recovery
Denver, Colorado


Central Valley Water Reclamation Facility
Salt Lake City, Utah

Fox River Water Reclamation District
Elgin, Illinois

Drake Water Reclamation Facility
Fort Collins, Colorado

MERIDIAN WASTEWATER PLANT | MERIDIAN, IDAHO

MagPrex will aid the 10 mgd plant to meet low-effluent phosphorus levels with startup in 2022. MagPrex was chosen based on process effectiveness, lower lifecycle costs, and meeting chemical reduction goals for the treatment process. By concentrating the phosphorus in the solids stream, the plant will permanently remove a significant portion of phosphorus from the overall treatment process and prevent recycling within the plant.

CENTRAL VALLEY WATER RECLAMATION FACILITY | SALT LAKE CITY, UTAH

The 60 mgd facility goals include greater than 85% orthophosphate removal and struvite harvesting capabilities. The 2022 installation includes five Centrisys THK350 sludge thickeners for primary and WAS sludge.

METRO WATER RECOVERY | DENVER, COLORADO

The 220 mgd facility is the world's largest struvite recovery system from digestate. MagPrex reduces phosphorus recycle loads, struvite formation, and poor dewaterability. MWR paired MagPrex with eight Centrisys CS26-4 dewatering centrifuges and has an annual $600,000 dewatering and disposal costs savings.

DRAKE WATER RECLAMATION FACILITY | FORT COLLINS, COLORADO

This 18 mgd facility achieves very low effluent phosphorus limits, below 0.5 mg/L. The MagPrex reactor reliably removes more than 90% of orthophosphate from the phosphorus recycle loop going back to the front of the plant. This allows the facility to consistently meet the lower phosphorus discharge limits set by the Colorado Department of Public Health & Environment. Installation included two Centrisys CS26-4 dewatering centrifuges.

FOX RIVER RECLAMATION DISTRICT | ELGIN, ILLINOIS

The 25 mgd plant installed MagPrex to process anaerobically digested sludge and sequester soluble phosphorus as struvite. MagPrex is being optimized, but has already recorded effluent soluble phosphorus concentrations of less than 25 mg/L. By reducing the soluble phosphorus, MagPrex decreases the struvite buildup maintenance costs and the flow efficiency loss for downstream treatment processes such as dewatering.

Centrisys is a United States manufacturer of dewatering centrifuges and sludge thickeners. It provides global centrifuge service, repair and parts for all decanter centrifuge brands. CNP, a division of Centrisys, supplies nutrient recovery and advanced biosolids treatment systems for phosphorus recovery and thermal hydrolysis processes.

262-654-6006 | info@centrisys-cnp.com | www.centrisys-cnp.com

SOLVOX Oxygen Dissolution Technology Offers Simple Solution for Capacity Increase

Plant operators are challenged to maintain treatment throughput at reasonable cost even when the plant reaches design capacity. This challenge can be compounded by changes to production runs and formulation mixes, often requiring additional investment to maintain stable plant performance. However, extending plant capacity to maintain or increase throughput while handling a new mix is often prohibitively expensive.

Many operators are looking to support variable oxygen demand more cost-effectively and efficiently than traditional aeration techniques, which require energy-intensive air compression equipment. In addition, air only contains about 21% oxygen, making some conventional aeration techniques not particularly efficient as temperature fluctuates or influent load varies.

PURE OXYGEN FOR WWTP UPGRADES

In many cases, gas-enabled wastewater technologies are an effective way to balance conflicting cost, temporary capacity increase and compliance needs. Innovative, gas-based solutions are often a low upfront investment solution to inject new life into existing assets and extend their longevity. Often these technologies are also seen as a flexible way to bridge seasonal peaks in oxygen demand.

The biological treatment of industrial wastewater can be significantly enhanced through a secondary treatment stage with dissolved oxygen. Linde's SOLVOX Mobile oxygen dissolution technology has been optimized for application of pure oxygen, additional process mixing and efficient oxygen transfer performance. The SOLVOX process results in excellent oxygen utilization performance and high transfer rates. Assembly and installation requirements are minimal, with little or no construction work required. SOLVOX mobile is ready to operate within a very short period and can also be installed in fully operational tanks, avoiding the cost and inconvenience associated with process shutdowns and drain downs.

SUITABLE FOR VARIOUS OPERATING CONDITIONS

Linde's extensive range of SOLVOX products are suited to a wide array of wastewater treatment plants with different operating conditions. Regardless of the individual treatment challenges, Linde can enhance existing aeration capabilities by introducing pure oxygen into wastewater activated sludge in a variety of ways. Adding pure oxygen with the SOLVOX process can also increase the performance of an existing plant during peak loads and maintenance of main equipment. Requiring a very low investment, it offers a flexible way for operators to adjust to BOD or COD peaks and production campaign demands.

With its innovative concepts and developing technologies, Linde has a leading role in the global market. Traditionally driven by entrepreneurship, the company is working steadily on new high-quality products and innovative processes. Each concept is tailored specifically to meet its customers' requirements, offering standard as well as customized processes. This applies to all industries and all companies regardless of size, according to a Linde spokesperson.

"If you want to keep pace with tomorrow's competition, you need a partner by your side for whom top quality, process optimization and enhanced productivity are part of daily business," the spokesperson says. "However, we define partnership not merely as being there for you, but being with you. After all, joint activities form the core of commercial success."

Seaman Paper Co. Achieves Significant Energy Savings With Hurst Hybrid S600 Wood-Fired Boiler

Seaman Paper Co. is a 61-year-old privately held paper plant located in rural Massachusetts. Under the guidance of George Davenport Jones III, loyal employees keep this historic facility operating 24/7, 365 days per year. Seaman Paper produces lightweight specialty papers including decorative tissue wraps, crepe streamers, food service tissues, SatinWrap and personalized printed papers.

A Hurst Hybrid S600 wood-fired boiler was just one of many elements of a comprehensive energy-saving initiative designed by Jones and implemented over a 10-year period. Changes in operations, equipment and fuels have resulted in significant annual reductions in both oil usage (nearly 1.7 million gallons) and electricity (2.6 million kwh). The annual savings is noteworthy as well, as up to $1.5 million per year are saved in operating costs.

ENERGY-SAVING PROGRAM

Equipment and system changes include: steam reduction via thermo compressors, heat exchanger, recycling of effluent and boiler economizer; electricity reduction via T8 lighting, motion detectors and variable speed drives; and fuel substitution with the Hurst Hybrid S600 wood-fired boiler.

The Hurst Hybrid Model Super 600 was selected and equipped with a baghouse and a finned-tube waste heat-recovery economizer. Initially, 23,709 barrels of oil were replaced by 15,002 tons of shredded pallet wood.

THE RESULTS

In June, 2008, the Massachusetts Office of Technical Assistance and Technology held a Cleaner Technologies Demonstration Site Event at Seaman Paper. The lunch and plant tour gathering was titled "Energy Efficiency Success at Seaman Paper" and was attended to capacity on two different dates by plant managers, corporate executives and elected officials.

The goal was to introduce and explain the methods and benefits of a sustainable manufacturing concern and to highlight the effort and success of Seaman Paper.

Gregory W. Smith of Global Energy Solutions was introduced as the project developer and fielded technical questions about solid fuel procurement and boiler installations. Smith, an exclusive solid fuel boiler agent for Hurst Boiler & Welding was able to share similar success stories of wood-fired boiler systems installed at other manufacturing facilities and institutional campus locations in the Midwest United States and elsewhere.

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Duperon Dual Auger System Replaces Grinder and Cuts Associated Plant Maintenance

The Schuylkill County Municipal Authority's Seiders Hill Wastewater Treatment Plant serves residential and institutional customers in Pottsville, Pennsylvania. Flows range from 13,000 to 20,000 gpd at the plant, which is one of seven operated by SCMA in the region.

THE CHALLENGE

Like many treatment facilities today, the Seiders Hill plant was plagued by chronic clogging of equipment caused by so-called "flushable" wipes and other rags. The plant provides service to a long-term care facility, an assisted living center and a health care provider office. Clogging of the equalization pumps and aeration return lines were problems.

The plant was equipped with a small grinder designed to macerate influent debris. However, this did not remove the wipes; it merely shredded them into smaller pieces, which remained in the waste stream. Downstream, these ground up pieces would reconstitute into clumps, which would then clog the pumps. This resulted in downtime to clear the pumps.

Downstream, plant staff used pool skimmers to manually clean the equalization tank and clarifiers multiple times a week, removing the macerated debris before it could impact effluent quality. The process was time-consuming and took plant staff away from other operational tasks. With multiple treatment plants and 30 pumping stations to manage and maintain, this additional maintenance and time spent clearing the equalization pumps placed unnecessary strain on the SCMA staff.

THE SOLUTION

Operations Manager Jesse Weiss researched potential solutions, but found few alternatives for smaller plants like Seiders Hill. Then they learned about the Duperon Dual Auger System. As the name suggests, the unit is composed of two vertical, electrically driven, counter-rotating augers that catch, dewater, compact and remove wipes and other debris from the waste stream, conveying them to a discharge chute or bin for disposal. The unit is fully submersible and compact enough to fit in tight spaces.

A key aspect of the Dual Auger System is its ability to provide effective removal of wipes and other non-organic debris while still allowing fecal matter to proceed to downstream treatment.

Weiss gave the Dual Auger System the green light and the unit was installed using a turnkey solution from local Duperon representative Kappe Associates. "Installation was really simple," says Jim Moyer of Kappe Associates. "With some electrical preparation work, the grinder was removed and the Dual Auger System was operational within just a few hours."

THE RESULTS

Since its installation in March of 2021, the Duperon Dual Auger System has been operating around the clock — more than 4,300 hours of uninterrupted operation and counting. In that time, the plant has not experienced any blockages of the equalization pumps, dramatically improving its resilience. The system has successfully captured wipes and other debris, pushing it up into the discharge chute, which is just now reaching the top of its 9-foot span.

While the unit is typically installed in a wet well or manhole, at the Seiders Hill wastewater treatment plant, the Dual Auger System was installed at the plant headworks. Duperon will partner with the site to optimize the bar openings for this type of application later this year.

The Duperon Dual Auger System installed at Seiders Hill Wastewater Treatment Plant.

Weiss is pleased with the unit's performance, noting that it has freed up plant staff from time-consuming maintenance hassles. "For us, the Duperon Dual Auger System provides a maintenance benefit due to reduced blockages, which in turn improves efficiency as it pertains to manpower," Weiss says.

Parkson Corporation – Treating Water Right

For over 60 years and with more than 25,000 installations worldwide, Parkson has been a leading provider of advanced solutions in water and wastewater treatment for the municipal and industrial markets. Parkson is recognized for its high-quality equipment and innovative solutions and technologies, complemented by upfront customer support and post-sales services.

Branded around the core business of "Treating Water Right," Parkson strives to make a positive difference in the lives of others by improving treatment and conservation of water while delivering exceptional customer experiences.

The company's Water Research Facility can provide laboratory analysis and pilot testing to ensure a system can perform to meet your specific needs. Meanwhile, its highly trained field service and aftermarket teams are capable of completely rebuilding or retrofitting equipment and supplying high-quality replacement parts to keep its products running efficiently for years.

Parkson is headquartered in Fort Lauderdale, Florida, with additional branches in Illinois, Kansas, Colorado and Alabama.

SYSTEMS OVERVIEW

Starting over 60 years ago, Parkson was a pioneer in inclined plate clarification (Lamella), continuous backwash sand filtration (DynaSand) and headworks solutions (Aqua Guard). Today, the company offers a complete line of technologies providing solutions throughout the water/wastewater treatment process. Many of its systems can be combined to provide single-source responsibility, ultimately streamlining communication and saving valuable time and resources while ensuring high standards and quality. All Parkson family brands are manufactured and fully supported by Parkson with an emphasis of being made in the U.S.

PARKSON BRANDS:

MRI – providing drinking water pretreatment

The 2017 acquisition of MRI (Meurer Research) further strengthened Parkson's presence in the drinking water market. MRI manufactures equipment that aids in clarification, solids removal, flocculation and flow management. This includes MRI Inclined Plate Settlers, Hoseless Cable-Vac Sludge Collectors, Ultra-Scraper Sludge Collectors, flocculation and flow management systems, pilot systems, and package systems. MRI has worked on over 5,000 installations. Research, development, engineering and manufacturing are completed in our 50,000 square-foot Golden, Colorado, manufacturing facility to ensure total custom design flexibility.

Schreiber – complete wastewater treatment solutions and aftermarket care

Operating in the United States since 1980, Schreiber technologies have been installed in over 700 plants comprising thousands of pieces of treatment equipment. Schreiber pioneered the single-reactor basin approach to advanced biological wastewater treatment. In 2021, Parkson acquired the assets of Schreiber, further strengthening its product portfolio and aftermarket service capabilities. The company offers individual wastewater components, complete systems and a wide range of energy-efficient and innovative water and wastewater treatment solutions from influent to final discharge. Schreiber's Aftermarket Care Department provides an additional dedicated parts and service facility in the southeastern United States.

FilterONE – service and maintenance

Parkson acquired the assets of FilterONE USA in 2016 to further bolster its aftermarket parts and service business. FilterONE offers industrial and municipal customers a turnkey solution by providing maintenance programs; service contracts; rebuilds, retrofits and upgrades; installation; parts; and training. Its rebuild and reconditioning program can be performed onsite or at its factory. FilterONE services help reduce equipment downtime, minimize labor, provide cost savings and ensure equipment runs efficiently after years of continued service.

Hycor – liquid/solids separation technologies

In 2001 Parkson became the largest screen and headworks company globally with the acquisition of the Hycor Liquid/Solid Separation brand of screens, washing and dewatering equipment. Today, its screening and headworks technologies are still running strong, with thousands of installations in place and some in operation for over 30 years. The Hycor line of products includes the following and more: Rotoshear Internally-Fed Rotary Screen, Rotostrainer Externally-Fed Rotary Screen, Hydroscreen Bi-Wave Static Screen and ThickTech Rotary Drum Thickener.

