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SEPTEMBER 2010

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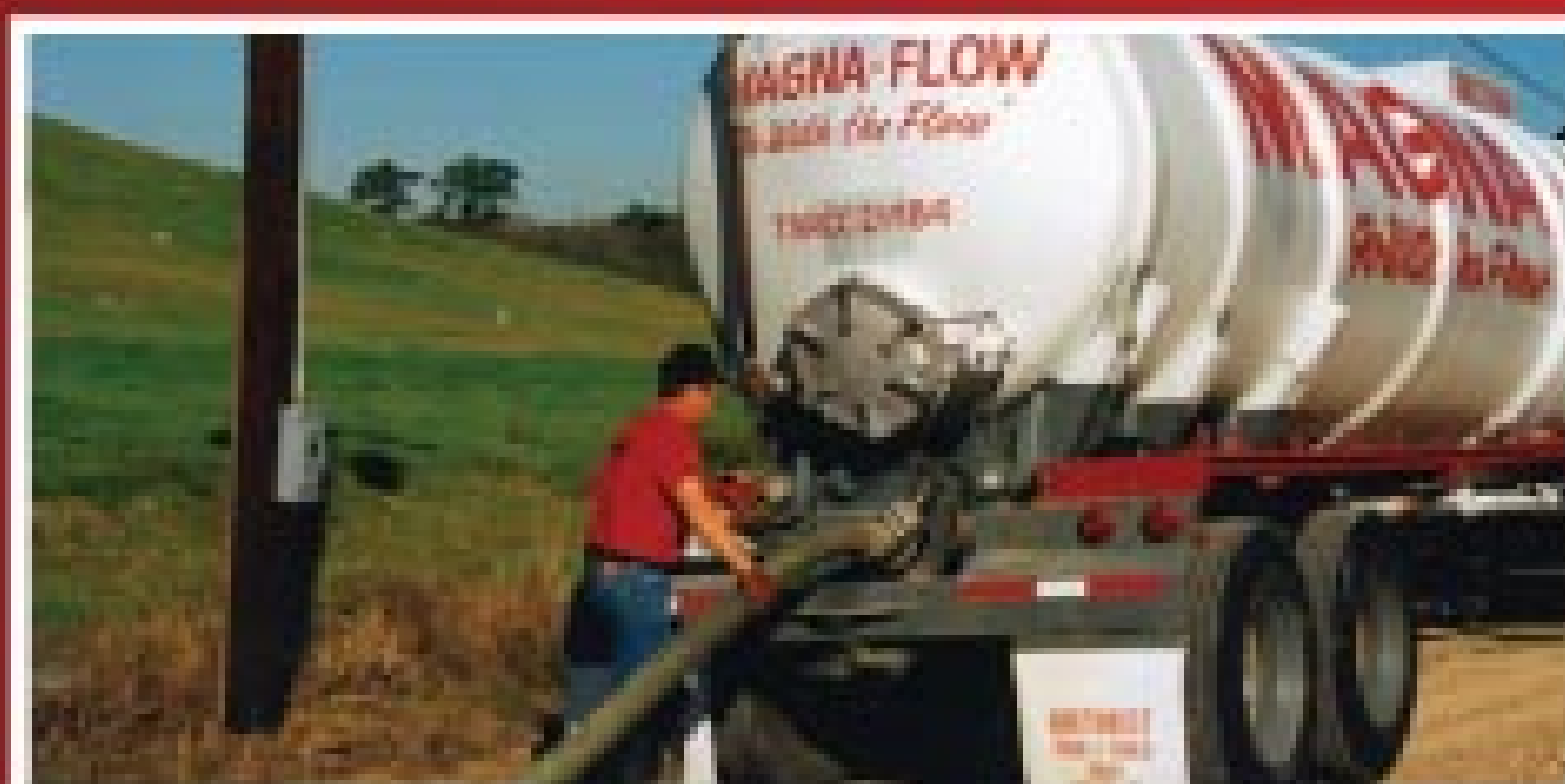
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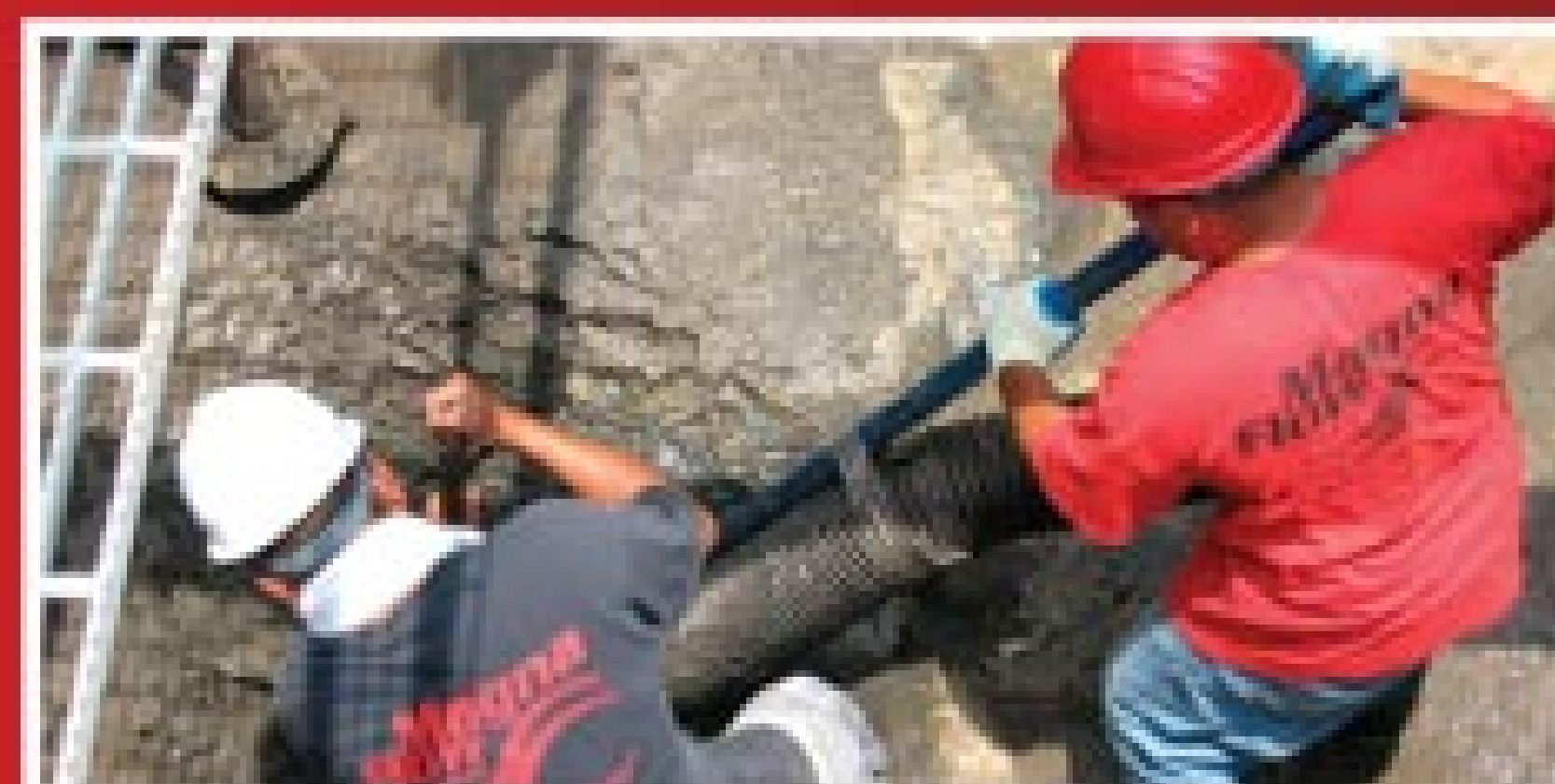
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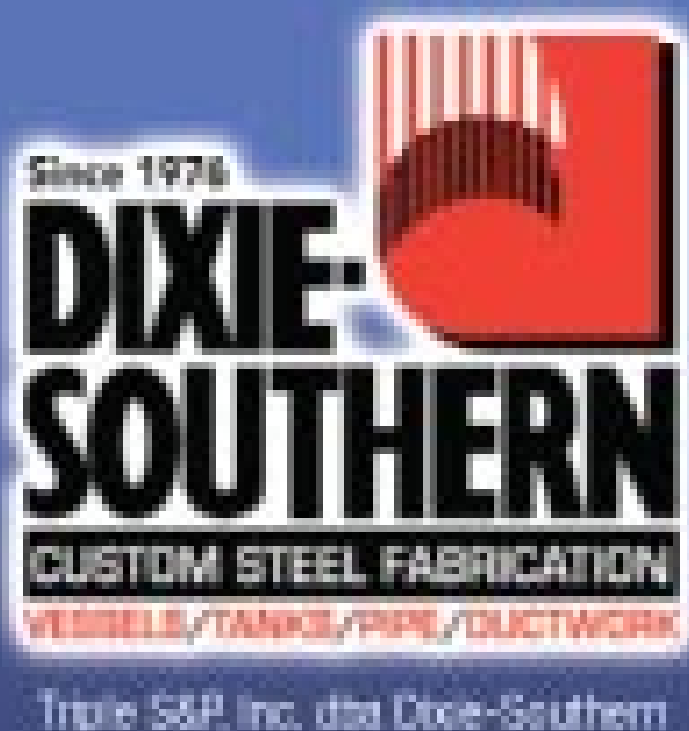
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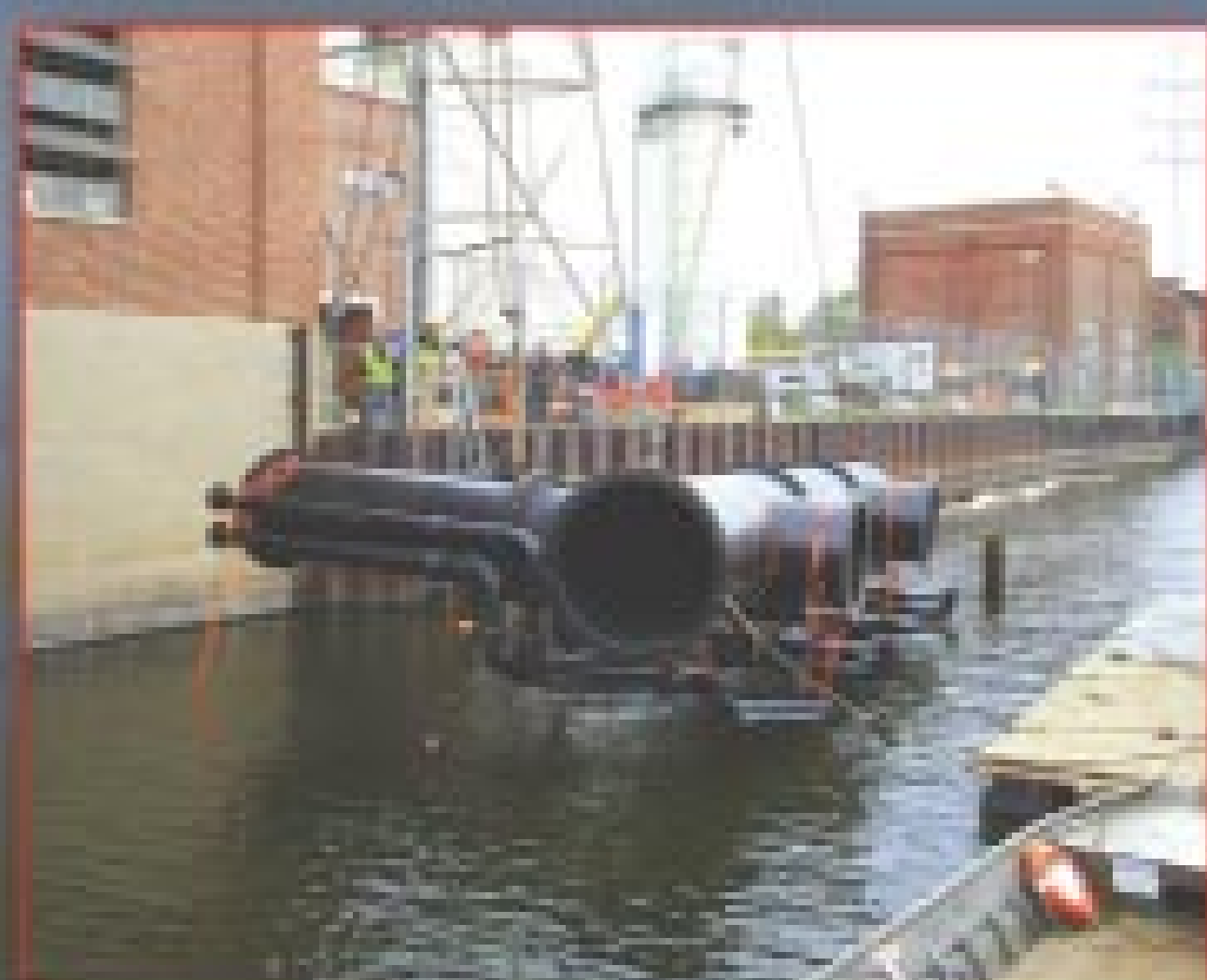
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letters