Parkson Corporation is a supplier of equipment and solutions for potable water, process water and industrial and municipal wastewater applications. Parkson designs, engineers and assembles products that provide customers with advanced screening, aeration, biological, clarification, filtration, enhanced nutrient removal, pumping and biosolids management solutions.

888-PARKSON | technology@parkson.com | www.parkson.com

Next Generation Belt Press Increases Capacity and Performance

The wastewater treatment plant in Plattsburgh, New York, had four belt presses that were originally installed in the 1980s. As those machines started to show their age, the city began looking at replacement options, initially considering screw press and centrifuge technology.

The City of Plattsburgh worked with CDM Smith to evaluate dewatering options and design the upgrade. They decided to go with two 3DP Belt Presses from BDP Industries. One machine is able to process the full loading requirements and the discharge cake solids have increased from 23% to 27%.

This result is not all that unique, according to the manufacturer. "The 3DP Belt Press from BDP Industries has pushed the boundaries of belt press technology for over two decades," says a company spokesperson. "From the beginning, the 3DP set a new bar for increased performance and reduced O&M, and the latest generation jumps even further ahead of traditional belt presses."

Features include an independent gravity zone, feedbox paddlewheel, curved wedge zone, vertical pressure section, rack-and-pinion hydraulic tensioning, and 70 PLI construction with heavy-duty rollers and bearings. Today's 3DP is now also offered with odor and filtrate containment, along with full system automation.

BDP INDUSTRIES

BDP Industries is a leading supplier of dewatering, thickening and composting equipment with thousands of installations worldwide. Products include belt presses, screw presses, gravity belt and rotary drum thickeners, and in-vessel composting systems. All products are custom designed and manufactured in the United States.

518-695-6851 | info@bdpindustries.com | www.bdpindustries.com

Delta Hybrid Compressor Prioritizes Efficiency, Reliability

Aerzen's Delta Hybrid rotary lobe compressor is an innovative solution in compressor technology, and it's among the most efficient machines by far in the vast 25 to 100 percent control range. The Delta Hybrid brings together the benefits of blower and compressor technology in one single unit with energy savings of up to 15 percent.

DESIGN AND FEATURES

Some of the key features of the Delta Hybrid are exceptional energy efficiency, reduced life-cycle costs, increased range of applications and pressures, high levels of reliability and long service life, reduced maintenance needs, and processed air 100 percent free of oil and absorption material.

Its flexible modular design means that the Delta Hybrid can be designed or retrofitted for all rotary lobe compressors and belt-driven motor sizes within a range of nominal widths if a standard solution won't do the job.

There's no absorption material to interrupt operation. Absorption materials can cause wear or reduce operational safety. To solve this, Aerzen's research and development team came up with a solution: A discharge silencer completely free of absorption material. It decreases noise purely by rerouting airflow, guaranteeing that downstream process systems won't be contaminated. In sewage treatment technology, this avoids clogs in the aeration system, and with them operational constraints and high maintenance costs.

Reliability, Ease of Operation, Define Komline-Sanderson's Product Line

Since 1946, Komline-Sanderson has supplied reliable equipment solutions that are easy to maintain and exceed expectations.

- The K-S Kompress Belt Filter Press is ruggedly designed and used for dewatering municipal biosolids and industrial sludge. It is easy to maintain and exceeds production goals.
- The K-S Biosolids Drying System operates with full integration of all components. The company has successfully installed systems for more than 20 years, which illustrates the equipment's durability and the company's commitment to supporting customers over the long haul.
- The K-S Gravabelt gravity belt thickener is available for very small to extremely large flows and includes Roto-Kone performance enhancing technology. With several models available, the unit can meet specific requirements and exceed performance expectations.
- K-S Plunger Pumps continue to perform after 40 years of operation. These rugged pumps are the workhorse of the industry.

K-S employs highly skilled and technical field service engineers who know the equipment and listen to and respond to customer needs and concerns, which results in installations that perform well. The company provides factory-made original equipment parts and filter fabrics for belt filter presses, gravity belt thickeners and more, and it works with customers to ensure that equipment exceeds expectations.

The company's experience ranges from simple one-machine installations to complex multistep processes and systems. Reliability, ease of operation, rugged design, proven performance and superior customer service are hallmarks of Komline-Sanderson installations.

Komline-Sanderson

Since its incorporation in 1946, **Komline-Sanderson** has provided quality equipment for process/production filtration, drying, wastewater treatment, sludge processing and pollution control.

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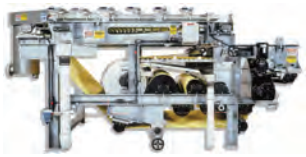


- sludge dewatering
- high cake solids
- low polymer cost

Gravity Belt Thickener

- sludge thickening
- high cake solids
- low polymer cost

(800) CALL-4-KS

www.komline.com

Komline-Sanderson

Franklin Electric Helps Texas Municipality Implement a Sustainable Grinder Pump Solution

Franklin Electric's FPS IGP Series grinder pumps are making service issues and overtime costs a thing of the past for the East Cedar Creek Fresh Water Supply District (ECCFWSD) in Texas. Franklin Electric worked with the utility to offer a more reliable grinder pump solution that could be used throughout its system, which included 3,600 individual grinder pumps for residential and commercial use as well as pumps for 10 to 15 lift stations.

For the customer, Franklin Electric's solution-focused approach and customer service helped prove the value of the equipment. Franklin Electric invited ECCFWSD engineers into its local lab to see first-hand what efficient FPS pumps could accomplish. Grinding was the main concern, and Franklin put several products to the test, including the IGP-A Series and IGP-M Series — both designed for residential or light commercial sewage needs. The automatic and manual 208- to 230-volt single-phase pumps are 2 hp, but perform closer to 3.5 or 5 hp, according to the manufacturer. The cutter system on the units is also designed not to bind up even if the pump stops running at the end of a cycle.

FRANKLIN ELECTRIC PUMPS PREFERRED

The ECCFWSD liked what it saw and specified the pumps for known problem areas. The pumps delivered; call-outs are down significantly, and failure rates have improved. Now, the ECCFWSD can answer nuisance calls with a solid solution.

If a failed pump cannot be repaired on the first attempt, it is sent to the district's pump graveyard and a new Franklin Electric pump is installed in its place. Currently, the IGP Series grinder pumps are considered the preferred solution for the district's grinder applications and will be installed as-needed as issues arise with the current equipment.

Prevent Modern-Day Trash Buildup With Flomatic's Model 4082 Ball Check Valve

Today's increased use of nondegradable cleaning towels and sanitary products has become a serious challenge for the wastewater industry. Disposable wipes, for example, contain fabric and plastic resin material that can lead to blocked systems or form large masses of debris buildup which can eventually rupture plumbing systems down the road.

However, Flomatic offers high-quality solutions specifically tailored to meet the harsh complexities of congested wastewater systems. Compact, economical and innovative, the simple mechanics of Flomatic's ball check valves are ideal for submersible wastewater pump applications where slurries are present.

RELIABLE AND SELF-CLEANING

With a proven reputation and decades of experience, Flomatic ball check valves are known for their reliability and self-cleaning BUNA-A vulcanized metal ball that prevents modern trash from interfering with its functionality.

For tough hard-to-reach applications where toxic buildup is present, Flomatic recommends its AIS-compliant ball check valve Model 4082, available in epoxy-coated ductile iron or stainless steel body. An industry favorite, the Model 4082 features a clean-out port that permits access to the inside of the valve without removal from the pipeline. With only one moving part, these valves permit flow in one direction and protect pumping systems from reverse flow damage, deterring debris buildup and keeping water flowing while saving customers thousands.

"No matter how complex the application, Flomatic Valves is here to help you select the right valve for your next application," says a company spokesperson.

FLOMATIC® VALVES

Flomatic has been a leading manufacturer of valve products in the water and wastewater industry since 1933. The company is dedicated to manufacturing high-quality valves that are built to last.

800-833-2040 | www.flomatic.com

Bright Technologies' Dewatering Equipment Helps Overcome Disposal Problem

Officials at a wastewater utility in Louisiana recently faced a sludge disposal problem and knew they couldn't afford to pay for 5,000-gallon tankers to haul it to a land application site.

But by using dewatering equipment by Bright Technologies, the utility was able to make a stackable, dry-solids cake that allows it to haul 30,000 gallons worth of sludge in a single 30-cubic-yard container.

Since roll-off trucks are less expensive and more fuel-efficient than semi tankers, each load costs less than a single tanker would have otherwise.

One of the key equipment features the utility praised is the sludge-retention manifold of looping pipes, which gives the polymer contact time and gentle mixing before it's introduced to the press. This is a unique feature to Bright Technologies skid-mounted belt press systems.

BELT FILTER PRESS DEWATERING

Bright Technologies offers complete belt filter press dewatering systems that are skid or trailer mounted. The company designs and manufactures the skid equipment package for high throughput, low maintenance and superior cake solids.

The skid-mounted dewatering systems are designed with long-term value and ease of operation in mind. A stainless steel frame and roller construction are included as standard features. An Allen Bradley touch-screen and programmable logic controller integrate the press and support equipment to accomplish unattended operation and easy integration into SCADA systems.

Bright Technologies, a division of Sebright Products Inc., manufactures high-quality recycling equipment as well as equipment for dewatering and solidification of wet materials. The company also offers integrated recycling and solids waste-disposal solutions through Sebright Products including hydraulic compactors, cart dumpers and custom waste carts.

800-253-0532 | www.sebrightproducts.com

The BEAST Adds the EQ to Grade A

When Nashville (Tennessee) Central Wastewater Treatment Plant personnel were tasked to find a screening solution to remove the high-debris content in their biosludge, the first action they took was to pilot the SAVECO/Enviro-Care BEAST. Originally designed as a septage screening system, the BEAST has shown its ability to handle a wide variety of pretreatment screening applications such as fats, oils and grease; vac truck waste; dissolved air flotation sludge; and biological sludge.

EASY SCREENING

Nashville Central's biosludge is composed of primary sludge, scum and secondary waste-activated sludge. The BEAST had no difficulty screening this mixture. While awaiting the completion of its screening building, Nashville ordered three Sludge BEASTS mounted on metal skids along with a washer/compactor for each BEAST. This enabled Nashville to easily move and position the BEAST at various places in the plant until the sludge screening facility was completed.

After screening by the BEAST, the biological feed continues to a DAF thickening system where the biomass is brought to a 5% solids content and eventually makes it way to one of the 2.5 million-gallon digesters where the feed is retained for 17 days and undergoes a 40% volume reduction. This generates enough gas (energy) to both heat the digesters and dry the biosludge. The dried biosludge is then pelletized and classified as a Grade A EQ (exceptional quality) biosolid product to be used as fertilizer. This classification exceeds U.S. Environmental Protection Agency guidelines.

As the city of Nashville continues to grow, the SAVECO/Enviro-Care BEAST screening systems will provide Nashville Central Wastewater Treatment Plant with exactly what it needs to achieve a significant reduction in maintenance and wear on its sludge process equipment, a clean Grade A EQ biosolid, and an overall more efficient energy production process.

SAVECO North America of Gurnee, Illinois, supplies pretreatment screens and solids/grit management equipment for water and wastewater applications. The company was founded in 1972.

815-636-8306 | ecsales@savecowaterna.com | www.savecowaterna.com

Ensure Accuracy and Compliance With YSI's 3017M DPD Chlorine Analyzer

The new 3017M DPD Chlorine Analyzer manufactured by YSI continuously measures free or total chlorine in municipal drinking water or wastewater effluent. Using the U.S. Environmental Protection Agency-approved DPD colorimetric method of analysis, the 3017M provides accurate and reliable chlorine measurements in a variety of municipal and industrial applications to help monitor and control the chlorination process.

The 3017M is a self-contained analyzer and can operate as a standalone analyzer without requiring a secondary controller, data subscription or mobile app to see your data. The analyzer's onboard display allows you to quickly see the chlorine measurement in real time. The 3017M can also be easily integrated into YSI's IQ SensorNet system of online controllers, analyzers and sensors for better visibility and control of your process. In addition, the 3017M is easy to operate with low maintenance requirements and factory calibration.

COMPLIANCE AND APPLICATIONS

The 3017M provides reliable data for process optimization and reporting by using EPA-approved DPD methodology to ensure accuracy and compliance. This analytical method complies with EPA regulations 40 CFR 141.74 (drinking water) and 40 CFR 136.3 (wastewater), which makes it suitable for drinking water and wastewater permit reporting in the U.S. The 3017M measurement method conforms to Standard Methods 4500-CL-G, EPA method 334.0, and ISO method 7393-2.

Primary drinking water applications for the 3017M include monitoring residual chlorine for process optimization, alarming and reporting. Primary wastewater applications include disinfection control, monitoring dechlorination and process optimization.

The 3017M's reliability and low-maintenance design help ensure the collection of reliable, accurate data for informed decision-making.

YSI a xylem brand

YSI, a Xylem brand, offers lab, field and process monitoring instrumentation for municipal water and wastewater facilities. YSI's IQ SensorNet continuously monitors water quality to help improve process control and operational efficiency. YSI lab and portable instruments provide accurate, reliable measurements.