Must Be Nice

To the editor:

I read with interest (and a bit of envy) the article about The Aquary at the Broad Run Water Reclamation Facility in Ashburn, Va. (PlantScapes, *TPO*, July 2010). Two million dollars so far? Wow, it must be nice to be able to spend that kind of money on what is essentially landscaping.

My total annual landscaping budget at an 8 mgd plant, including snow removal, is about \$25,000. I know, I know, the folks at Broad Run would argue that it is all about community relations and education.

Here in New Jersey, home of the highest property taxes in the nation, and where public employees are currently being vilified by the press and our own recently elected governor, \$2 million on non-process-related equipment and infrastructure

would be a real hard sell to my Board of Commissioners and our ratepayers in general.

I am currently installing a UV disinfection system with all the associated operating benefits like removing chlorine and sulfur dioxide from the plant and effluent stream for about \$1.9 million. Most of the financing is either low-interest loans or grant money, and even that was a tough approval to get from the board.

I can't imagine trying to get them to go for something like The Aquary. Virginia is for lovers and I guess they bring a lot of money.

Dane J. Martindell
Facilities Manager
West Monmouth Utilities Authority
Manalapan, N.J.

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on the cover

If there were a do-it-yourself award for improvements at wastewater treatment plants, Riviera Utilities in Foley, Ala., would be a leading contender. Operator Robert Davis is shown in front of the plant's outfall into Wolf Creek. (Photography by Trisha LaCoste)

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let's be clear

Come Blow Their Horn

CLEAN-WATER OPERATORS ARE SOME OF THE MOST IMPORTANT AND MOST UNDERVALUED PROFESSIONALS IN THE WORLD. HERE'S AN OPEN INVITATION TO RECOGNIZE THEM.

By Ted J. Rulseh, Editor

No one likes a braggart. Maybe that's why so few clean-water plant managers respond to our invitations to recognize their people, and their facilities. Because they think that would be bragging.

That's right in character: Clean-water professionals typically are unassuming people and (a bit paradoxically) proud to be so. "I do my job, I do it well. That's enough. My peers notice. If no one else does, so be it. Or maybe so much the better."

And that's fine — except that one thing the clean-water profession badly needs is recognition. Effective treatment takes money, and more of it than ever as regulators ratchet down permit limits, most notably on nutrients.

Where does the money come from? The public. And in these times of fiscal austerity, it's pretty hard to get people to part with money unless they see the value



and necessity. How supportive will community members be if they think of the wastewater treatment plant as a dismal place at the end of a big pipe, and the operators just as guys who wear dirty jeans to work?

HEADS HELD HIGH

One can argue that recognition of the profession starts with recognition for its people. That's one of this magazine's reasons for being. Yes, we try to share best practices, publicize new and promising technologies, encourage professional growth and excellence, and deliver news about the industry.

But we also strive to celebrate and elevate the people who make the industry work. We know for sure, because people have told us, that operators who see themselves on these pages show up for work the next day with a little extra spring in their step. That's true whether they are the subject of a cover story, appear with their team in a plant profile, or simply receive a mention in the Worth Noting column.

From there, it's easy to imagine that someone carrying a brighter attitude around the workplace also walks a little taller around town and maybe talks a little more freely about

what he or she does for a living. That's part of ambassadorship, and it can only help the industry.

WHO ARE YOUR HEROES?

So I wonder: Where are all the calls and e-mails from plant managers and supervisors, telling us about the great people on their teams? Where are the notes from state and regional associations telling us about the latest award winners?

We'd love to see our Worth Noting column fill up every month with news of operators' awards, certifications, service anniversaries and other accomplishments. And we'd like to hear more from people in the field about outstanding plants and exemplary operators. If that happens to be your own plant or someone on your own team, fine.

Many of the operator profiles on our pages begin with nothing more than a short e-mail describing the person's qualifications, background and accomplishments. It's basically the same with plant profiles.

We know for sure, because people have told us, that operators who see themselves on these pages show up for work the next day with a little extra spring in their step.

We're especially interested in learning about outstanding people, and here the job falls to the people in leadership positions at the plant. Very few in the ranks of operators are going to talk to us about themselves. They don't want to blow their own horn. But there's nothing wrong with having their superiors blow it for them.

CELEBRATE THE BEST

At the risk of seeming to blow *our* horn, I know that people in the field are generally happy with *TPO* magazine. We receive a lot of feedback in that direction. We're always looking for ways to help the magazine serve you better.

One of the ways you can help us make it better is to tell us about the unsung heroes in your organization. Surely they have ideas that we can share in the interest of helping others in the industry become more effective professionals.

So as you read this issue of the magazine, consider asking yourself: Who on my team really stands out and has valuable insights and information to share with the profession? If you feel your whole team fits that description, tell us about that, as well.

I look forward to hearing from you. Send me a note to editor@tpomag.com and I promise to respond. Let's work together to recognize the people who make treatment plants tick and keep our water resources clean. By doing so, we'll help pull the whole industry up in the eyes of the people who pay the bills. **tpo**

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Learning How It's Done

WITH THE TOWN OF MANCHESTER'S GOVERNMENT ACADEMY, CITIZENS OF ALL AGES GET A VALUABLE LESSON ON WASTEWATER TREATMENT

By Diane Gow McDilda

Citizens of Manchester, Conn., learn what goes on behind the scenes of municipal operations through a Government Academy that comes complete with informational handouts, tours and the opportunity to speak with professionals willing to answer any question.

The academy is organized by the human resources department and is held one night a week for 12 weeks. From week to week, participants learn about different departments, including the Town of Manchester Water Pollution Control Facility.

"We get a good cross-section, from people in their 20s to their 70s," says Ray Weaver, process control supervisor at the plant. "And we'll have anywhere from 10 to 25 people on the tour." The academy runs in spring and fall each year. In fall, the treatment plant is the first on the list, so tours can be done before the weather gets too cold. In spring, it is the last stop, when the days are longer. Fall or spring, attendees see what comes into the plant, where the effluent goes, and all the processes in between.

UNSUNG HEROES

Participants are prepped before they visit the plant. Each receives a binder stocked with a PowerPoint presentation that details each treatment process. Visitors follow along in their notes as they tour

"We get a good cross-section, from people in their 20s to their 70s. And we'll have anywhere from 10 to 25 people on the tour."

RAY WEAVER



PHOTOS COURTESY OF RAY WEAVER

Manchester treatment plant process control supervisor Ray Weaver shows the aeration tanks to visitors from the Student Government Academy.

the plant, flipping pages, and smelling and hearing what can't be conveyed through a paper presentation.

In each phase of the process, starting with the pretreatment room, where they see the raw sewage and impressive auger, Weaver encourages them to engage their senses. "I ask them to remember the flavor of this room," Weaver says. "By the end of the tour, I ask them to remember the beginning and what the flavor was — what came into the facility."

After the tour, the students have time to think about what they've learned. "We have them sit in the break room, and we project a microscopic slide on the wall," says Weaver. "A rotifer that's 6 feet long and moving projects on the wall. It gets their attention."

Then Weaver points to a smaller bacterium and says, "That's what's doing our work for us. The biological process is mind-blowing." There's even a slide in the notebook that includes a page with several pictures of microorganisms with the title, "Unsung Heroes."

Beyond the treatment plant, visitors see the plant's outfall and

Mike Edmond, plant superintendent, flyfishing for trout in a catch-and-release stretch of the Hockanum River, 30 yards from the treatment plant outfall.

What's Your Story?

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

TRAILBLAZERS

Possibly because of Ray Weaver and Mike Edmond, residents of Manchester, Conn., don't shy away from the Manchester Water Pollution Control Facility. They even nurture it.

The Farmington River Trail is part of a larger trail system that travels the perimeter of the plant. "There's an older generation of stewards who take care of the trail," says Weaver. "They take a lot of pride in what they do, and they acknowledge what we do."

It makes for a supportive group of people who can make a big difference. "We have a population of about 50,000, and we have people who are willing to go to board meetings," says Weaver. It's these people who support the treatment plant when it's time to consider and approve major improvement projects.

the receiving water, the Hockanum River, teeming with life. "In 2002, a video camera was put in at the outfall pipe into the mouth of the river," says Mike Edmond, plant superintendent. "Visitors can see the fish feeding. We have bluegills and bass, rainbow and brown trout. It's quite a scene."

"We explain that before 1976 and the Clean Water Act, water from primary treatment went to the river. They begin to understand the Clean Water Act and can see what it's done. We dip directly out of the effluent, and they can't get over the clarity."

MIKE EDMOND

EYE OPENING

Weaver and Edmond then go further, giving a history lesson in U.S. water regulation and other topics. "We explain that before 1976 and the Clean Water Act, water from primary treatment went to the river," says Edmond. "They begin to understand the Clean Water Act and can see what it's done. We dip directly out of the effluent, and they can't get over the clarity."

Attitudes change by the time visitors leave the plant. Some on the tour are college graduates of environmental programs that have never touched on wastewater. "It's a throwback," says Weaver. "We explain that we're not polluters. We take a nasty raw product and produce beneficial solids and effluent."

Then the two touch on new challenges facing pollution control facilities. Treatment plants all over the country are looking to reduce pharmaceuticals in effluent — an expensive process. Weaver hopes visitors will take what they learn back to local pharmacies and talk to them about offering disposal options for unused medications.

In all, a great deal of information is conveyed. The tour is scheduled to last from 6 to 8 p.m., but it usually goes well beyond. "I don't know if we've ever left before 9 p.m.," says Weaver. "We'll have conversations as we're leaving, out in the parking lot, and finally we tell them that we need to go home."

SHOWING THE STUDENTS

The tour isn't only for adults in the Government Academy. A local advanced placement biology teacher brings students each year. But besides describing the process, Weaver and Edmond talk about their jobs, the responsibilities, and the rewards, and tell about careers in



Ray Weaver talks to participants in the Government Academy.

wastewater treatment.

"We're like microbial trainers," says Weaver. "We give them a place to live, food to eat, and oxygen to breathe. We keep them as happy as possible. We explain that by changing their environment, we can change what microbes do." And with that, they hope to encourage the next generation of treatment plant operators. **tpo**



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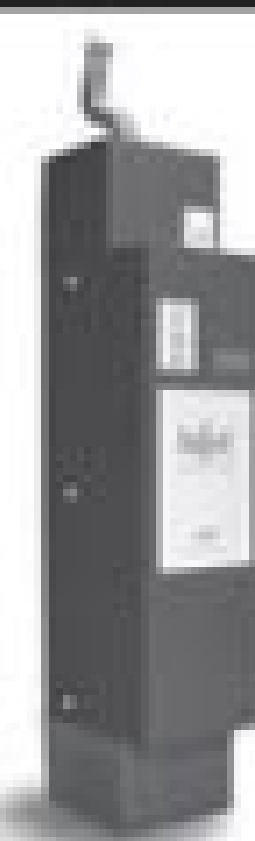


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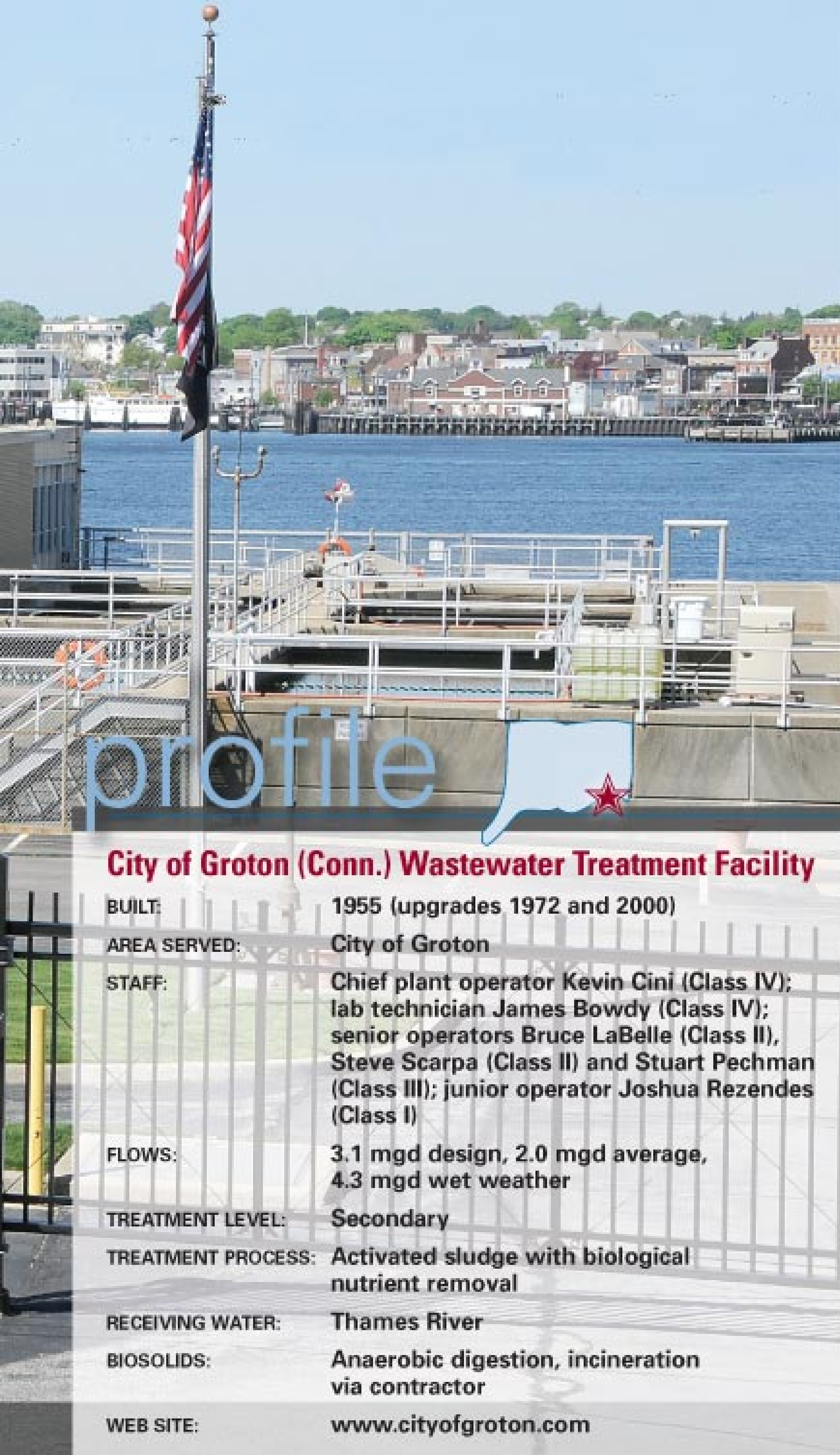




The Next *Generation*

THE CITY OF GROTON TREATMENT PLANT CREATES AN INTERNSHIP PROGRAM THAT ATTRACTS HIGH SCHOOL STUDENTS AND LEADS SOME INTO CAREERS AS OPERATORS

By Ted J. Rulseh



City of Groton (Conn.) Wastewater Treatment Facility

BUILT:	1955 (upgrades 1972 and 2000)
AREA SERVED:	City of Groton
STAFF:	Chief plant operator Kevin Cini (Class IV); lab technician James Bowdy (Class IV); senior operators Bruce LaBelle (Class II), Steve Scarpa (Class II) and Stuart Pechman (Class III); junior operator Joshua Rezendes (Class I)
FLOWS:	3.1 mgd design, 2.0 mgd average, 4.3 mgd wet weather
TREATMENT LEVEL:	Secondary
TREATMENT PROCESS:	Activated sludge with biological nutrient removal
RECEIVING WATER:	Thames River
BIOSOLIDS:	Anaerobic digestion, incineration via contractor
WEB SITE:	www.cityofgroton.com

AT AGE 48, KEVIN CINI IS THE SECOND YOUNGEST operator on the staff of six at the City of Groton (Conn.) Wastewater Treatment Facility.