937-767-7241 | info@ysi.com | www.ysi.com/3017M

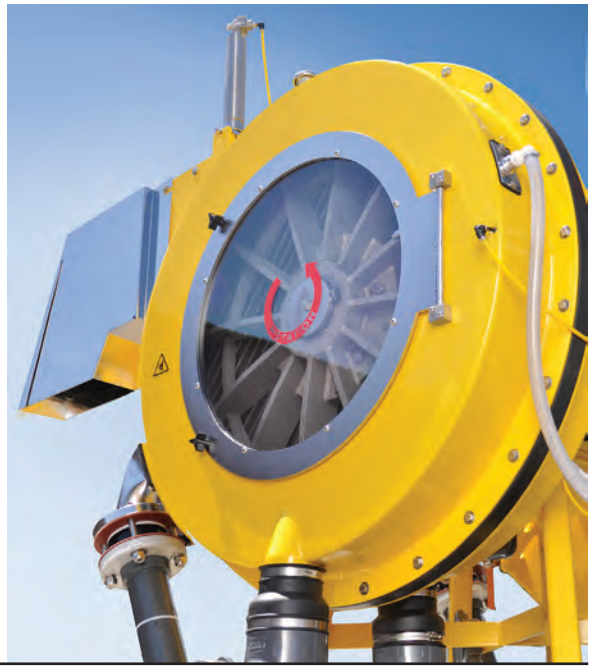
Use Life Cycle Cost Calculation to Select Dewatering Equipment

When selecting a piece of mechanical dewatering equipment, it is important to consider the life cycle cost of the equipment. This includes initial capital cost, maintenance cost, operating cost and residual value.

The Rotary Fan Press is a dewatering device with screen technology that uses simple pressure differential and friction resistance to provide superior dewatering performance at a lower cost and prolonged service life. The totally enclosed dewatering process has slow operation speeds of under 1 rpm, minimal wear parts, and produces high cake solids and excellent filtrate, according to the manufacturer.

Low operational costs — including minimal or no manpower — low energy and water use provide savings year over year. Models are available in multiple sizes ranging up to 400 gpm hydraulically, in a small footprint, and most models have the ability to accommodate additional channels for future increased throughput requirements.

The Rotary Fan Press provides good value when considering life cycle cost. Prime Solution's technical team is a high-quality resource for companies that look for a partner for the life of their equipment.



Colorimetric Water Analysis: For Low-Cost System Spot Checks

Colorimetry is one of the most reliable forms of water analysis and is used to test for a wide array of analytes. The target analyte causes the sample solution to change color proportionally to its concentration in the solution, and that change can be measured visually or instrumentally.

Analysts have traditionally prepared reagents in bulk from scratch from individual chemical components kept on hand. Test procedures have involved making multiple volume and mass measurements with training required to master these techniques.

Colorimetric water analysis test kits offer advantages to the analyst in that they save time, are appropriate for field applications, and are generally user-friendly. Relatively unskilled staff can be trained to make accurate determinations using premixed liquid or solid reagents delivered in kit packaging. Colorimetric test kits are among the simplest, quickest and most adaptable means by which water analysis may be performed in a host of environments and conditions.

POPULAR USES

One common application of colorimetric testing is to spot check systems between reporting periods to document whether processes remain under control. Colorimetric test kits are also used alongside online analyzers to verify their performance. Many colorimetric test methods have been reviewed by the U.S. Environmental Protection Agency and accepted for monitoring drinking water and wastewater. Examples include chemical oxygen demand and chlorine.

Colorimetric test kits continue to be practical tools for analysts. Their low cost, convenience, flexibility, accuracy and efficiency appeal to users in all industries. As testing needs evolve, colorimetric water analysis will continue to be an indispensable mainstay in the range of testing options.

AllMax Software Resolves Data Management Issues for California Utility

The Victory Valley Wastewater Reclamation Authority in California had been using a system of interlinking spreadsheets to record and store collected facility data for approximately 12 years. While this system was adequate, spreadsheets were becoming more difficult to use and manage, causing significant delays in processing monthly and quarterly reports.

With the spreadsheet-style system, data management and storage were becoming prime issues. Time had become a key factor in rolling out a new system, since a major report was coming due and timing of the release was critical.

THE SOLUTION

"After thorough examination, we decided on AllMax Software and their Operator10 wastewater data management program," says Bruce Correia, information services manager for VVWRA. "Not only were the data management and reporting issues resolved, AllMax assisted in setting up and configuring the database to meet our needs as well." Operator10 software has put VVWRA's operations department back in touch with its facility.

AllMax Software is a leader in the development of data management and reporting software specifically designed for wastewater, water, pretreatment, biosolids and industrial applications for over 25 years. Its state-of-the-art lines of software, Antero™, Operator10 Wastewater, Operator10 Water and Synexus™ increase plant performance, efficiency and profitability.

800-670-1867 | sales@allmaxsoftware.com | www.allmaxsoftware.com

Nozzle mix system increases efficiency with dual-zone mixing

The JDV Nozzle Mix System is a patented dual-zone mixing technology that provides uniform mixing patterns to produce even distribution and a stable environment.

The JDV Nozzle Mix System optimizes solids suspension and contact, which increases efficiency in a wide range of applications. The system is designed for easy maintenance, with pumps installed outside the tanks. The pumps are typically chopper pumps, or pumps with inline grinders, which prevent fibrous materials from accumulating and causing plugging problems. Various pumps can be used, depending on application. The high-velocity nozzles are mounted inside the tank and are positioned to discharge in a flow pattern that completely mixes the tank contents.

The mix system can be used for anaerobic digestion, biosolids storage, blending tanks, excess flow tanks, septage or leachate, anoxic zones, CSO handling, aerobic digestion, assisting secondary treatment and biosolids holding ponds.

JDV Equipment Corporation is a leading manufacturer and provider of safe, environmentally friendly processing equipment and services for water treatment, wastewater treatment, industrial and agricultural applications. The company has more than 50 years of experience and has completed more than 10,000 equipment installations.

973-366-6556 | sales@jdvequipment.com | www.jdvequipment.com

Reduce Sludge Cake by 60% Without Thermal Drying With Elode Dehydrator

Sludge cake reduction is what many plant operators have in mind lately with ever-increasing disposal costs. But further reduction equipment can be costly and inefficient. What option do you have?

ELODE DEHYDRATOR

An Electro-Osmosis Dehydrator might be a better option for a lot of plants. In just three minutes, it removes far more water after typical sludge cake is dewatered using a belt press, screw press, rotary press or centrifuge.

"Imagine reducing your sludge disposal cost by 60% and landfill acceptable by having much drier sludge cake," says an Elode spokesperson. "One way is to add a costly thermal dryer and boil all the water away using a lot of heat, but a better method could be to use this new dehydrator."

The Elode dehydrator can reduce your cake weight efficiently at a lower expense and equipment cost. This compact machine can easily retrofit in line with many existing presses, according to the manufacturer.

NO HEAT ENERGY

This dewatering machine does not use thermal heat energy to pull water away from your sludge cake. It is so efficient the sludge cake never gets too hot to the touch, according to the spokesperson. It uses electrical potential difference in the sludge cake to separate water in the process and it works on 95% of municipal wastewater treatment plant sludge cakes tested, according to Elode. That is done without any chemical, polymer, heat or mechanical press.

"Discover all the benefits of Elode dehydrator, turning out 15% dry solids cake to 40%, or your 20% dry solids cake to 45% almost instantly," says the spokesperson. "Ask to see how much your sludge cake could be reduced. It could be far easier than you might think."

Electro Osmosis Dehydrator ELODE

Elode USA's main product is the Electro-Osmosis Dehydrator and related equipment.

201-568-7778 | alexm@elodeusa.com | www.elodeusa.com

SpillSafe LX Drum Scale Monitors Chemical Usage and Contains Spills

The SpillSafe LX Drum Scale monitors chemical usage and remaining inventory while providing total containment in case of a leak or spill. This combined system eliminates the headache of mixing and matching one manufacturer's scale with another's secondary containment system.

ACCURATE WEIGHT MEASUREMENT

An epoxy powder-coated steel platform securely holds the polyethylene spill containment pallet and four IP67-rated shear beam load cells, located outside the spill containment vessel, provide the highest accuracy weight measurement possible. The load cells are located under the platform and are further protected by removable polyethylene splash guards.

The initial 11 gallons of a leak or spill is contained directly beneath the drum in the polyethylene basin. A replaceable double layer polyethylene roll-out bladder deploys for larger spills and allows total containment of up to 66 gallons while keeping overall scale height at 6 inches for easy drum loading and unloading.

Force Flow offers a performance guarantee and a five-year warranty.

FORCE FLOW
CHECK. CONTROL. COMPLY.

Force Flow is an industry leader in innovation with its chlorine and chemical tank scales. The company's scales monitor and control chemical feed at your water and wastewater treatment plant or in your industrial process.
925-686-6700 | info@forceflow.com | www.forceflowscales.com

Reliability Is Paramount for VF-100 Volumetric Feeder

As an operator, you want all the features you can get in a dry chemical feeder to ensure good accuracy, reliability and long life. Eagle Microsystems' VF-100 volumetric feeder offers all this in a durable, user-friendly build.

EASY MAINTENANCE

There is no lubrication, greasing or oiling required; and there are no belts, gears, sprockets or chains to maintain. The VF-100 is a hassle-free product designed specifically to meet the requirements of the water and wastewater treatment industry.

Features of the VF-100 include a rugged drive for reliable operation, feed rates from 0.04 to 17 cubic feet per hour; an electronic SCR speed control; stainless steel construction; gravimetric control option; and a two-year warranty.

eagle microsystems

Eagle Microsystems has been an active industrial weighing specialist for nearly half a century. Founded as manufacturers representatives, the company has grown into a full-service developer of high-quality mechanical and electronic scales.
800-780-8636 | www.eaglemicrosystems.com

KUHN Knight SLC 100 Series Spreaders Provide Fast, Efficient Spreading

The KUHN Knight SLC 100 Series ProTwin Slinger commercial manure spreaders set the standard for fast, efficient spreading. They provide a suitable combination of efficiency, versatility and rugged durability to maximize value.

SLINGER DESIGN

The unique twin-auger design and heavy-duty body construction allow the Slinger to handle a wide variety of wet and dry materials. A fully adjustable discharge allows faster unloading and improved material breakup for more consistent, accurate spreading.

An aggressive hammer design provides more wear surface on the bottom edge to extend hammer life. The heavy-duty drive requires minimal maintenance and provides years of reliable service.

The SLC series manure spreaders are available in 2,600- to 5,000-gallon trailer and 3,200- to 4,100-gallon truck capacities, and truck and trailer configurations.

Kuhn North America is a leading innovator in the field of agricultural and industrial equipment, specializing in spreaders, mixers, hay and tillage tools. KUHN products are sold through farm equipment dealers throughout the U.S., Canada and many other countries.

608-897-2131 | www.kuhn.com

Eurus Blowers Provide Significant Pneumatic Conveying Features

Eurus MB series bilobe and ZG series trilobe blowers are rated up to 15-inch Hg vacuum (15 psig) and flows up to 7,000 cfm. Designed for the rugged and varying demands of wastewater treatment plants, the blowers feature an integral ductile iron shaft and impellers, oversized bearings, piston ring air seals and Viton oil seals for low blower vibration and noise.

RELIABLE OPERATION

Critical components, including the motor, are selected site-specific, and users can expect dependable operation whether it's used as a system component or as part of the Eurus package. This means the complete blower skid package need not be sent to a repair facility in the event one item fails or needs rework. Critical components may be quickly replaced, substituted or repaired.

EurusBlower

Eurus Blower Inc. is a subsidiary of Shandong Zhangqiu Blower Co. Ltd. the largest manufacturer and seller of positive displacement blowers in Asia.

918-361-0285 | sales@eurusblower.com | www.eurusblower.com

ClearStream's Experienced Staff Designs Effective Clarifiers and Thickeners

ClearStream offers a complete line of equipment for municipal water and wastewater. This includes all types of clarifiers and thickeners as well as biological treatment and oil/water separation.

ClearStream has provided over 200 units of 100-foot diameter or larger, including the world's largest suction header clarifier at 220 feet in diameter, according to company officials. The company also provides small-diameter units and complete systems. Its PRE division supplies a complete array of custom and standard drives for new units and/or replacement drives.

With an experienced staff of engineers and application specialists, ClearStream can provide 3D modeling of equipment and piping layouts. Its Solidworks software also allows the company to perform computational fluid dynamics analyses. This was used to develop its Influent Dispersion Well, which provides highly effective distribution and flocculation.

ClearStream utilizes cutting edge analysis and design technologies to custom design each piece of process equipment to meet each individual customer's needs. All equipment is analyzed using advanced computational fluid dynamics, finite element analysis and civil/structural software codes to ensure process performance and structural integrity. All mechanisms are fully designed in a 3D CAD environment to produce high quality customer-friendly designs.
801-676-1890 | www.clearstreameng.com

Practical SMC 4001 Controller for Gas Detection Applications

The new, easy-to-use SMC Model 4001 Controller from MSA Safety offers water/wastewater operators a reliable, modular solution providing scalable, full-featured capabilities for today with versatile sophistication to grow tomorrow.

The SMC 4001 Controller is a simple gas detection monitoring system designed for the user on a tight budget. It offers a no-fuss, dependable solution that prioritizes safety and mitigates risk to people, equipment and plant operations. The modular design of the SMC 4001 Controller features a choice of two-, four- or eight-channel configurations, providing application flexibility for small to mid-size plants. No complicated training is required, and set-up is done by a single technician in less than an hour with no special tools.

MSA also offers a full line of intelligent SMC toxic and combustible gas detectors compatible with the 4001 Controller. Gases available include methane, chlorine, hydrogen sulfide, oxygen and many more to meet whatever need exists.

MSA The Safety Company

MSA's SMC product line has been a leader in gas detection technology for over 30 years and was formerly known as Sierra Monitor prior to MSA's acquisition in 2019.
408-262-6611 | smc-marketing@msasafety.com
us.msasafety.com/smc-flame-gas

Manage Valves Via SmartPhone App With Link2Valves Platform

Cla-Val Link2Valves is a secure, web-based platform that allows registered users to locate, manage and maintain their control valves using a phone app interface and a user-dedicated web portal. It provides system location, valve information and maintenance reminders.

It is a customized program focused on control valves — unlike typical asset management programs — and is offered totally free of charge. Registration is required and the mobile app is available in Apple or Google stores. This program will save money in costly emergency repairs and provides very detailed maintenance records for the user, according to the manufacturer. "We believe that the peace of mind that this brings is priceless," says a Cla-Val spokesperson.

Cla-Val has been known as a leading manufacturer of automatic control valves since 1936, and has built a well-earned reputation for providing quality products designed for mission-critical water distribution solutions throughout the U.S. and around the world.

800-942-6326 | info@cla-val.com | www.cla-val.com/link2valves

Acrison Cites Advantages of Dissimilar-Speed Conditioning Augers

Feeding dry chemicals, such as hydrated lime, activated carbon and dry polymer (among others) is a necessity in many plants, and feeding them consistently and accurately can often present a challenge.

Many commercially available feeders utilize a conditioning auger in an attempt to overcome the most common issues, but most are operated at the same speed as the metering auger, requiring it to be only slightly larger in diameter, severely limiting its effectiveness.

Conditioning augers that are mechanically geared to operate at a much slower speed than the metering auger are able to span the full diameter of the feed chamber, resulting in numerous benefits.

Key advantages include conditioning all material to a consistent bulk density; properly filling the metering auger from a full 360 degrees; and increased accuracy. Acrison offers a wide variety of feeder designs that employ this dissimilar speed auger technology to handle even the toughest applications.

Acrison Inc. is a leading supplier of dry chemical feeding/dissolving equipment and polymer blending equipment. The company offers a full range of equipment for meeting the needs of plants of all sizes.

201-440-8300 | informail@acrison.com | www.acrison.com

1

> "The unit includes auto-check and auto-calibration system. It repeatedly checks and calibrates itself."
> **SEAN DONNELLY**

2

1. The Alyza IQ analyzer accurately measures orthophosphate or ammonia in wastewater in real time, using minimal reagents.
2. The analyzer comes in a self-contained cabinet in which operators have easy access to the valves, connectors or other service points.

Eye on Nutrients

A COLORIMETRIC ANALYZER DELIVERS CONTINUOUS, REAL-TIME MEASUREMENT OF AMMONIA AND ORTHOPHOSPHATE IN WASTEWATER TREATMENT PROCESSES

By Ted J. Rulseh

A critical challenge facing today's clean-water plants is tightening effluent limits on nutrients, most notably phosphorus. Reliable nutrient reduction depends in part on accurate measurement at key stages in the process.

Today, innovative technologies are enhancing nutrient measurement, giving operators important insights to nutrient levels received in influent. Digital monitoring tools allow operators to monitor nutrients in real time so that they can optimize the process and comply consistently with permit requirements.

One such tool is the Alyza IQ analyzer from YSI (a Xylem brand). It accurately measures orthophosphate or ammonia in wastewater in real time, using minimal reagents and so reducing operating costs and waste generation. The online cabinet-style analyzer is weatherproof and can be deployed anywhere in the treatment process.

A special valve in the analyzer cuts reagent use to 5 μL per measurement. The device is offered in single- or two-channel versions. It can be used alone or as part of a Xylem IQ SensorNet system. Sean Donnelly, vice president for analytics with Xylem, talked about the technology in an interview with *Treatment Plant Operator.*

tpo: What was the reason for bringing this technology to market?

Donnelly: Among the biggest challenges today is monitoring the quality of our natural water resources, and one definite threat to that quality is the nutrient level in the waters. Alyza IQ is a platform of real-time continuous-monitoring wet chemistry analyzers, designed with the primary purpose of monitoring nutrients within municipal wastewater treatment plants.

tpo: How do you envision operators using these instruments?

Donnelly: Operators are looking for data with two objectives in mind. The first is to clearly define the discharge levels leaving the plant. The Alyza can be used to monitor the levels of ammonia or orthophosphate in the effluent. It helps them understand daily that they are within their permit limits. The second objective is to control the process itself.

tpo: How does the technology play a role in controlling the process?

Donnelly: It's used on one hand to monitor ammonia as a way to optimize the aeration process. This has two effects. It reduces the discharge of ammonia, but it also can limit the time the blowers are engaged, which reduces energy cost. On the orthophosphate side, it can help operators monitor and control the amount of metallic salts they add to bring the phosphorus down chemically, or help verify that a biological removal process is actually working.

tpo: What advantage does this system have over traditional ways of monitoring nutrients?

Donnelly: It delivers continuous real-time data, as opposed to operators having to run laboratory tests and come back later with the results.

tpo: In brief, how does this technology perform the measurements?

Donnelly: Talk me through the components. The Alyza IQ is a wet chemistry analyzer. What differentiates it from other technologies is a microfluidic system that vastly reduces the consumption of reagents. Reagent is added to a continuous sample passing through the analyzer. That results in

a color change; the intensity of the color is directly related to the concentration of ammonia or orthophosphate.

tpo: What are the benefits of reducing reagent volume?

Donnelly: One is that we reduce the amounts of chemicals on the site and the long-term reagent cost. Another is that the instrument can be in service longer, for three- to six-month intervals between reagent changes.

tpo: How are the reagents dispensed into the process?

Donnelly: The reagents are packed in what people would refer to as IV-type bags similar to those used in medical environments. We call them ChemBags; they're self-contained units with a special valve that prevents any dripping. So from a safety point of view, operators never really come in contact with the reagents, even when changing the ChemBags.

tpo: How does the analytical function of the device operate?

Donnelly: It doesn't require any external evaluation or interface. The algorithms reside within the unit, which can stand alone and deliver data directly to a SCADA system or PLC, or can be integrated with our IQ SensorNet system.

tpo: How is calibration performed?

Donnelly: The unit includes auto-check and auto-calibration system. It repeatedly checks and calibrates itself. We offer one-point or two-point calibration. There is also an on-board diagnostic system that helps with predictive or preventive maintenance. A simple example is that the unit gives an alert when it's time for a reagent change.

tpo: What is advantage of two-point versus one-point calibration?

Donnelly: Calibration on two concentration values will yield a better correlation of measurements between those two values.

tpo: How was this technology designed for ease of service?

Donnelly: We looked to make it easy to exchange reagents, and we made sure the instrument itself is readily accessible. It comes in a self-contained cabinet in which operators have easy access to the valves, connectors or other service points.

tpo: Where in the process would this instrument typically be deployed?

Donnelly: Most often, at end of the process just before discharge, and in the secondary treatment stage. The instrument cabinets are usually mounted on railings right beside the basin. They can be installed outdoors, as they function in a broad temperature range, from about zero to 100 degrees F.

tpo: Why are single- and two-channel versions offered?

Donnelly: The two-channel version enables operators to use one unit to take and analyze samples from two locations within the plant.

tpo: What kind of user interface is provided?

Donnelly: Operators can read data directly from the instrument if they so wish, but it also connects directly into a PLC or the SCADA system. It also can be an integral part of a Xylem IQ SensorNet, which opens a whole world of network sensor capability across dissolved oxygen, pH, turbidity and other measurements. It's a comprehensive suite of parameters that can be integrated in a network, providing access to all the data from a single point.

tpo: How does this technology fit into the larger picture of protecting water resources?

Donnelly: We are focused on solving the issue around discharge of nutrients to the waters. We also offer the EXO NitraLED UV sensor for measuring nitrate in freshwater environments. The better the Alyza IQ works to control nutrient discharges, the lower the measurements we're going to see with the NitraLED in the natural water. You can't separate the utility from the environmental monitoring. They are really linked. It's interesting to close the circle. tpo

Advancing Operational Efficiency and Providing a 'Green Energy' Boost in Wastewater Treatment

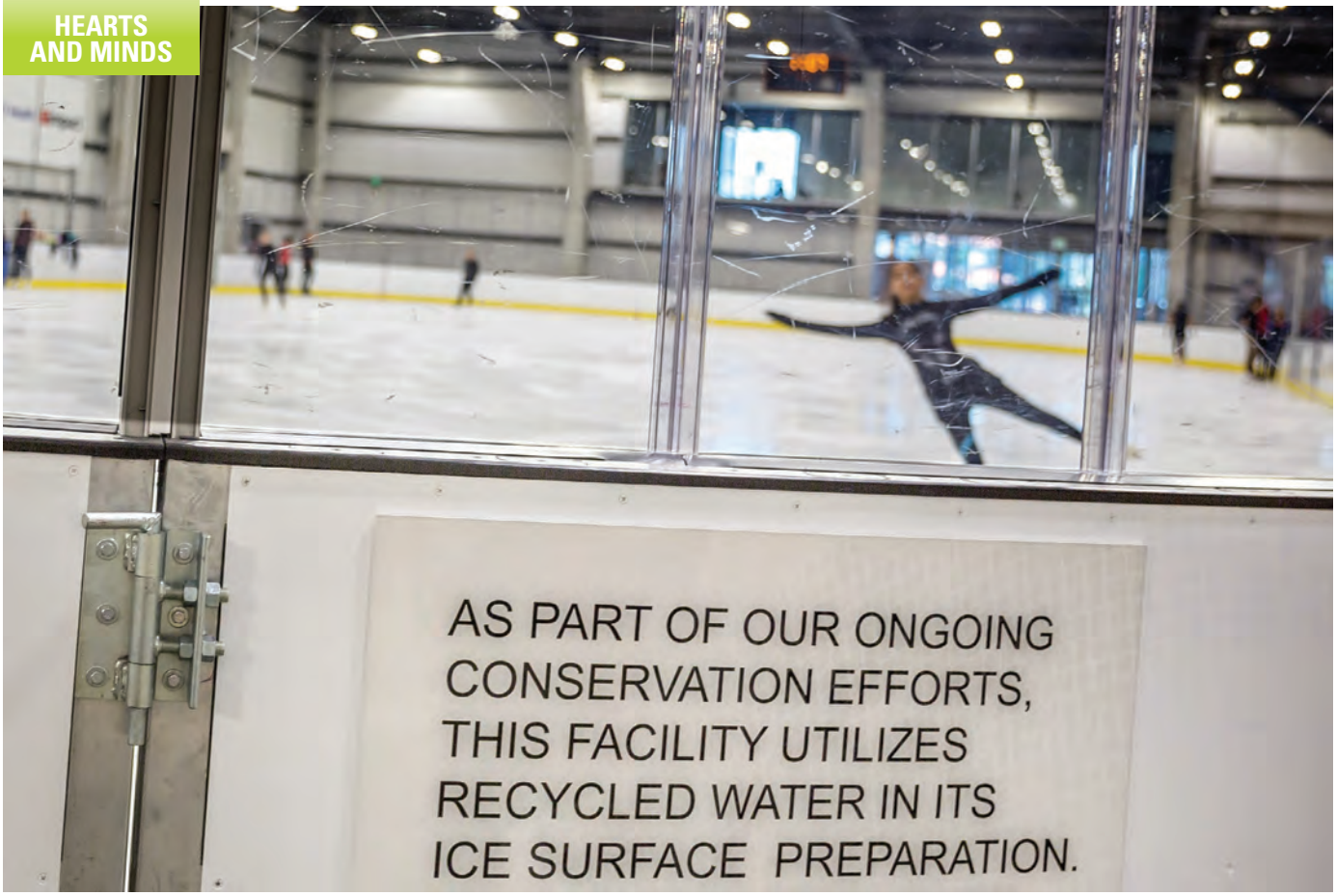
As the green component to the engineered infrastructure, BAE provides plant operators a low-cost organic biostimulant for existing microbes, increasing activity and populations to maximize operational efficiency by greatly improving the biology of their plant and environmental initiatives.

This in turn has proven to be successful and financially beneficial in these five areas: food waste to energy, biogas production, solids handling, nitrogen removal and maintenance dosage/emergency use.

MAXIMIZING THE MICROBIAL WORKFORCE

BAE inhibits the negative impact of toxic elements and triggers a metabolic reaction among the existing microbial population, enabling it to perform its natural function more efficiently and effectively.

Prodex is the wastewater division of JSH international, offering an organic liquid formula called BAE (biological activity enhancer) for use in aerobic and anaerobic environments to improve operational efficiency and maximize renewable energy production.
856-234-4540 | info@prodexproducts.com | www.prodexproducts.com



The Recycled Water 101 campaign underscored many uses for the water, including making ice at the Great Park Ice and FivePoint Arena.

Highlighting Value

A CALIFORNIA DISTRICT'S RECYCLED WATER OUTREACH CAMPAIGN INCLUDES A VIDEO THAT HIGHLIGHTS THE ROLES OF STAFF MEMBERS

By Sandra Buettner

Irvine Ranch Water District has been a pioneer in recycled water for more than 50 years.

Upon finding that many residents did not understand this rich resource, the district staff created a Recycled Water 101 campaign, winner of WateReuse Association state and national awards of excellence in public outreach and communication.

Recycled water makes up about 27% of the district's water supply, irrigating 85% of local parks, golf courses, college campuses, homeowners association properties, and other public and commercial spaces. It is also used in cooling towers, and for construction site dust control, composting and concrete production.

PURPLE PIPES

The district has used recycled water since the 1960s. As the area grew, so did the recycled water infrastructure. Today the system is among the most robust and technologically advanced in the nation, providing an important drought-proof resource for the community.

In the 1980s the district pioneered the purple pipe used to distinguish recycled water from drinking water systems. One of the district's directors was colorblind, and purple was the only color he could recognize. Since then, purple has become the universal standard for recycled water piping. This history was included in the education campaign.

> "The nice thing about the video is that we introduced the public to the recycled water process, to the value of recycled water — and to our staff, who are passionate about their work."
> **JOHN FABRIS**

ASIAN COMMUNITY

Orange County has a large and growing Asian community that represents 43% of its residents, many with English as their second language. It was critical to consider this when creating the Recycled Water 101 campaign. Many of these residents live in newer communities that use recycled water for irrigation. The campaign materials were created in English, Spanish,

Irvine Ranch Water District pioneered the use of purple pipe for recycled water in the 1980s.