The one younger team member is junior operator Joshua (Josh) Rezendes, who came on board full-time two years ago by way of the plant's internship program. Cini, chief plant operator, sees interns as the key to finding and developing the next generation of wastewater treatment professionals.

The internship program, offered through Grasso Technical High School in Groton, gives high school seniors-to-be exposure to and hands-on experience with the profession that they otherwise might never get. Cini hopes a certain number of interns will enjoy the work and make it a career — as Rezendes already has done (see sidebar).

"In Joshua, we may have hired our next chief plant operator," he says. "I plan to retire in 13 years, and all the other operators are older than I am. As they retire, my goal is to replace every one of them with one of our interns."

"No one guy is assigned to one job here. To keep it interesting, we don't have one guy who gets up every morning and says, 'I'm going to start the rotary drum thickener.' The key is a constant rotation."

KEVIN CINI



The staff at the 3.1 mgd City of Groton treatment facility includes, standing, from left, senior operators Steve Scarpa (Class II) and Bruce LaBelle (Class II), lab technician James Bowdy (Class IV), Groton Utilities superintendent Herb Cummings, junior operator Joshua Rezendes (Class I), senior operator Stuart Pechman (Class III), Groton Utilities manager Rick Steven; and (seated) chief plant operator Kevin Cini (Class IV). (Photography by Vincent Scarano)

The 3.1 mgd (design) City of Groton plant was built in 1955 and upgraded to secondary treatment in 1972. An upgrade in 2000 added odor control, process automation, SCADA and other improvements.

EXEMPLARY PERFORMANCE

The plant was recognized in 2007 when it received the Operations and Maintenance Excellence Award from the U.S. EPA for New England Region 1, and the EPA national Second Place Award for O&M in the category for Medium-Sized Advanced Plants, both under the Clean Water Act Recognition awards program.

The facility provides secondary treatment using a conventional activated sludge process combined with biological nutrient removal to meet total maximum daily loading (TMDL) limits for nitrogen.

Influent passes through a grit chamber aerated with a Dresser Roots blower. A step screen (Huber Technology) removes debris, which is shredded and landfilled. The flow then passes through a distribution box to four primary settling tanks. Three tanks handle normal flows, and the fourth is added in wet weather.

The two aeration basins have centrifugal blowers (The Spencer Turbine Co.) that cycle on and off to enable nitrogen removal. "We actually run an activated sludge plant as a sequencing batch reactor," says Cini. "We run the blowers to convert ammonia to nitrate, and then shut the blowers off to enable release of nitrogen as gas."

From aeration, the flow passes to two rectangular final clarifiers. Final effluent runs through a Parshall flume for measurement, then through disinfection with sodium hypochlorite and re-aeration via splash weir before discharge to the Thames River.

FROM INTERN TO OPERATOR

Joshua (Josh) Rezendes was a high school junior when he signed on for an internship with the City of Groton Wastewater Treatment Facility. Today, he's a full-time junior operator there with a Connecticut Class I license and two years of experience, looking forward to a long career in the profession.

The instructor in his bioscience environmental technology program at Grasso Technical High School in Groton told him about the internship. "He asked me if I wanted to give it a shot," recalls Rezendes. "I said, 'Absolutely,' especially since it was a paid internship. I didn't know what I was getting into. I tried it for the summer and ended up falling in love with the job. I like science, and I like to know how things work."

After his eight-week internship, Rezendes began another internship with a contract operations firm, The Water Planet Company, during his senior year of schooling. After that and six more months as an employee of that firm, doing operations and maintenance work at area plants, he won a position as an operator helper back at the City of Groton plant and began working his way up.

Rezendes works on the same rotation as the other operators. He was scheduled to take his Class II operator license exam in July and was working on his collection system operator license. Down the road, he plans to take environmental engineering courses at a local community college, with help from the city's tuition reimbursement program.

He's optimistic about the future. "I'm the youngest guy here," he says. "I'm the start of the new workforce. Eventually hope to work my way up to chief plant operator."

"It's a really interesting field. So many different things happen every day. One day it's something mechanical like taking apart a pump and drying it out. The next day it's working in the lab and taking samples. I like the challenge of that."

Joshua Rezendes overlooks the dock outside the treatment plant that is used for recreational boaters to pump out their holding tanks. Rezendes, now a full-time junior operator, came to the Groton plant by way of the internship program.



"These young men and women are finding that wastewater and water treatment can provide great careers. What the kids and their parents never realized before is that these are good-paying jobs that are secure. They can't be outsourced."

KEVIN CINI

Primary solids are pumped to the first-stage and then second-stage anaerobic digesters. Waste activated sludge is delivered to a rotary drum thickener (IPEC Consultants) and then to the digesters. Methane captured from the second-stage digesters is burned for building and digester heating. Biosolids leave the digesters at 4 to 6 percent solids. A contractor removes the material for dewatering and ultimately incineration.

VARIETY BREEDS EXCELLENCE

Cini attributes the plant's performance to its operating philosophy, which aims to keep everyone fresh and energized. "Everyone does everything here," he says. "We're a small plant, so we have to."

He observes that many plants have operators dedicated long-term to specific jobs. "No one guy is assigned to one job here," Cini says. "To keep it interesting, we don't have one guy who gets up every morning and says, 'I'm going to start the rotary drum thickener.' The key is a constant rotation."

"The only exception is our lab chemist. For the sake of consistency in testing and reporting, he is dedicated to the lab. Otherwise, one month an operator will be out on the collection system checking our nine pump stations. The next month he might be filling the trucks with biosolids for incineration and taking care of the primary pumping process. The next month he might be doing plant maintenance, going around and greasing equipment and making sure the planned maintenance is done."



Steve Scarpa checks the step screen from Huber Technology that removes debris from the wastewater.

"The variety these guys have helps keep it interesting. Sometimes just a change of scenery is nice. They also have the opportunity to better themselves educationally. The city provides full tuition reimbursement. They have never denied an educational request in the 27 years I've been here."

TAKING INSPIRATION

Retaining a strong team is one thing; recruiting new team members is another, especially as experienced operators approach retirement age. About 10 years ago, Cini saw the need to find a new generation of operators. Even then he was the youngest member of the plant staff.

He took inspiration from an intern program a telecommunications and cable TV provider created in the late 1980s, when that industry faced a severe labor shortage. Cini got hold of a videotape being used to promote the program. "It showed kids basically saying, 'I didn't know what I wanted to do. I did an internship for a summer. I liked it, and now I've been doing it for three years,'" Cini recalls.

Believing he could do similar things with an intern program, Cini approached mayor Dennis Popp. "He said, 'You know what, let's do it. If we can't put a few dollars aside to invest in the future, then what are we really doing here?'"

Cini's fellow operators were skeptical: Would they have to babysit a high school student all summer? The structure of the internship program is what makes it successful. "It's not a babysitting job," Cini says.



James Bowdy is dedicated to the lab “for the sake of consistency,” says chief plant operator Kevin Cini. Other staff members rotate among various jobs.

CAREFUL SCREENING

The interns are selected from Grasso Technical High School in a competitive process. The school curriculum is set up so that students spend half the year in academic courses and half in a “shop” setting, training in their chosen specialty.

Interns at the plant work there for eight weeks during the summer after their junior year and also during the “shop” portion of their senior year. “One thing they have to do to qualify is take the first Sacramento course,” says Cini. “We want kids who are ambitious enough to do that on their own time. Our local Connecticut Water Pollution Abatement Association pays for the course.”

Screening is a joint effort between the plant team and the school staff, specifically Alex Pesarik, head of the bioscience environmental technology department, and Jack Cervera Jr., dean of students.

The intern program typically draws four to eight applicants. The students prepare a resume and go through a rigorous interview process. When the intern is selected, his or her parents receive a tour of the treatment plant. The intern works from 7 a.m. to 3:30 p.m. daily.

“We show them the daily book work so they get a feel for how the plant works,” says Cini. “They take down the water reads, the electric reads, the return rates. They bring samples to the lab for analysis, change the flow charts, check the SCADA screens.

“Then they get out into the collection system, taking the readings from the pumps and, depending on their background, doing O&M work. They also get exposure to lab work and the final process steps, like measuring sludge levels and chlorine residuals.”

VALUABLE EXPERIENCE

Interns benefit from their experience even when (as in most cases) it does not lead directly to a job at the plant. Intern Timothy Perkins joined the Army after his internship and was deployed to Iraq. “While he was there, his platoon was asked if anybody knew anything about wastewater treatment,” Cini says. “He was able to raise his hand. Now he’s over there helping the Iraqi’s get their wastewater treatment systems up and running.”



Chief plant operator Kevin Cini.

FULL CIRCLE

In 1980, Kevin Cini was a member of the first graduating class at Grasso Technical High School in Groton, Conn. Now he works with the school on the intern program at the City of Groton Wastewater Treatment Facility.

Cini studied plumbing and heating at Grasso Tech and after graduation worked for a plumbing company owned by the mayor of Groton. He did some work at the wastewater treatment plant, liked what he saw, and told the superintendent to let him know when a job there opened up.

“Within a year, they had an opening,” Cini says. “I put in for it and got the job, and I’ve been here ever since.” He started in January 1983 as an operator helper and by 2003 had worked his way up to chief plant operator.

“My original attraction was the location,” he says. “I love being on the water. We can watch the boats go up and down. We have a naval base up the river, so I can watch the submarines go by. The Coast Guard Academy is across the river. It’s a beautiful view.

“I love protecting the waters. I like to fish. We have a dock right off our final clarifiers where recreational boats come to pump off waste. We can go down there early in the morning and after work and catch striped bass and bluefish.

“I’ve been here 27 years, and I’ve seen the river clean up. We see harbor seals in the winter. For years we never used to see them, and now we get them every winter.”

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City of Groton Wastewater Treatment Facility PERMIT AND PERFORMANCE

	INFLUENT	EFFLUENT	PERMIT
BOD	~100 mg/l	6 mg/l	30 mg/l monthly avg.
TSS	~100 mg/l	6 mg/l	30 mg/l monthly avg.
Nitrogen	28 mg/l	5-8 mg/l	113 pounds/day
pH	7.2	6.7	6-9



Final effluent runs through a Parshall flume (shown) for measurement and then through disinfection with sodium hypochlorite and re-aeration via splash weir before discharge to the Thames River.

The 2010 intern, Zachary Kemp, knew from the beginning that there would be no position for him with the City of Groton, but he now has experience that may help him catch on with a contract operations firm. "He's very marketable," says Cini. "He's pre-qualified to take his Class I wastewater exam. He has completed the third and fourth Sacramento books. He has a summer of experience, plus half his senior year. That's six months of experience, and he's only 18 years old."

Interns earn \$10 an hour, which adds up to \$3,200 for the eight weeks of summer work. Cini considers that a small investment for substantial benefits. Mayor Popp agrees. "It's hard to find people who want to get into the wastewater treatment field, and that's true of many other fields," he says. "Kevin and his team do a great job with these interns. They really take them under their wing and help them out."

"It's a wonderful program. It may not have an immediate benefit to the City of Groton, but it has an

immediate benefit to others in the industry, and it has long-term benefits to the city in that maybe five or 10 years down the road, we have a pool of qualified applicants to pick from when positions become available.

"That's not to say we don't go through the complete hiring process. But now in all likelihood we have applicants who have worked for us — we know their work history, we know their work ethic."

Popp notes that the city has expanded the intern program to water treatment, water distribution, project management and information technology roles. Two former interns have been hired for positions in the IT department.

The idea is spreading to other communities, too. The nearby city of Stonington had its first summer intern in 2010.

"These young men and women are finding that wastewater and water treatment can provide great careers," Cini says. "What the kids and their parents never realized before is that these are good-paying jobs that are secure. They can't be outsourced." And City of Groton interns certainly have a chance to get their foot in the door. **tpo**

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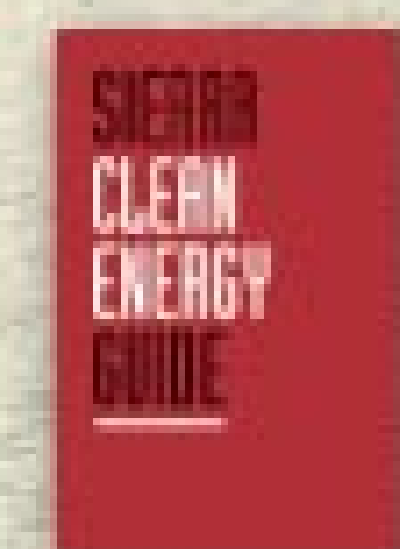
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Welcome, Wildlife

A REGIONAL UTILITY DISTRICT CONNECTS WITH A SOUTH CAROLINA WILDLIFE FEDERATION PROGRAM TO ENHANCE HABITAT ON PLANT GROUNDS

PHOTOS COURTESY OF ReWa

By Pete Litterski

When the Western Carolina Regional Sewer Authority adopted a new name in 2008, the result reflected a focus that had been a high priority for the district, which serves all of South Carolina's Greenville County and parts of four other counties.

As Renewable Water Resources — ReWa — the utility focused on its involvement in environmentally sensitive projects. Leaders wanted to make sure the 400,000 residential and business customers recognized that besides wastewater treatment, ReWa is involved in renewable energy (methane capture), water reuse and biosolids recycling.

ReWa also wanted to remind people that it was one of the first organizations to become a certified partner in the Wildlife and Industry Together (WAIT) program, launched more than a decade ago by the South Carolina Wildlife Federation.

LOTS OF GREEN SPACE

ReWa has been part of WAIT since 1998. The partnership came about when an SCWF official asked his friend Dale Looper, a now-retired ReWa customer service manager and avid outdoorsman, if the district would consider joining the program.

"They knew we had the kind of green space at our facilities that would make us a good candidate to participate," says Blake Visin, information technology manager and the utility's WAIT coordinator. With nine treatment plants and 310 miles of sewer trunk lines under its umbrella, ReWa owns land that can be ideal wildlife habitat. Managers were eager to join the program, which now lists many major industries and utilities among its partners.

In the early years, the WAIT projects included providing food for wildlife and installing wood duck and bluebird houses. Working with

right-of-way crews, the district has established a number of food plots at its treatment facilities to help a wide range of wildlife. Crops grown at treatment plant sites include oats, wheat, peas and turnip greens.

"We are trying to maintain food sources for turkey, deer, rabbit — anything you might consider game," Visin says. Although he and many others involved in the program are hunters, the ReWa facilities are all off-limits to hunting. The goal is to provide wildlife refuge areas. "We're trying to encourage wildlife growth and habitat so people can view them in their natural environment," Visin says.

CHANGING FOCUS

With that in mind, ReWa has added a new focus in the past two years. "Lately it's become a lot more about habitat management," Visin says. That means taking a new approach to grounds maintenance. Speaking from the Mauldin Road Wastewater Treatment Plant in Greenville, Visin observes, "Until lately we mowed up to 100 acres weekly. Everything was prim and proper. That seemed great until we stepped back and looked at it in a different way."

It became clear that the manicured grounds did not fit well with encouraging wildlife. "We found that the 35-foot buffer we were leaving between the mowed fields and the tree line is where 75 percent of the wildlife lived," Visin says.

So the staff decided to do less mowing and allow much of the

Share Your Ideas

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

OPPOSITE PAGE: Shown on the Boy Scout Centennial Trail at the ReWa Gilder Creek treatment plant are David Collyer, lead operator at the Gilder Creek plant; Sara Green, director of education for the South Carolina Wildlife Federation; and Heather Clarkson, wildlife habitat associate for the South Carolina Wildlife Federation. RIGHT: A food plot of oats at the Mauldin Road treatment facility.

open space to grow back as native meadows. Now the narrow buffer is between the meadows and the physical plant. "The decision to mow the meadows just once a year had a double payoff," Visin says. "We're increasing the amount of habitat, and we're also cutting our maintenance expense and fuel consumption in half."

The benefits to wildlife have been tangible. The turkey population on the grounds has doubled, the rabbit population is "through the roof," and coyotes are prospering, as well. "The one thing our operators are concerned about is that they are seeing many more snakes come out of the fields," Visin says.

PUBLIC DEMONSTRATION

The efforts to provide food and habitat have helped demonstrate the utility's environmental focus to the public. A new 1.4-mile walking/nature trail being developed at the Gilder Creek treatment plant will add to that effort. Local Boy Scout Jay Rex has taken on the trail's development of as an Eagle Scout project, overseen by David Collyer, lead operator at the plant. Collyer and his staff made sure Rex and his fellow Scouts had access to the grounds and had a safe environment to work in.

ReWa officials are also wrapping up an agreement with the Greenville County Recreation District to extend its Swamp Rabbit Trail through the agency's Mauldin Road site, along an existing trail that follows the Reedy River. Hikers will be able to look up the hill from the river bank and see ReWa facilities in addition to the habitat and



"The lead operators and their crews are my eyes in the field. They tell me what's working and where it works best. They know their sites best. You can put seed in the ground anywhere but they're the ones who keep a finger on the pulse of what's working."

BLAKE VISIN

the wildlife the district has fostered through its WAIT participation.