A media tour the Michelson Water Recycling Plant resulted in 10 articles in Chinese- and Korean-language publications.

Chinese, Korean, Vietnamese and Farsi. Translators were available at in-person events.

After discussing campaign elements, the team created a three-minute video explaining the recycled water process, using real staff members to tell the story. The video was used in all campaign tactics including:

- Live speaker series
- Community workshops
- Media tours
- Print and digital articles in newsletters
- Social media

The campaign was well under way before the COVID-19 pandemic hit, so for that period the staff repurposed campaign messaging for digital platforms, which remain integral components of the district's outreach today.

METRICS AND MEASURES

The campaign was a big success. While the main goal was to increase awareness of the benefits of recycled water and the district's history behind it, there have been other outcomes. For example:

- 100% of survey respondents are more aware of the recycled water process and its benefits.
- 10 articles appeared in Asian publications for over 965,000 impressions.
- 31,000 people viewed the video.
- 28 in-person presentations were made, reaching 720 people.
- New lines of communication were established with Chinese- and Korean-speaking communities.
- A library of translated materials was created for present and future use.

The campaign video uses humor to drive home the community benefits of recycled water.

FAMILY AFFAIR

Staff members who starred in the video wrote some of their own lines. "The nice thing about the video is that we introduced the public to the recycled water process, to the value of recycled water — and to our staff, who are passionate about their work," says John Fabris, public affairs manager.

Another video star was Avery, the toddler daughter of the film crew's project manager. Even as a baby, Avery was a superfan of the district's water, preferring it to milk, juice or any other beverage. She stars at the end of the video, running through the final scene, lured by a sound technician offering Froot Loops cereal off camera.

"Never underestimate the power that a light-hearted approach can give to a campaign," says Deniene Rivenburg, public affairs specialist. "It makes for a more impactful and memorable campaign when you make it fun." tpo

What's Your Story?

***TPO* welcomes news about your public education and community outreach efforts for future articles in the Hearts and Minds column. Contact editor@tpomag.com or call 877-953-3301.**

Getting It Done

LABOR SAVINGS AND INNOVATION ARE THE WATCHWORDS FOR THE SMALL BUT DEDICATED TEAM AT THE CLEAN-WATER PLANT IN NEWPORT, VERMONT

STORY: **Jim Force** | PHOTOGRAPHY: **Ben DeFlorio**

The Newport Wastewater Treatment Plant processes 0.5 to 0.6 mgd with a design flow of 1.3 mgd.

Do more with less.

That's the philosophy of Pedro Grondin, supervisor of the Newport (Vermont) Wastewater Treatment Plant.

Faced with the shortage of qualified operators that affects the whole profession, Grondin is working hard to improve and automate his plant so it can operate with the minimum staff.

"There are only two of us here," he says. "There was a third, but he left to take another job. Looking for a replacement has not been easy."

To date, the improvements at Newport include a new biosolids press, revamped sludge pumps, new state-of-the-art aeration blowers, a SCADA system and cameras that enable staff to view all plant operations from the control room. "These upgrades have made it easier to operate the plant with fewer people," Grondin says.

CLOSE TO CANADA

The Newport plant serves a population of 4,400. The community is so close to the northern border that Grondin can see Canada from his office. Built in 1963 and upgraded in 1982 and 2006, in addition to the current improvements, the plant (1.3 mgd design) treats an average of 0.5 to 0.6 mgd.

Influent first travels through a lower headworks consisting of a bar rack, Muffin Monster grinder (JWC Environmental) and cyclonic grit removal (Lakeside Equipment) before being pumped into a wet well. From

> "There are only two of us here. There was a third, but he left to take another job. Looking for a replacement has not been easy."
> **PEDRO GRONDIN**

Operator Tim Dagese programs the fan press (Prime Solution) that dewaters biosolids.

the well, the flow goes to an upper headworks where it passes through a mechanical fine screen.

Then the flow moves through two primary tanks to two trains of aeration basins. Air is provided by two new Atlas Copco rotary screen blowers. Treated water settles in a pair of secondary clarifiers, then is disinfected with sodium hypochlorite and dechlorinated with sodium bisulfite before discharge to the Clyde River.

Biosolids are digested in two tanks, one for primary solids, the other for secondary. After thickening, they are dewatered on a new Prime Solution fan press to 20-25% solids cake, which is hauled to landfill.

Biogas acts as fuel to heat the digesters. Other energy-saving programs include LED lighting and the recent conversion to hot water heat for buildings from more costly electric heat. The plant accepts septage, and although Grondin says some of that material can be "pungent," there is no odor problem. He would like to send more septage to the digesters: "I think it might make the plant run more smoothly."

A Mission 123 SCADA system gives the two-person operating staff automated monitoring and control of all processes and includes cellphone access when staff is offsite. "It's been a big help in enabling us to stay ahead of problems," Grondin says. "We can look at the screen every day and see what's going on."

LABOR SAVINGS

Many of the manpower-saving measures at Newport have been aided by grants from Efficiency Vermont, a statewide utility program that provides energy audits, consulting and financial assistance to municipalities, businesses and residents. Much of the work has been accomplished by staff and the new biosolids press is a good example.

"Previously, we were storing liquid material and hauling it and spreading it on a field near the airport," says Grondin. Daily volume was several thousand gallons, totaling 5-6 wet tons and requiring a city truck plus trucks from a local vendor: "We were making 30-40 trips a day."

Newport (Vermont) Wastewater Treatment Plant

www.newportvermont.org

BUILT:
1965, upgrades 1982, 2006, currently

SERVICE AREA:
City of Newport

POPULATION SERVED:
4,400

FLOWS:
1.3 mgd design, 0.5-0.6 mgd average

TREATMENT LEVEL:
Secondary

TREATMENT PROCESS:
Activated sludge

RECEIVING WATER:
Clyde River

BIOSOLIDS:
Landfilled

AWARDS:
2019 Wastewater Facilities Excellence Award, Green Mountain WEA

ANNUAL BUDGET:
$800,000 (operations)

VARIETY OF SKILLS

Pedro Grondin brought a variety of skills to his position as supervisor of the Newport Wastewater Treatment Plant. His background includes service in the U.S. Army, auto mechanics, a parts store and firefighting.

"I've been a volunteer firefighter for many years, and the chief was also the operator of the treatment facility," he says. Grondin had been with the city's water department for 17 years when the chief retired. "He wanted me to apply for the job," says Grondin. "Because of my experience and mechanical abilities, it was a good fit."

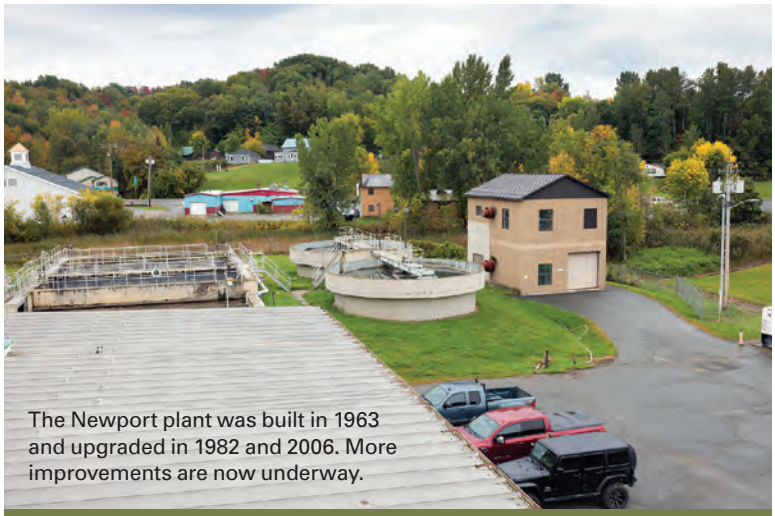
Grondin holds Grade 3 Water and Grade 2 Wastewater licenses. His biggest challenge is staying up on new technology and demonstrating to his management that these innovations will produce benefits by saving on manpower while improving water quality: "I'm interested in what's new, cost effective and energy efficient."

Grondin and his assistant Tim Degasse (Grade 1 Wastewater, Grade 3 Water) are also responsible for the water treatment and distribution systems. They've instituted labor-saving ideas there, too, installing new Neptune MRX radio-read meters and cutting meter-reading time from two weeks to two hours.

The water operation is important because usage directly affects flow at the wastewater plant, Grondin points out: "Neptune is a key and has provided great service. It has saved on labor, and that's a big plus. It's the technology we were looking for."

Grondin overall responsibility for the treatment plants because he would be in charge and not just a worker. It has paid off. "I enjoy the job and I like to look for ways to improve on the process," he says. "When you can think of ways of doing it better and apply those ideas, that is rewarding enough for me," he said in an interview with the Vermont Rural Water Association.

Finding a third operator might be an extra reward: "We talk to people, run ads, and stay in touch with the VRWA. Some utilities offer sign-on bonuses and more money, but we have guys from our garage if we need help. Otherwise, we can handle the day-to-day work."



The Newport plant was built in 1963 and upgraded in 1982 and 2006. More improvements are now underway.

Newport Wastewater Treatment Plant PERMIT AND PERFORMANCE

	INFLUENT	EFFLUENT	PERMIT
BOD	303 mg/L	4.41 mg/L	30 mg/L
TSS	608 mg/L	3.97 mg/L	30 mg/L
Phosphorus	N/A	0.21 mg/L	0.80 mg/L

About two years ago, the community purchased the new fan press, which has performed well: "We're very happy." Solid content is up and landfill trips are down. The staff did most of the installation work, including converting an old equipment garage to house new press and modifying two Penn Valley pumps for biosolids. Grondin estimates that saved about $30,000.

"We have a camera on the new press," he says. "But we don't have to baby-sit it. It pretty much runs by itself. It's been a good investment and has already paid for itself. Plus, I think the plant runs three times better."

BETTER AERATION

The Atlas Copco rotary screen blowers have likewise saved on labor and have proven cost-effective and energy efficient; Efficiency Vermont again helped defray the cost. The new blowers replaced a pair of stacked-disc units. The blowers ramp up or down automatically, and the plant usually needs only one blower operating at a time. That enables the blowers to alternate every three months.

The energy efficiency is dramatic. "Previously, our aeration costs were 47% of our overall electricity usage, costing us between $8,000 and $13,000

One of two new aerators (Atlas Copco) that significantly reduce energy consumption.

Operator Tim Dagese (left) and Pedro Grondin, chief operator

a month," says Grondin. "The old aerators ran 24 hours a day at 75 hp." Now the aeration power usage is down about 25% of the plant's overall draw.

"Sixty percent of the day, these new blowers are running at just 20-40% of the maximum motor speed," says Grondin. He appreciates that the blowers can alert him on his cellphone if there's a problem and connect him with the manufacturer. The plant also installed a dissolved oxygen meter to ensure that the levels in the aeration basins remain above the lower limit of 3.5 mg/L.

NEXT UPGRADES

Grondin and his team aren't finished improving the treatment plant. Grondin wants to improve the screens in the lower and upper headworks with automatic, self-cleaning units. "Rags are a pain," he says. "We have to use a Vactor truck to clean out those wet wells periodically.

"We also want to add brushes and skimmers on our secondary clarifiers to reduce cleaning time, and reduce green algae accumulation."

He also wants to improve the looks of the facility: "We're in a park setting, and I'd like to see us make the plant more appealing to the public." His ideas include bringing in high school students to come up with creative designs and paint the tanks and buildings. "Maybe we could make the old brown tanks look like fish bowls." tpo

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Three Generations

AN OPERATOR WHO FOLLOWED HIS GRANDFATHER AND FATHER INTO THE CLEAN-WATER PROFESSION REFLECTS ON HIS CAREER AND THE STATE OF THE INDUSTRY

By Ted J. Rulseh

John O'Brien

Wastewater treatment is a relatively new profession that began in earnest with the Clean Water Act of 1972.

This means there are few multiple-generation operators working in the field. One of those is John O'Brien, a third-generation operator at the PGA Regional Water Reclamation Facility, owned by the Seacoast Utility Authority in Palm Beach Gardens, Florida.

O'Brien holds a Class A Wastewater Operator license (highest) and is also a licensed drinking water treatment plant operator. In his spare time, he is an adjunct instructor in water and wastewater for Palm Beach State College.

His grandfather, the late Patrick O'Brien Jr., worked as an operator of the Fremont (Ohio) Water Pollution Control Center from 1964 until he retired in 1986; his father, John O'Brien, was a certified wastewater operator and wastewater lab technician at the same facility for 27 years until he retired in 2003.

O'Brien's personal experience and his family background give him interesting perspectives on the clean-water industry. He shared his story in an interview with *Treatment Plant Operator.*

tpo: How did your grandfather get his start in the profession?

O'Brien: His dad was a career Army guy, and his last duty station after World War I was Camp Perry in Ohio. My grandfather was born in Port Clinton, the city next to Camp Perry, on Lake Erie. He dropped out of high school to fight in World War II. He lost two brothers in the war; one was strafed by a Nazi plane in Germany; another was a victim of the Bataan Death March.

He married my grandma and they moved to Fremont, where she was from. He went to work for a company that made automotive tools. The company moved and he lost his job. He had a wife and four kids. He lined up a job in Chicago. Then a friend told him, "Pat, you don't have to move. I'll give you a job with the city at the sewer plant." He was about 40 years old at the time.

tpo: What was the treatment plant like in his early days at Fremont?

O'Brien: They had primary clarifiers and some secondary treatment, but obviously it was pre-Clean Water Act and didn't meet today's secondary standards. For a small city, about 20,000, population at the time, they had a lot of manufacturing. They were limited on holding sludge, so they were still discharging partially or untreated sludge into the Sandusky River.

tpo: What was your father's career like?