Visin says the lead operators and their crews "are my eyes in the field. They tell me what's working and where it works best. They know their sites best. You can put seed in the ground anywhere but they're the ones who keep a finger on the pulse of what's working." **tpo**

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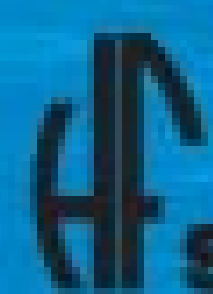
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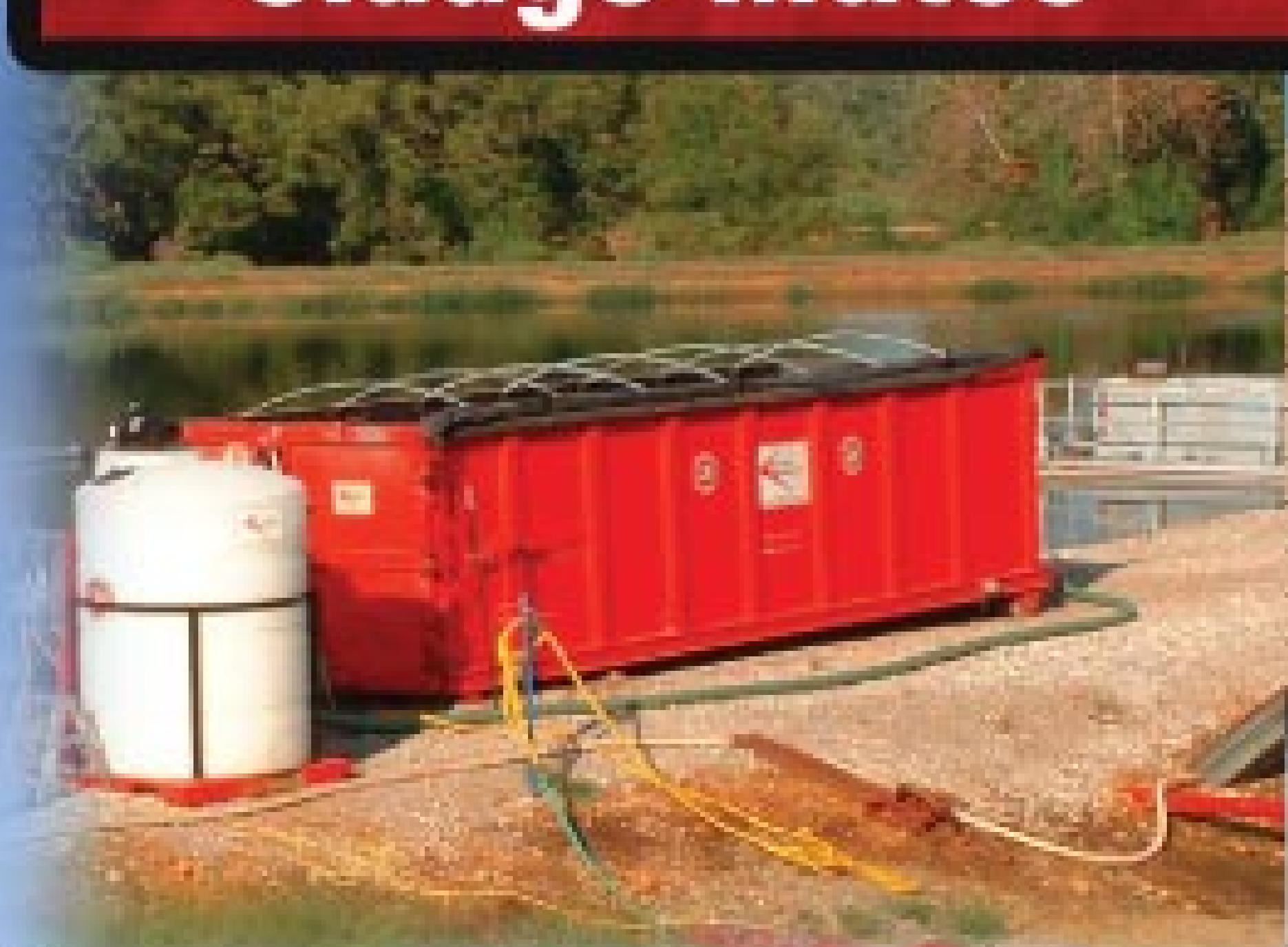
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Making It *Fit*

A DILIGENT STAFF AT THE BUTLER WATER RECLAMATION FACILITY IN PEORIA, ARIZ., ADAPTS NEW MBR TECHNOLOGY TO LOCAL CHALLENGES

By Jim Force

Attractive native landscaping greets visitors to the Butler Water Reclamation Facility in Peoria, Ariz. (Photography by Howard Kuflik)

profile Butler Water Reclamation Facility, Peoria, Ariz.

COMMISSIONED:	June 2008
POPULATION SERVED:	45,000
TREATMENT LEVEL:	Advanced
PROCESS:	Membrane bioreactor
BIOSOLIDS:	Polymer conditioned, dewatered, cake to landfill
DISCHARGE:	Infiltration basins
STAFF:	Ray Trahan, plant supervisor; Roger Carr, lead operator; Joe Butler, mechanic; Carol Cryer, Mike Popoff, Ken Johnson, Lou Buranich, operators II; Darrell Campbell, operator I; Ken Jones, instrumentation and control technician
OPERATING BUDGET:	\$4 million
WEB SITE:	www.peoriaaz.gov



THE DIFFERENCE BETWEEN NIGHT AND DAY IS FOR REAL

at the Butler Water Reclamation Facility in Peoria, Ariz. Proud owners of a brand-new membrane bioreactor (MBR) system, one of the largest in the world, plant supervisor Ray Trahan and his staff have had to adjust their processes in response to dramatic changes in diurnal flows. The hot desert weather is a factor, as well.

"Depending on the time of year, we may have almost no flow between 4 and 6 a.m.," says Trahan. "We've had to make changes in order to provide a steady flow to our membranes. And our hot weather and warm water temperatures reduce the slack in our membranes, altering our maintenance plans."

The crew at the Butler WRF has resolved these issues. Effluent from the new plant is pristine, as it needs to be for the community's groundwater recharge system. "We've steadily improved operations as we've gone along," says Trahan. "We're meeting our nitrogen removal requirements, turbidity is less than 0.01 NTU, and our fecals are non-detectable." The pure effluent is also netting the city valuable credits for recycled water (see sidebar).

BRAND-NEW FACILITY

The plant was built from scratch and started up in June 2008 to serve the rapidly growing population of Peoria, a Phoenix suburb. "In 2001, the city began working toward two goals: increasing the community's capacity to treat wastewater, and producing a high-quality effluent

"Our staff has been outstanding. Our team is small and there have been serious demands on them — the anticipation of start-up, and not knowing what to expect."

RAY TRAHAN

Team members at the Butler facility include, front row from left, Carol Cryer, Joe Butler, Sal Dominguez and Ray Trahan; back row, Ken Johnson, Darrell Campbell, Ken Jones, Mike Popoff and Lou Buranich.





LAMSON blowers by Gardner Denver help the treatment system achieve complete nitrification and partial denitrification before the flow passes through the membranes.



The effluent passes through a UV disinfection system from Trojan Technologies before discharge.

for aquifer recharge,” says Brad Hemken, project director in the Phoenix office of Black & Veatch, which designed the plant. Before the new facility was built, Peoria sent its wastewater to a neighboring community for treatment.

“Not only was the city paying the cost of the transfer and treatment, but we weren’t realizing any credits for recharging the groundwater,” Trahan says. Flygt (ITT Water & Wastewater) influent pumps bring an average of 7 mgd to the head of the treatment train. Off-site bar racks remove large solids and debris, and a vortex grit removal system is located on site. The wastewater then passes through 2 mm fine screens to protect the membrane process against remaining solids.

Ahead of the 10 membrane tanks (GE Water & Process Technologies – Zenon), the MBR system has four parallel trains, each containing three anoxic basins operating in series and one oxic basin. Contents in the anoxic areas are mixed mechanically, and diffused aerators mix the oxic zones. The LAMSON blowers are from Gardner Denver. The system achieves complete nitrification and partial denitrification before the flow passes through the membranes.

HIGH-QUALITY PRODUCT

“The return activated sludge is high in dissolved oxygen, so it is returned to the oxic basins rather than the anoxic basins, where it would hamper the denitrification activity,” Trahan says. After membrane filtration, the flow passes through a UV disinfection system supplied by Trojan Technologies.

The effluent, well within an 8 mg/l alert level and a 10 mg/l effluent limit for total nitrogen, is gravity-fed to underground storage and percolation beds a little more than five miles away. As a standby, the plant maintains an NPDES-permitted outfall into the New River, which is a dry channel most of the year.

The plant has a design capacity of 13 mgd, but flow is now capped at 10 mgd, and just six of eight membrane cassettes are installed and operational in each tank. “We can build out to 13 mgd in the future if necessary,” he says.

During normal operation, an intermittent air-scour process prevents

solids from building up on the surface of the hollow-fiber membranes. In addition, the membranes “relax” for a minute every 15 minutes as permeate production stops and aeration continues. The membranes can also be back-pulsed if needed to remove accumulated material. During regular maintenance, the membranes soak in a cleaning solution of citric acid or sodium hypochlorite.

“The high heat and water temperature here initially caused the membranes to shrink and lose the required slack. We didn’t anticipate that, and we’ve made adjustments to the amount of slack in all 60 cassettes to account for the shrinkage. The slack must be restored in order to clean the membranes properly.”

RAY TRAHAN

Biosolids removed from the treatment process are conditioned with polymers and dewatered in GEA Westfalia centrifuges, which achieve 18-20 percent cake with no pre-thickening. Trucks take the cake to an area landfill.

KNOWING THE PROCESS

The Butler WRF staff and management took part in extensive training on the new system, including visits and conversations with other MBR plant operators in Arizona, and weeklong in-house training sessions with the manufacturers. It was helpful that a Zenon membrane users group met in Phoenix last year.

“We’ve met other MBR operators and have stayed in contact with them through e-mail,” Trahan says. “And Zenon has helped us optimize the plant.” Still, nothing is better than hands-on experience in getting to know the ins and outs of new wastewater treatment technology. “We knew going in that this was a complex process, but it turned out to be a little more complex than we thought,” Trahan says.



Robert Garcia checks the Siemens odor control system.

The diurnal flow issues forced several process adjustments. “It was a challenge for our instrumentation and control people, as well as our operators,” Trahan recalls. His crew tweaked the control program and the pumping volumes and worked with the manufacturer to re-program the set points that control volumes in the aeration basins ahead of the membranes — all to smooth out flow to the membranes.