O'Brien: At 20 years old he got a job at the Fremont facility. He started as a treatment plant operator and in 1983 became a wastewater lab technician, which was a higher position. He kept his operator license and worked overtime on holidays and weekends. Part of his job was in pretreatment. He would go to Heinz ketchup, Pioneer Sugar, Ginsu knife, Crown Battery and other industries to collect samples. Then he would take a boat in the Sandusky River and take samples there. He would bring everything back to the lab, run the analyses.

tpo: What does the Fremont facility look like today?

O'Brien: They discharge dechlorinated secondary effluent into the Sandusky River, which flows into Lake Erie. They do some reclaim water for crop irrigation, but it's almost all to secondary effluent standards. They produce Class A biosolids for land application on farms.

tpo: How did you become involved in the clean-water field?

O'Brien: At six years old I went to my grandfather's retirement party. For my whole life I remember going to the treatment plant and visiting my dad. He had the city van for collecting samples, and he let me ride along. My dad and grandpa worked together at the plant from 1976-86. At 25 years old I was living in Florida. The economy was good, but I wanted job security. I'd just got married and my wife was pregnant. So I got a job in maintenance with Palm Beach County government, and I ended up at the Southern Region Water Reclamation Facility.

tpo: Did your family history lead you to seek a clean-water career?

O'Brien: I didn't think, "I want to work at the sewer plant," even though my dad and grandpa worked there. I ended up there out of necessity, for the job security and stability. Being older now, I understand what we really do for the environment. It's the same water from the beginning of time and we're stewards of that.

> "At six years old I went to my grandfather's retirement party. For my whole life I remember going to the treatment plant and visiting my dad."
>
> JOHN O'BRIEN

tpo: How did you make the transition from maintenance to being an operator?

O'Brien: In maintenance I worked the first shift Monday through Friday, changing pumps and motors and doing a lot of labor. Then I saw what the operators did. It was physically an easier job, they got paid overtime, they made more money and I started to think about how cool it was that they were cleaning and recycling the water. It took me five years to get a license and become a certified wastewater operator in 2010.

> "It seems everybody I've worked for liked the fact they had hired a third-generation operator. My grandfather was very happy to see me enter the profession. My dad, too."
> **JOHN O'BRIEN**

tpo: What were your responsibilities in your first job in operations?

O'Brien: I stayed with the county for a few years, and I did the shift work, basically split in half between the liquid and solids sides. The focus with Palm Beach County was water reuse, and often we did more than 100% reuse, because we had supplemental wells that we pulled from, mostly for golf course irrigation.

tpo: Where did you go after Palm Beach County?

O'Brien: I went to the Loxahatchee River District in Jupiter and got a shift lead position. They do 100% reuse water. They have seven golf courses, and they also supply irrigation for Roger Dean Stadium, where the Miami Marlins and St. Louis Cardinals have spring training. It used to be a pure oxygen plant, but now it's conventional treatment. After that I got my Class A license and went to Miami-Dade County as a supervisor at Virginia Key. Then I came back up north a little bit and took a job with the city of Sunrise, where they were building a new reuse plant; I helped out with that. After 39 months there I ended up here at Seacoast Utility Authority.

tpo: How do people in the profession react on finding out that you are a third-generation operator?

O'Brien: People want to know, did you want to be like your dad? Did you want to be like your grandpa? It seems everybody I've worked for liked the fact they had hired a third-generation operator. My grandfather was very happy to see me enter the profession. My dad, too.

tpo: What has been involved in the instructional side of your career?

O'Brien: I met a gentleman named Richard Dillon who was the plant manager for a reuse plant in Miramar. He retired and moved to Palm Beach County and started teaching here. I developed a relationship with him. Palm Beach State College got a federal grant to teach water and wastewater at the local state prison, Sago Palm Re-Entry Center, and they needed an instructor. They called Richard; he declined, and then he told them, "Call John O'Brien." They hired me as an adjunct instructor.

tpo: What did teaching at the prison include?

O'Brien: It's a re-entry prison; everybody is getting out in three years. I taught two 160-hour classes and helped the inmates got certified. I helped a couple of the lighter offenders get jobs, and they're working in the industry. The funding for the program ended, but I stayed as an employee with the college. I'm dual-licensed, so I can teach both water and wastewater courses.

tpo: What does your family history do for your perspectives on the industry?

O'Brien: It gives me a lot of gratitude for knowing the type of treatment we used to do in this country. We are taking much better care of the environment by treating the water to the standards that we are. People who don't have that background personally might not fully understand that it hasn't always been like this.

tpo: What would you say to a young person about the benefits of a water career?

O'Brien: At least in south Florida, you can invest in 160 hours of education, get a year's experience and start out making a decent wage, plus overtime, full benefits and job security. You're not going to get that anywhere else for the same amount of experience and education. And there isn't anything more rewarding or fulfilling that I know of than helping to sustain the earth by cleaning the water resources we have.

tpo: Is there a fourth-generation operator in the wings?

O'Brien: My wife's 24-year-old son, Carl Pierce, manages a pool store in our area. He thought that would be a good start, working with chemicals, small filters and pumps. He got a job at the pool store and worked his way up to managing. He has completed the wastewater course, and his next step is to become an operator. His goal is to sit for the exam, pass it and then start applying for positions.

tpo: What do you see ahead for yourself in the clean-water profession?

O'Brien: For as long as I'm going to work, I see myself staying in wastewater treatment operations while remaining active on the education, training and certification process.

tpo: As a third-generation operator, do you find more inspiration to attract a new generation of operators to the industry?

O'Brien: I'm very passionate about that because I understand the history of where we've come in this country since the Clean Water Act, how sophisticated the processes are and what a good job we do with recycling and reusing the water, while producing Class A biosolids. It's cleaning the water, but also recovering the resources in the water. If young people understood how significant and how beneficial our profession is for the environment and how personally rewarding it can be, the industry would be flooded with people trying to get in. tpo

industry news

Vital Utilities joins EnBiorganic Technologies network

EnBiorganic Technologies welcomed Vital Utilities of Lumsden, Saskatchewan, to its licensed network of EBS-Di installers and service providers. The firm will implement and deliver EnBiorganic's Treatment As A Service solution to wastewater utilities and commercial entities throughout the province. The company also welcomed Engineered Spray Solutions of Lakeland, Florida, to its network. The company will serve clients throughout Florida and Tennessee.

California student wins international water research competition

Eshani Jha of San Jose, California, was selected as the winner of the 2021 Stockholm Junior Water Prize, an international competition for students to present solutions for water challenges. Jha conducted research on how to remove contaminants from freshwater by replacing active carbon with biochar for use in efficient and less costly water filters. The Stockholm Junior Water Prize has been awarded since 1997 by the Stockholm International Water Institute. The Water Environment Federation organizes the prize, with the winner moving on to the international competition.

Envirosuite and Water Corp. enter into proof of concept

Envirosuite announces the award of a proof of concept project with Western Australia's Water Corp. for SeweX. Water Corp. is Western Australia's principal supplier of water, wastewater, drainage and bulk irrigation services, is state owned and is accountable to the Minister for Water. The project will demonstrate SeweX, Envirosuite's SaaS product performance for water utilities supporting proactive management of corrosion, odor and safety, in sewer networks related to sulfide and methane. tpo

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WASTEWATER

By Rick Lallish

When conducting a sludge settleometer test, what does the first 5 minutes of the test indicate?

A. Presence of filaments
B. Particle collision rate
C. Presence of zoogloeal matter
D. No useful indication

ANSWER: D. The settled sludge volume after 5 minutes of settling in the settleometer is an indication of how fast the sludge is settling. The first 5 minutes the sludge is in a free-fall state, with only a few collisions of floc particles to slow it down (Eckenfelder and Melbinger, 1957). This is in a typical settleometer analysis, and there may be a few exceptions. This will help operators or lab personnel understand the process and how to read the results. More information may be found in the *WEF Manual, Activated Sludge and Nutrient Removal,* Third Edition, Chapter 4.

DRINKING WATER

By Drew Hoelscher

What public notification is triggered if a water system exceeds the nitrate MCL?

A. Tier 1
B. Tier 2
C. Tier 3
D. Tier 4

ANSWER: A. The public notification rule is intended to keep customers informed about the safety of their water in a timely manner. Depending on the severity of the issue, a system is legally responsible to notify customers within certain time periods. A Tier 1 notification is considered the highest threat and must be delivered within 24 hours. A few examples of a Tier 1 occurrence would be fecal/*E.coli* contamination, chlorine dioxide MRDL violation and/or exceedance of the maximum allowable turbidity level, resulting in an MCL violation.

ABOUT THE AUTHORS

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

Charlie Brown, plant superintendent, with two of the new 18 Gorman-Rupp pumps installed during the upgrade at the Shelby plant.

Beating Back Bypasses

A PLANT UPGRADE INCLUDING NEW PUMPS AND CONTROLS AND A PLANT-WIDE SCADA SYSTEM HELPS AN OHIO CITY SOLVE A LONG-STANDING PROBLEM OF COMBINED SEWER OVERFLOWS

By Jim McMahon

The Ohio city of Shelby recently upgraded its activated sludge wastewater treatment plant to double its capacity to 5 mgd while expanding capability to treat and disinfect combined high-volume stormwater and wastewater flows.

The project upgraded much of the plant from its original equipment installed in 1953. A major component of the upgrade was the replacement of 18 Gorman-Rupp pumps throughout the plant with new higher-performance pumps from the same company.

These included storm and raw wastewater pumps, return activated sludge and waste activated sludge (RAS/WAS) pumps, and digester recirculation pumps. (Many of the original pumps, although old, were still operating.)

TACKLING OVERFLOWS

Eliminating combined sewer overflows (CSOs) is a significant issue facing many clean-water utilities. They are a major water pollution concern for some 800 cities in the United States that have combined sewer systems, according to the U.S. EPA.

Driven by the Clean Water Act of 1972, communities that have CSOs must develop plans to mitigate their impact on the environment. The EPA's CSO Control Policy provides guidance on how communities with combined sewer systems can meet Clean Water Act goals as flexibly and cost effectively as possible.

Shelby, between Columbus and Cleveland in north-central Ohio, has a population of 8,900. The activated sludge wastewater treatment plant, fed by 70 miles of sewer lines, processes 1.9 mgd from 3,787 residential customers, 260 commercial businesses and 20 industrial facilities. The treatment plant's activated sludge process was built in 1953, and plant upgrades were completed in 1977, 1988 and 2005.

The service area is subject to flooding; a significant amount of the collection system lies within the floodplain of the Black Fork of the Mohican River, which flows through the downtown. The sewer system is susceptible to very high wet-weather flows that result in periodic sanitary sewer overflows (SSOs) and bypasses.

NEED FOR CAPACITY

The existing treatment plant lacked capacity to treat very high flows during wet weather; inflow and infiltration to the collection system was estimated at 0.5 mgd. The plant was old, with a number of outdated components that contributed to wet-weather bypasses.

"The plant was designed to treat an average daily flow of 2.5 mgd and a maximum daily flow of 5.0 mgd," says Charlie Brown, plant superintendent. "Flows in excess of 5.0 mgd would overflow to the plant's 2 million-gallon storage basin for temporary holding until the plant had available capacity."

When that basin fills completely, it overflows to a secondary 18 million-gallon storage basin. And when that basin fills to capacity during a storm event, it overflows untreated into the river. To meet the terms of its NPDES permit, the city was required to eliminate wet-weather bypasses and improve secondary treatment capacity.

> "The difference is like night and day. The operation of the plant has been transformed from 1950s technology to state of the art."
> **CHARLIE BROWN**

To achieve that goal, the city in 2015 retained CT Consultants to prepare a comprehensive facility plan designed to identify plant shortcomings, review wet-weather treatment alternatives and develop an overall plant improvement plan.

COMPREHENSIVE UPGRADE

"We reviewed five engineering firms and asked them how they would upgrade the plant," says Brown. "Based on their suggested plans, we selected CT Consultants. It took approximately two years to engineer because we wanted to review a number of equipment options. We visited many plants in other cities within the state, looking at installed equipment and talking with

Super T Series self-priming pumps replaced submersible pumps in the stormwater pump station, making it safer, easier and more economical to perform routine pump maintenance.

The plant upgrade specified Gorman-Rupp products including multiple submersible pumps, this one used to transfer sludge.

plant operators and maintenance crews before we settled on a system design."

The resulting plan encompassed improvements to multiple plant processes, with aims to enhance capacity, operability and reliability. These included:

- Replacing outdated headworks equipment
- Replacing storm and raw wastewater influent pumps
- Upgrading the primary settling tanks and aeration systems
- Adding a new final clarifier
- Replacing digester recirculation pumps and floating digester covers
- Replacing chlorination with UV disinfection
- Replacing the secondary RAS/WAS pumps
- Constructing a new septage receiving station

In addition to the pumping equipment and controls, Gorman-Rupp provided control technology that oversees complete operation of the plant. This included replacing the blowers with turbo and positive displacement blowers, and implementing a plant-wide SCADA system.

CRITICAL PUMPING

"We took a holistic look at the plant in its current state to deal with wastewater and stormwater," says Chuck Hall, senior business development manager with CT Consultants. "One major issue was equipment that had long since outlived its useful life. Some of the pumps and blowers dated back to 1953. They were still running but needed to be upgraded to handle higher capacity.

"The Ohio EPA wanted the overflows stopped or significantly minimized. To achieve that we increased the capacity of the stormwater intake pumps to maximize use of the stormwater basins. We also added a 60-foot-diameter third clarifier to increase the storm capacity of the plant and had the existing two clarifiers rebuilt and upgraded."

In 2019, a bid to build the upgrade to the plant was awarded to NorthBay Construction. The company handled the electrical, mechanical and process mechanical work, concrete work, site excavation and all equipment purchases, installation and commissioning. Essentially, the project was a full plant upgrade.

"A critical aspect of the project was the pumping systems within the plant, which were all upgraded," says Peter Manns, president of NorthBay.

DIVERSE PUMPING TECHNOLOGY

Some of the pumps at Shelby had been in continuous operation since 1953 and the rest since the 1977 upgrade. Brown observes, "One of the biggest reasons I pushed for Gorman-Rupp pumps was that our four major sewage and stormwater influent pumps had been running nonstop every day since 1977. The equipment was well maintained and the rear plates, rotating assemblies and impellers were routinely changed out, but if this rotary equipment lasted that long, it has proven performance capability."

The plant upgrade specified Gorman-Rupp products including multiple submersible pumps (used to transfer sludge), one ReliaSource packaged pumping system and one general purpose, portable, engine-driven, priming-assisted dewatering pump.

"Influent pumps are critical to wastewater treatment plant operation because they control the flow of wastewater and stormwater into the plant," says Hall. The four influent pumps were replaced with self-priming, centrifugal Super T Series 10-inch pumps.

The self-priming suction lift design of the pumps allows design engineers to physically locate the pumps where access is a non-issue and routine maintenance can be completed quickly and easily. The pumps' solids-handling capability made them well suited for Shelby's solids-laden influent. "We were able to provide better control of the plant's influent pumping by replacing and upsizing all of those pumps," says Hall.

A BOOST FROM SCADA

Every process in the facility where wastewater and stormwater flows was equipped with new pumps. "Our pumps are installed at the new influent and stormwater pumping stations, as well as in the clarifiers' RAS/WAS systems," says Vince Baldasare, sales manager for engineered systems at Gorman-Rupp. "We also installed sludge recirculating and transfer pumps in the anaerobic digester, and miscellaneous pumps throughout every process on the site."

The new SCADA system for the first time enabled automated plant process operation. "The difference is like night and day," says Brown. "The operation of the plant has been transformed from 1950s technology to state of the art. We now have readouts in real time on what is occurring with DO and pH levels, what equipment is running, and how well it is performing."

Completed in 2019, these improvements have eliminated wet weather bypasses, addressed NPDES permit obligations, upgraded plant processes and infrastructure and improved treatment capacity. Replacement of the 1952-vintage blower turbines has led to $6,000 to $8,000 monthly savings on electricity.

"The quality of the effluent being discharged is definitely better," says Brown. "DO and TSS, although within requirements before, are now improved. The digestion rate has improved 25%, with less solids going out to landfill."

Best of all, long-term water quality benefits have been achieved with the reduction in untreated sewage bypassing the plant. tpo

A Humble Servant

VON EGGERS IS NOT AFRAID TO TACKLE ANY ASSIGNMENT THAT COMES HIS WAY. STILL, HE WAS SHOCKED UPON BEING NAMED OPERATOR OF THE YEAR.

STORY: **Melanie Lux**
PHOTOGRAPHY: **Stephen Brashear**

Eggers never shies away from hard days, which typically involve 12-hour shifts.

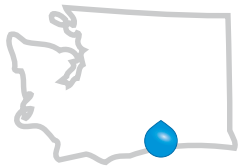
Von Eggers, plant operator at the Richland Water Treatment Plant, is a natural at training and developing new members so that they quickly become assets to the team.

There's a joke going around the Richland Department of Public Works: Von Eggers is not allowed to work on April 1 because every time he does, something disastrous happens to the city's water system.

Nineteen years ago, Eggers was pulling the graveyard shift when he went to inspect the Washington city's 10 million-gallon reservoir. He noticed that it was losing water, a lot of water, and it wasn't the ordinary pull that typically takes place. No, this was something different, and it was serious.

"I had a few choice words," admits Eggers. "Thankfully, we got things shut down and switched to our 5 million-gallon reservoir, so no one was ever without water. It took us a year and a half to rebuild the failed underdrain and bring the reservoir back online."

Apparently someone didn't get the memo. Once again, in 2018, Eggers was working on April 1 backwashing the No. 6 filter when he discovered a bad filter: "I saw a green nozzle flash up through the filter media and said, 'OMG, the filter just blew up.' I isolated it and took it out of



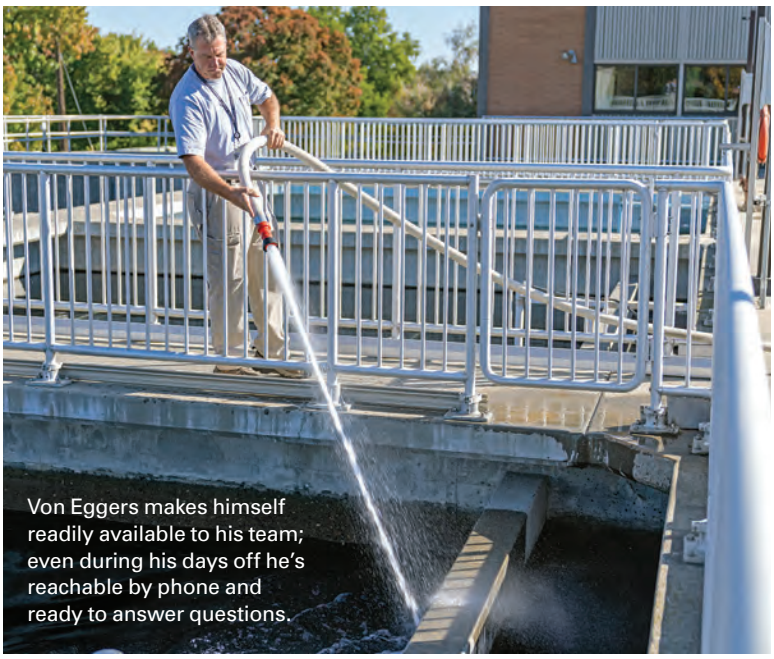
Von Eggers, Richland (Washington) Water Treatment Plant

POSITION:
Plant Operator

EXPERIENCE:
26 years in the industry

CERTIFICATION:
Level 3 Water Treatment Plant Operator, Level 3 Water Distribution Manager, Cross-Connection Specialist

GOAL:
Continue adding to technical expertise to ensure quality water for customers.



Von Eggers makes himself readily available to his team; even during his days off he's reachable by phone and ready to answer questions.

> "We added three new guys to our five-person team this year and I put them under Von. He knows how to talk *with* them, not *at* them."
> **BRENT ANDREWS**

Eggers (shown with a volumetric feeder from Acrison) has overseen a variety of improvements and upgrades at the water plant.

service before it affected the rest of plant. Turns out the concrete delaminated in the bottom of the filter. It took us a year running on seven filters before that was fixed."

It's a good thing Eggers doesn't mind tackling tough assignments — but no one schedules him for duty on April 1 anymore.

CIRCUITOUS ROUTE

Water treatment was not Eggers' first career choice. A native of Kennewick, Washington, he started working for the world's largest crane company, Lampson International, while in high school. After five years of traveling the country to clean and paint cranes, he joined his family's construction business. He then hired on with Battelle PNNL in Richland for seven-plus years, where he earned his commercial driver's license hauling lab equipment and hazardous materials.

Wanting a change, Eggers applied for a job with the Richland Public Works Department in 1995: "I saw an opportunity to do something more with my career. What's more important than clean water?"

The only thing standing between Eggers and his desired job as a treatment plant operator was another person. Fortunately, that person was planning to retire; in the meantime, Eggers had to start from the bottom and work his way up. And that meant starting in water maintenance.

"At the time, Public Works averaged 300 main leaks a year," he recalls. "Most of the city's pipes were from the 1940s — thin-walled steel pipes that had seen better days. I had to hand dig those pipes to fix them. I was digging in people's yards, under dog runs, beneath patios. I got really good with a shovel. My family said I was the best digger they knew."

Eggers kept at it for a full year until the fellow in front of him finally retired. It was finally time for Eggers to hang up his shovel.

VINTAGE PLANT, MODERN CHALLENGES

What Eggers didn't know was treatment plant operators never truly hang up their shovels, especially when their facilities are decidedly vintage. The Richland Water Plant was built in 1963 as a direct filtration facility with four filters and a 30 mgd capacity. In 1995 some upgrades were made including the addition of four more filters. However, much of the systems piping is original and so are some pumps and motors.

In addition to the water treatment plant, a 12 mgd wellfield with a slow sand filter and UV disinfection pumps water from the Columbia River to regenerate the aquifer.

The population of Richland has grown by nearly 20% over the last decade (to 56,000), placing more pressure on the facility and the operators. The plant is running at the top end of its capacity, and more redundancy is being added to process water.

Current projects include upgrading the capacity of the onsite generator for making sodium hypochlorite and adding an additional variable frequency drive pump to improve the flow of finished water. These improvements are key to keeping the plant online. "We're lucky that we haven't been knocked offline for an extended period of time," Eggers says.

When Eggers started with the plant, chlorine gas was the disinfectant; his CDL with HAZMAT endorsement came in handy, as he was responsible for hauling one-ton chlorine gas cylinders to the plant. In February 2016, the plant switched to the safer hypochlorite.

(continued)

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As the plant and the water treatment industry modernize, and as the state Department of Health and the U.S. EPA impose stricter requirements, Eggers is pursuing more certifications to make sure his technical expertise meets industry demands.

"Our direct filtration system is effective but antiquated, and reverse osmosis and membranes are becoming the standard for filtering influent," he says. "We're changing big-time, and water has to be cleaner and cleaner. So I'm changing with it."

PROVING HIS METTLE

Eggers has never shied away from a hard day's work — and work as a treatment plant operator can be "really weird," he says. "We work eight days straight and then have six days off. It's like having a vacation every other week.

"But when you're on, it can be stressful, as our shifts are 12 hours long, seven to seven. You would think the graveyard shifts would be quiet, but that's when we're cranking, making as much water as we can."

The Richland team, which also includes Dave Trotter, Pete Fateley, Chris Snell, Darryl Mayfield and Anthony Ortiz, is responsible for checking the reservoirs, reading meters, and monitoring production and consumption throughout the night. The heaviest pull on the system, for irrigation, begins at 10 p.m. and goes for several hours.

"It's amazing to watch," Eggers says. "Our reservoir drops like someone pouring a bucket of water out. This summer we've seen record-breaking consumption. In July, we had 1.04 billion gallons of water consumed. Consumption was averaging 33.8 mgd. During the winter, it's just 8 to 9 mgd. Weather is a big factor; we had multiple days of 100 degree days."

The thirsty summer also made the Richland team nervous in light of its aging equipment. "We've had three pumps go down this year, so we've been scrambling to keep producing," Eggers says. Normally this wouldn't be a problem but because of COVID, it can take six months to get parts."

Brent Andrews, Eggers' supervisor, is not quite as stressed. "Von does not sit still. He's always throwing out ideas, looking for a better way to do things," he says. "It seems as though he has his finger on the collective pulse of the water treatment plant and distribution system, and he always knows what to do."

> "We're a small team, so it's important we work together. We check our egos at the door and get to work making water."
> **VON EGGERS**

The team at the Richland Water Treatment Plant includes, from left, Steve Olson, mechanic; Brent Andrews, supervisor; Von Eggers, operator; and Rob Moritz, mechanic.

STAYING BUSY

Von Eggers likes quitting time as much as the next person. In fact, he says he can "walk out of the office like nobody's business."

That said, he doesn't head home to relax and veg out. Instead, he's always got his hands in something. Drawing on his construction days, he spends much of his time practicing that trade. He has remodeled his house and framed a pole barn on his property. When not working on personal projects, he hangs drywall, frames houses and does wiring for friends and family.

Eggers also enjoys reloading ammo, shooting handguns and rifles, and hunting. He always tries to have a good book on hand. One recent read is the *New York Times* bestseller *Rogue Warrior,* by former U.S. Navy SEAL Dick Marcinko, whose message of leading from the front resonates with him.

Staying busy has consequences: Eggers admits he's so busy on his time off that he looks forward to coming back to work. Now that's saying something.

NEW RESPONSIBILITIES

Eggers' work ethic, something he attributes to his parents, has earned him the respect of co-workers, and also new responsibilities. Specifically, he is a one-man talent development expert. Over the last year, Richland has had to replace three members of its five-person water plant team. Seeing Eggers patience when working with people, Andrews tapped him to train and develop the new team members. As millennials, their approach to work is different than the old guard of baby boomers.

Says Andrews, "I put them under Von. He's amazing. He knows how to talk *with* them, not *at* them, so they learn and take his words to heart. Our newest operators quickly became assets."

Eggers is both humble and pragmatic in the face of praise: "We're a small team, so it's important we work together. We check our egos at the door and get to work making water."

Another invaluable practice Eggers helped spearhead is a 30-minute overlap of team members during shift changes to relay important information about the plant. This ensures that everyone has the best information going into the shift, and that there are no time bombs.

Eggers also goes above and beyond to make himself available to the team during his days off. He's always reachable by phone and ready to answer questions. He doesn't shy from getting calls in the middle of the night, since he knows too well that's when the biggest issues typically arise, whether it's April 1 or some other date. His motivation is knowing that shared knowledge is the key to the best outcomes.

"Anything I can do to help our team through the day I am happy to do," he says. "It's up to all of us to show up and do our jobs, as the public depends on us for safe water."

ABOUT THAT AWARD

Without Eggers' knowledge, co-worker and shift partner, Dave Trotter nominated him for the 2021 Operator of the Year award from the state Department of Health, Office of Drinking Water. When he learned that he'd won, he first thought it was a big joke. But on receiving the blue glass trophy at the presentation ceremony last May, he was visibly humbled by the words of his supervisor, Andrews: "Von is a valuable asset for the city."

Not that he's letting it go to his head. He's got water to make. tpo

"Ultrasound is another tool in the toolbox."
CHRIS ROBBINS

The Vallecitos Water District serves about 100,000 customers in northern San Diego County.