The plant sees wide seasonal swings because the San Diego Padres and Seattle Mariners baseball teams hold their spring training camps nearby. March is an especially high-flow month.

Beyond the membranes, the in-vessel UV controls were affected by flow rates. “The UV looks at flow rates and will shut down if the flow is too low to avoid overheating,” says Trahan. “If the UV shuts down, the membranes also shut down to avoid discharging untreated water.”

That situation led to repeated re-starts of the system, wasting energy and increasing wear and tear of the equipment. But the process has steadily improved through trial and error. “We’ve achieved success as we’ve gained more experience,” he says.

BEATING THE HEAT

The desert climate presented more challenges, especially with the membranes. The fibers are designed with a certain amount of slack so that they can be shaken periodically to dislodge debris accumulating on the outside surfaces.

“The high heat and water temperature here initially caused the membranes to shrink and lose the required slack,” says Trahan. “We didn’t anticipate that, and we’ve made adjustments to the amount of slack in all 60 cassettes to

GETTING CREDIT

In the water-short southwestern United States, replenishment of the groundwater through recharge and recycle of treated wastewater is common. At the Butler Water Reclamation Facility in Peoria, Ariz. the recycled water also helps ensure the community will have access to adequate potable water supplies in the future.

Peoria lies in the Sonora Desert in metropolitan Phoenix, a region that on average receives 7 to 9 inches of rainfall a year. Depletion of the natural groundwater supplies is a serious issue and has been addressed by a number of legislative actions mandating groundwater recharge programs.

The Butler WRF receives credits for the effluent it returns to the community’s groundwater recharge project. Those credits allow the community to extract an equivalent amount of groundwater for potable use in the future. **At current plant flow rates, Peoria returns about 14,600 acre-feet of water to the groundwater supply each year.**



Plant supervisor Ray Trahan.

account for the shrinkage. The slack must be restored in order to clean the membranes properly.”

The membrane cleaning procedures have gone as prescribed. For normal cleaning, the staff uses sodium hypochlorite or citric acid, soaking the membranes for about an hour once a week. For more thorough recovery cleaning, they soak the

membranes overnight at intervals of about a year. The trains are cleaned individually, so that flow continues uninterrupted.

At first, the plant experienced some issues with the internal wiping mechanism on its UV units. “The company was very responsive and made changes to the drive system hydraulics,” says Trahan. “They changed out a carriage and sleeves. The units are working very well now.”

Trahan’s team has also adjusted the controls on the blowers, fine-tuning blower ranges to accommodate surges in the flows.

LESSONS LEARNED

What’s been learned in starting up an MBR operation of this size and scope? “Always expect the unexpected, and plan a year ahead of time if you can,” Trahan says. “Our staff has been outstanding. Our team is small and there have been serious demands on them — the anticipation of startup, and not knowing what to expect.”

Trahan says having lead operator Roger Carr on staff was invaluable, because of his experience as a lead operator at a membrane facility. “Only

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The Butler Water Reclamation Facility operates a new membrane bioreactor system, one of the largest in the world, supplied by GE Water & Process Technologies – Zenon.

Butler Water Reclamation Facility

PERMIT AND PERFORMANCE (monthly averages)

	INFLUENT	EFFLUENT	PERMIT
BOD	404 mg/l	5 mg/l	30 mg/l
TSS	382 mg/l	<1 mg/l	30 mg/l
Total nitrogen	–	3.47 mg/l	8 mg/l

"We've had to make changes in order to provide a steady flow to our membranes. And our hot weather and warm water temperatures reduce the slack in our membranes, altering our maintenance plans."

RAY TRAHAN

two of our people had any experience with membranes, and that was on the clean-water side," Trahan says. "We shared our experiences." That and the training made the project a success. "There's always room for improvement, but we've been able to handle it," Trahan says.

With startup behind them, the Butler WRF staff can look forward to the next phase of the project: development of a park around the facility. The location of the plant was one of the issues thoroughly aired in public meetings before construction. There have been no complaints, even though some residences are only a half-mile away, and the public should be even more pleased in the next few years as the city develops the park.

Trahan says the effluent water will then be used to irrigate vegetation and fill small recharge lakes around the property, or be injected into the ground-water table. That was one of the reasons for choosing MBR technology in the first place. "It has a small footprint," says Trahan, "and it's compatible with the surroundings." **tpo**

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Savings Everywhere

MICROTURBINE COGENERATION AND OTHER ENERGY-EFFICIENCY MEASURES HELP A WISCONSIN TREATMENT PLANT TOWARD THE GOAL OF BEING ENERGY NEUTRAL

By Doug Day

Clean water may not be the only thing coming out of the Sheboygan (Wis.) Regional Wastewater Treatment Facility in a few years. If all goes as planned, the plant may be sending electricity to the grid at times rather than just using power from outside sources.

Energy-efficiency projects have already sliced the plant's utility costs by about 40 percent while earning revenue from renewable energy and emission credits.

"This is a business," says plant superintendent Dale Doerr. "We try to save money for the ratepayers. When we do projects, the first thing we look at is energy efficiency. We can't control what energy costs, but we surely can control how much we use."

The installation of 10 digester-gas-fueled microturbines for cogeneration has greatly reduced the plant's use of natural gas and has ended the practice of flaring methane —



Plant superintendent Dale Doerr.

"You put a plan together and sell it to the people who make the decisions. These things weren't done blindly. You have to do the research and do your homework."

DALE DOERR

good for the environment and good for ratepayers, who pay among the lowest rates in the state. Other recent projects include:

- New and more efficient sludge boilers.
- Variable-frequency drives and premium-efficiency motors for lift pumps.
- High-efficiency single-stage, centrifugal air compressors and airflow control valves.
- A pump overload monitoring system.
- An automated chlorination control system.

ENERGY NEUTRAL?

Since 2006, the plant has cut its carbon dioxide emissions by about



The new Capstone microturbines at the Sheboygan Wastewater Treatment Plant produce 60,000 therms of energy per year, reducing the plant's natural gas usage by 40 percent. (Photos by Jim Kneiszel)

3 million pounds, equivalent to planting 8,400 trees.

Doerr says the plant could become "energy neutral" in the next three to five years.

The new blowers and airflow control valves have also improved the plant's nutrient removal process and have made it more stable, resulting in less phosphorous and nitrogen going into Lake Michigan. Doerr credits an excellent staff and forward-thinking decision-makers for the plant's success.

The 18.4 mgd secondary treatment plant serves 68,000 people in the Lake Michigan cities of Sheboygan and Sheboygan Falls, the village of Kohler, and four townships. Doerr came on board in 2000 and immediately added half a million dollars to the budget, about a 10 percent increase, to cover a maintenance backlog.

"It had a minimal impact on rates that first year, and it's been in there ever since," he says. "After six years, we got caught up on maintenance and started concentrating on energy efficiency."

COGEN ON HIS MIND

Despite using biogas to fuel boilers for digester heat and a 500 hp engine for an influent pump, about 25 percent of the plant's biogas used to be flared off — about 50,000 cubic feet per day. To Doerr, that was a waste of fuel.

A 2003 study pointed toward cogeneration, but it took two years before the plant found a workable strategy and a partner: Alliant Energy-Wisconsin Power & Light, the local utility and a distributor of Capstone microturbines.

"They said they would pay for the electrical generation part of the project if we paid for the heat recovery and building modifications," says Doerr. The utility also agreed to pay for gas compression and filtration and, after some negotiation, agreed to pay for the Cain heat exchangers, as well. Unison Solutions managed the construction project and designed and built the gas treatment and compression system.

What's Your Story?

TPO welcomes news about environmental improvements at your facility for future articles in the Greening the Plant column.

Send your ideas to editor@tpomag.com or call 877/953-3301.



Two newer, more efficient sludge boilers from Hurst Boiler & Welding replaced three less-efficient boilers. The boilers heat water used in a hot-water loop that heats the Sheboygan plant. BELOW: Dale Doerr checks readouts on the new gas conditioning skid (Unison Solutions), which removes moisture, compresses gas and removes siloxanes, cleaning the fuel to drive the microturbines.



The total project cost was \$1.2 million, of which Sheboygan paid only \$205,000, funded in part through a \$20,000 grant from Wisconsin Focus on Energy. The payoff was big once the 300 kW project went online in February 2006. "We recovered nearly all our money in the first two years," says Doerr.

The plant still pays the utility for the annual 1,660 MWh net output of electricity from the microturbines. But the plant gets monthly payments from Alliant Energy for monitoring the system, keeps the revenue from selling renewable energy credits, and realizes all the savings from reduced use of natural gas enabled by heat recovery.

Capstone heat recovery modules capture heat at about 1 million Btu/hr (about 65,000 therms per year) to keep the digesters at their proper operating temperature of 95 degrees and to heat plant buildings.

MICROTURBINE SAVINGS AND REVENUE

YEAR	NATURAL GAS SAVINGS	PAYMENT FROM UTILITY	RENEWABLE ENERGY CREDITS (REC)	FOCUS ON ENERGY GRANT	ANNUAL SAVINGS	TOTAL SAVINGS
2006	\$56,519	\$23,372	\$3,000	\$20,000	\$102,891	
2007	\$56,911	\$27,118	\$6,000		\$90,029	\$192,920
2008	\$61,686	\$25,730	\$5,100		\$92,516	\$285,436
2009	\$44,294*	\$27,230	\$1,492**		\$73,016	\$358,452

*Savings reduced by cut in natural gas rates.