A Sound Method of Algae Control

A SOUTHERN CALIFORNIA UTILITY USES ELECTRONICS TO DETECT IMPENDING ALGAE BLOOMS IN A RECYCLED WATER RESERVOIR — AND THEN DESTROYS THEM WITH ULTRASOUND

By Steve Lund

It's an old project winning awards with new technology.

Vallecitos Water District in Southern California has supplied reuse water to neighboring communities from the Meadowlark Reclamation Facility since 1982. It was named Recycled Water Agency of the Year in 2009 by the WateReuse Association California Section.

The project's latest honors, a 2021 national Excellence in Action award from the WateReuse Association and a 2021 award for Innovation and Resiliency from the California Association of Sewerage Agencies, are the result of a partnership with LG Sonic technology at the 54 million-gallon Mahr Reservoir, where the district stores recycled water.

A buoy manufactured by LG Sonic measures pH, temperature, turbidity, dissolved oxygen and other parameters to monitor algae levels and help control algae blooms. If a bloom appears imminent, the buoy can send an ultrasound signal that keeps the algae from rising to the surface, essentially stopping the bloom in its tracks.

MULTIPLE USERS

The district still uses traditional methods, such as bleach and aeration, to help keep algae under control but "ultrasound is another tool in the toolbox," says Chris Robbins, public information and conservation supervisor. "It's not the only thing that gets done. We still use chemical treatments and so forth, but we don't have to use as much."

The district serves about 100,000 customers in northern San Diego County. Most wastewater is treated at the Meadowlark facility, which opened in 1958 with a capacity of 250,000 gpd. In 1982, it was converted to a water recycling plant with a capacity of 2 mgd. In 2005, it was upgraded to 5 mgd. The process includes sedimentation, roughing filters and a fixed-film biological process, along with activated sludge, chlorination and tertiary filtration.

The recycled water is sold to the City of Carlsbad for irrigation at Legoland, city hall and some golf courses, and to the Olivenhain Municipal Water District. The two municipalities are contracted for 2 to 4.5 mgd, depending on the season. Surplus water is stored in the Mahr Reservoir.

COLLABORATIVE APPROACH

In a typical year, the reservoir level rises in winter, when irrigation demand is lower, and falls in summer. The abundant sunlight and the high nutrient level of the reclaimed water make the reservoir an ideal breeding ground for algae. Since the sonic buoy was installed in December 2018, algae levels are about half what they were previously.

Thanks in part to the region's geography, all of the recycled water goes to customers outside the district. The reservoir can supply Carlsbad and Olivenhain by gravity. "The tricky part with any water, and with recycled water especially, is that it's easier to let it flow downhill," Robbins says. "We're a little bit up, and we're sending it down toward the coast.

"It's just much cheaper not to have to pump it. If we were to send it back to our own system, we'd wind up pumping it." The water gets pumped to the reservoir from the treatment plant through a 24-inch pipe. Vallecitos Water District is part of the North San Diego Water Reuse Coalition, a group of 11 water and wastewater agencies.

"The local entities all kind of work together to figure out what we should do with the recycled water to make sure that someone isn't producing it and has no place to use it or put it," Robbins says. "The coalition works together to define where there is a good distribution area."

BIG ON SOLAR

The Vallecitos district has emphasized sustainability for a long time. In 2006 it installed solar panels over the fleet employee parking area; that array produces about 90% of the headquarters building's power, and sometimes a surplus delivered to the utility grid.

In 2017 the district has worked to add more solar energy. Solar arrays

The Vallecitos Water District stores recycled water in the 54 million-gallon Mahr Reservoir.

Recycled water is delivered from the Meadowlark Water Reclamation Facility to the Mahr Reservoir through a 24-inch pipe.

over two underground drinking water storage tanks (40 million and 33 million gallons) came online in 2021. Those projects and another at a lift station were built under 25-year power-purchase agreements with energy developers. They are projected to save $8.3 million over the terms of the agreements.

The district has won awards for its Sustainable Demonstration Garden and the headquarters building. The garden features native plants and two fountains supplied only with rainwater and operated by solar power. That garden, intended to be a demonstration for visitors to see what they could do with their own landscapes at home, was redesigned in 2010.

"Sustainability is something our board of directors has been pushing for about 15 years or so," Robbins says. "It goes in stages."

SMART TECHNOLOGY

The buoy that helps control algae at the reservoir was installed a couple years ago, and now the district is winning awards for using the technology. Besides pH, dissolved oxygen and turbidity, the buoy can monitor chlorophyll to detect emerging green algae and phycocyanin to detect emerging blue-green algae. It sends out different-frequency ultrasound to control the different varieties.

"It tends to predict what's coming," Robbins says. "It kind of samples, tells you what conditions you have, indicates the type of algae that may show up in the next few days. We can treat it chemically if we want to, but we can also use the sound function." tpo

worth noting

people/awards

Craig Netwig, founder of King Lee Technologies, was inducted into the American Membrane Technology Association Hall of Fame for his vision to create the first specialty chemical supplier uniquely serving the membrane industry.

The **Water Environment Federation** received Power of A awards from the American Society of Association Executives for its Introducing Future Leaders to Opportunities in Water (InFLOW) program and its role in the *Brave Blue World* documentary film.

David Thoenen, wastewater plant supervisor in Mexico, received the Small Plant Operator of the Year award from the Missouri Water Environment Association.

Chuck Stranahan, town board member for West Terre Haute Water Works, received the 2021 Administrative Professional of the Year award from Alliance of Indiana Rural Water.

The **Athens Wastewater Treatment Plant** received the Alabama Water Environment Association Award of Excellence (5-10 mgd) and the Alabama Water and Pollution Control Association Award of Excellence (>8.9 mgd).

The **City of Palm Coast Utility Department** received the 2020 Drinking Water Plant Operations Excellence Award from the Florida Department of Environmental Protection.

The **City of Cadiz** received the Wooden Bucket Award from the Kentucky Rural Water Association for exceptional efforts in meeting community demands, enhancing operations and complying with regulations.

Castle Rock Water received the Outstanding Water Treatment Plant award from the Rocky Mountain Section AWWA.

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events

Dec. 1

AWWA Lessons Learned from Surface Water and Reuse Utilities: Maximizing Contaminant Removal with Biofiltration, webinar. Visit www.awwa.org.

Dec. 7-9

AWWA North American Water Loss 2021, The Renaissance Austin, Texas. Visit www.awwa.org.

Dec. 15

AWWA 2021 Regulatory Update, webinar. Visit www.awwa.org.

Like something? Hate something? Agree? Disagree?

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

Send a note to editor@tpomag.com

Atlas Copco OGP+ on-site generator

Atlas Copco's new OGP+ Pressure Swing Adsorption oxygen generator series consumes 30% less feed air at full load to produce the same amount of oxygen as a traditional generator, reducing the total cost per unit of oxygen. Additional energy savings at low load are from its Variable Cycle Saver technology. VCS optimizes the PSA cycle to reduce the air requirement to what is needed to generate a lower volume of oxygen. Continuous, automated feed air monitoring protects the integrity of the zeolite molecular sieve material that separates the oxygen from the incoming air. If any purity issues arise, the generator will intervene and, if pre-set to do so, stop the oxygen from reaching the application until the purity level is restored.
803-817-7434; www.atlascopco.us

Blue-White FLEXFLO M3 peristaltic metering pump

Blue-White's M3 peristaltic has a large 5-inch display with intuitive touch-screen control, advance communication protocols including Modbus TCP, EtherNet IP, ProfiBus, and new software capabilities for future firmware updates. The newly upgraded M3 peristaltic metering pump has no loss of prime and no check valves to clean or replace, saving on downtime and maintenance.
714-893-8529; www.blue-white.com

product spotlight
water

Measurement device designed with simplicity in mind

By Craig Mandli

Proline 10 from Endress+Hauser

Municipal water systems can include hundreds or even thousands of measuring devices. Particularly for basic applications, demands for simplicity in commissioning, operation and maintenance have increased significantly in recent years. The **Proline 10** from **Endress+Hauser** meets this requirement without compromising accuracy and quality.

"Simplicity is the top priority for this transmitter platform," says Adam Booth, product marketing manager – Flow at Endress+Hauser. "Part of that simplicity is offering four methods of interfacing."

Both commissioning and operation are time-saving in the field as well as in the control room. The commissioning wizard enables the device to be configured on-site either using the auto-rotatable and high-contrast LCD touch screen or the SmartBlue app via Bluetooth. The latter approach is particularly useful when devices are installed in difficult-to-access locations.

Even if warning or error messages occur during operation, Proline 10 does not leave the user in the lurch. The integrated device diagnostics categorize errors that occur in accordance with NAMUR NE107, visualize their cause and offer appropriate remedies. This quick and easy process leads the user back to error-free operation.

The Heartbeat Technology order option enables permanent self-diagnostics with the highest level of diagnostic coverage as well as a traceable device verification without process interruption. The integrated real-time clock ensures that each verification receives an automatically generated timestamp. Heartbeat Technology reduces risks in a plant and thus increases its reliability and availability. "Basically Heartbeat tests the unit and creates a verifiable third-party document that provides individual results," says Booth.

Proline transmitters make no compromise in terms of performance and accuracy, according to Booth. The digital signal processing begins in the intelligent sensor and is the basis for reliable, exact measurement. This means that the transmitter can simultaneously record multiple measured values and forward them to a process control system. Complete access to all measurement data, including diagnostic data acquired by Heartbeat Technology, is possible at any time — thanks to digital data transmission over HART or Modbus RS485 and over the corresponding signal outputs.

"This information is accessible via our free DeviceCare or paid FieldCare software," says Booth. "Every portion is designed to be user-friendly."
888-363-7377; www.us.endress.com

Asahi/America Series 19 electric actuators

Series 19 electric actuators from Asahi/America are compact and lightweight. They are available in four operating configurations: on/off, modulating, failsafe and modulating failsafe; and three sizes to meet valve torque requirements. The multi-voltage general purpose unit operates at a 75% duty cycle for more frequent cycling of the valve. The electric actuators come standard with multi-voltage capability, a visual position indicator, an LED light to indicate valve position or fault, auxiliary contacts and a QR code for easy and instant access to user manuals. The Series 19 also features a corrosion-resistant NEMA 4X engineered resin enclosure with stainless steel trim to protect the unit's reversing, brushless DC motor and permanently lubricated steel gear train.
800-343-3618; www.asahi-america.com

Watts ArmorTek advanced coating system

The ArmorTek advanced coating system from Watts is the latest addition to its ductile iron backflow-preventer valves. The technology provides three layers of protection to create an effective barrier, increasing resistance to corrosion. ArmorTek provides an advanced primer which contains an electrochemical corro-

Bar screening system adapts to changing water conditions

By Craig Mandli

An essential step in the headworks of your wastewater treatment plant, screening is the process of separating solids and other debris from liquids before treatment for reuse or discharge to local waterways. While the idea is relatively simple, the products used in the process are constantly evolving. **Duperon** recently released the **FlexRake IQ Series** — an evolution of their original 1990s FlexRake bar screening line. The updated design increases debris removal, automatically increasing capacity and speed to accommodate changing conditions. During peak flow conditions, the optional FlexRake IQ2 adjusts the screen itself to provide maximum flexibility.

Today's extreme weather conditions, changing populations, aging infrastructure, and new solids like flushable wipes have challenged civil engineers when sizing the screen for a community's everyday conditions without causing backups during peak events. The design characteristics of the FlexRake IQ and IQ2 solves this problem.

"We understood that treatment plant operators require real-time responsiveness to deal with changing conditions in the channel," says Bryce Funchion, mechanical engineer at Duperon. "We looked at the problem and wondered 'what if the engineer didn't have to modify their design to accommodate changing conditions? What if the screen itself adapted to them?' We created the new design to provide an increased safety factor which assures system reliability during both normal flows and worst-case scenario events."

According to Funchion, Duperon's original FlexRake is a durable, relatively simple solution with "a low cost of ownership." By re-imagining the components, the sequence of operation, and the possibility to automatically transform the screen field, the FlexRake IQ and FlexRake IQ2 "improve screening during normal flow while adding responsive features to navigate peak flow conditions without sacrificing the simplicity, ease of operation, and low cost of ownership for which Duperon is known."

Mark Turpin, Duperon president, believes the FlexRake IQ and FlexRake IQ2 offer real-world solutions for today's stressed and constantly growing wastewater treatment systems. "We have optimized resiliency by creating more responsiveness in dry and wet weather, maximizing solids removal throughout flow conditions, and taking on the heaviest solids loading events," he says. "The FlexRake IQ series is designed to provide the greatest range of flexibility over the broadest range of conditions."

800-383-8479; www.duperon.com

FlexRake IQ Series from Duperon

sion inhibitor, slowing the spread of corrosion should the metal substrate become exposed from wear or impact. ArmorTek's formulation also inhibits the growth of bacteria that cause microbial-induced corrosion. This further slows the spread of corrosion and limits the growth of tubercles that can clog or foul downstream equipment. In addition, ArmorTek's top layer is specially designed to bond to the primer below, providing a high-strength barrier between the iron substrate and water.

978-688-1811; www.watts.com

Franklin Miller SPIRALIFT SC Screenings Conditioner

The SPIRALIFT SC Screenings Conditioner from Franklin Miller washes, conditions and compacts screenings typically received from a bar screen discharge. The unit reduces odors, removes organics and makes the screenings suitable for disposal at landfills, reducing disposal costs. The SPIRALIFT SC is compact and freestanding and can be placed in tight plant locations. It can be installed behind a new mechanical bar screen or retrofitted to an existing installation. The unit can be fixed-mounted or configured for portable operation to handle the output from multiple sources. The SPIRALIFT tank enclosure and hopper are constructed of durable stainless steel. A PLC-based control system with a touch-screen HMI interface is supplied. The control monitors and integrates all system functions.

800-932-0599; www.franklinmiller.com tpo

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