** Revenue dropped from \$3.15 per REC to \$0.95.

GETTING MORE VALUABLE

With energy prices increasing, the efficiency investment is growing in value. The plant spends about \$380,000 a year for energy, according to Doerr. Natural gas rates have about doubled since 2002 and electricity rates have increased about 70 percent. "Our bill has remained flat during that time," Doerr says. The plant's ENERGY STAR efficiency rating, which was 29 in 2003, is now 89.

It will get even better in 2013, when the plant can buy the microturbines from Alliant Energy. "At that time, we anticipate the microturbines will be generating about \$150,000 worth of electricity, and we'll be able to buy them for \$100,000," Doerr says. While there will be some maintenance costs, the electricity will essentially be free.

MICROTURBINE ENERGY PRODUCTION

YEAR	ELECTRICAL GENERATION	ELECTRICITY COST	HEAT GENERATION	NATURAL GAS COST AVOIDED
2006	1,591 MWh	\$105,788	60,449 Therms	\$56,519
2007	1,682 MWh	\$121,095	66,369 Therms	\$56,911
2008	1,666 MWh	\$122,966	65,602 Therms	\$61,686
2009	1,621 MWh	\$120,897	60,246 Therms	\$44,294

That will make the methane even more valuable, as well. The plant has already taken steps to increase methane production. High-strength food processing waste is added directly to the anaerobic digesters.

The higher BOD

increases methane production by as much as 90 percent, creating even more fuel while reducing processing costs for the industries that provide the waste product. Food processors such as cheese plants used to pay about \$120 per thousand gallons for treatment and now pay about \$30.

MORE SAVINGS

The microturbine project came after years of planning. The plant's biggest energy-saving project came from an unplanned maintenance need in 2005 when one of three 2.3-million-Btu sludge boilers failed. With two other boilers the same age, the staff decided to replace all of them with two 3.8-million-Btu boilers.

The new boilers were also tied into the building's heating loop.

The reclaimed heat, formerly a waste byproduct, now heats the plant's buildings about 10 months out of the year. That project alone reduced natural gas consumption by 78 percent. The \$350,000 project saved around \$110,000 over the first two years, and nearly \$200,000 in each of the next two years as natural gas rates went up.

Doerr now plans to purchase two more 200 kW Capstone microturbines for the cogeneration system next year, increasing generating capacity to about 700



This ALMiG variable speed air compressor was added early in 2010 to replace two less-efficient models. The unit will pay for itself in energy savings in three years.

kW — equal to the plant's normal daytime electrical load. Nighttime load can drop to about 450 kW. "There will be times at night when we'll be pushing energy back onto the grid," he says.

He also plans to install a hydro-turbine in the near future. The plant sits 50 feet above Lake Michigan, and from there the effluent discharge can provide enough energy to add another 20 to 40 kW of generating capacity.

Also on the table are a lighting idea and a solar energy project. "We have 50 outdoor lights that run all night long," Doerr says. "We've been looking at solar lighting, but that can be pretty expensive. Right now we're looking at converting the lights to LEDs that use half the energy of high-pressure sodium bulbs." A 2 MW solar electric project is also under consideration for the 225,000-square-foot plant roof.

"This is a business. We try to save money for the ratepayers. When we do projects, the first thing we look at is energy efficiency. We can't control what energy costs, but we surely can control how much we use."

DALE DOERR

IMPACT ON OPERATORS

Like all technology, upgrades can have negative and positive effects on users. Operators at the Sheboygan plant can tell at any time where the plant's power demand is coming from with the help of nine Allen-Bradley, a division of Rockwell Automation, power monitors.

"Every equipment base has a power meter that reports to our SCADA system so operators can see where power is used," says Doerr. "We've put in equipment that took some of their work away, like airflow control valves. Before that, they'd have to go around when the water temperature changed and make adjustments to the aeration basins. They don't have to do that now."

There are also items they have to watch now that they didn't look

ALWAYS GETTING GREENER

The Sheboygan Regional Wastewater Treatment Facility has invested nearly \$1.3 million in energy-efficiency projects in the last five years. Through 2013, the total savings and revenue from that work is estimated at \$1.5 million — an overall payback of about seven years.

Among the projects, the plant:

- Installed variable-frequency drives and premium-efficiency motors at lift pump stations and on influent pumps, cutting electricity usage by about 30 percent.
- Replaced two 250 hp variable-frequency drive positive displacement blowers in 2005 with Turbalex Inc., a division of Siemens Water Technologies, high-efficiency 350 hp single-stage centrifugal air compressors and airflow control valves, cutting electricity use for aeration by 20 percent.

The plant also tested a Strantrol 960 dual oxidation control system from U.S. Filter Corporation (now Siemens Water Technologies) for the control of the chlorination system. Since the plant is unstaffed at night, it was common to have excess chlorine and bisulfite when flows went down at night.

Since the installation, the total cost of disinfection has dropped nearly 50 percent, from \$173,000 in 2000 to just under \$95,000 in 2009. All told, the plant has saved more than \$1 million on chemicals while reducing the environmental impacts of overuse.

for in the past. "We don't want to run equipment when we're at a certain level of electrical power demand," says Doerr. "We want to stay below a peak of 750 kW, unless it's raining. Operators have to be more cognizant of what's running."

Doerr says many wastewater treatment plants could do what Sheboygan has done. "You put a plan together and sell it to the people who make the decisions," he says. "These things weren't done blindly. You have to do the research and do your homework." **tpo**

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PASSIVE DEWATERING HELPS AN IDAHO CITY COPE WITH AN EMERGENCY, CONTROL ODORS AND REDUCE ITS WASTE ACTIVATED SLUDGE INVENTORY

By Scottie Dayton

When mechanical failures disabled two digesters at the Idaho Falls (Idaho) Wastewater Treatment Plant, sludge had to be transferred to an 18-million-gallon storage lagoon. There, partially digested material floated to the surface, formed a scum layer, and decomposed under the summer sun.

"The odor was immediately evident downwind from the lagoon," says supervisor David Smith. The staff had to deal with the odor and find a way to skim off and control the solids.

Research convinced Smith that a Geotube® container from TenCate Geosynthetics — a flexible tube made of high-strength, permeable, engineered textile — could contain and dewater the high-moisture-content sludge.

He ordered a 60- by 100-foot container from sales agent Jim Bridges of Clearwater Dewatering in Nampa, Idaho. The emergency application proved so successful that Smith ordered five more tubes, and made dewatering an integral part of the treatment process.

PREPARATION MINIMAL

The 17 mgd (design) treatment plant has an average flow of 11 mgd from 26,000 customers, including seven industrial accounts.



The polymer mixing and injection system (center) turns the chemicals into solution, mixes it with the biosolids, and pumps it to the Geotube container for dewatering. The wire crate holds a 250-gallon tote of polymer, and the red hose feeds biosolids to the system.

PHOTOS COURTESY OF IDAHO FALLS SEWER DEPARTMENT



As the Geotube container begins filling, decanted water runs out and across the asphalt to a drain. Pipes then carry the clean liquid to one of two aeration basins.

Effluent discharges to the Snake River.

The plant processes 70,000 gpd of combined primary and thickened waste activated sludge (WAS). The digesters have a constant inflow and outflow with a minimum 15-day sludge retention time. After the 38-year-old tanks were washed, plant staff saw that welds had failed at the stainless steel pipes that lead to the methane gas mixers. A mechanical firm repaired the piping in two weeks.

After the digester failure, a top priority was controlling the odor from the lagoon. Smith contacted WaterSolve LLC in Grand Rapids, Mich. Company representative Randy Wilcox, P.E., sent Solve 351WS odor-control chemical, which the plant staff mixed with water and sprayed over the lagoon. "It was a magic silver bullet," says Smith.

Meanwhile, Mike Broering, WaterSolve project manager, arrived to help set up the geotextile container and program a WaterSolve WSLP-2400 E-10 polymer mixing and injection system, which the plant rented.

Dewatering began the same day because the plant already had the required drainage system. "Our old, unused lagoons/drying beds have sloped asphalt areas that drain into two secondary aeration basins," says Smith. "We just stretched out the bag on the asphalt and were ready to go."

Operators lowered one valve on the sludge storage lagoon to catch the floating scum layer, which a trailer-mounted 4-inch pump sent through the feed hose to the polymer make-down system. The system injected polymer into the sludge, mixed it, then pumped the chemically conditioned solution into the Geotube container until it reached its maximum 7.5-foot height. As the bag filled, workers sprayed its surface with the odor-control chemical.



The bottle on the left contains biosolids from the lagoon. The jar in the middle has the polymer-conditioned solution, and the one on the right is a sample of decanted water from the Geotube container.

Share Your Idea

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

Send your ideas to editor@tpomag.com or call 877/953-3301



Waste activated sludge floats on top of the 18-million-gallon storage lagoon at the Idaho Falls treatment plant. The dredging barge pumps biosolids up from the bottom and loads it into tanker trucks for application on farmland.

and he caught on right away."

Over winter, solids continued to consolidate as residual water vapor escaped. Volume reduction in the containers can be as high as 90 percent, according to the manufacturer.

In November 2009, operators opened the bags and took core samples of the material, which contained 10 to 11 percent solids. "Before we had the containers, we land-applied sludge at 2 to 4 percent solids, so 10 percent is a big change," says Smith. "We're thrilled because it will reduce our transportation and land application expenses."

Using 3,500-gallon tanker trucks, drivers haul about 70,000 gpd to farms 10 to 15 miles away before spring planting and after harvest.

"Before we had the containers, we land-applied sludge at 2 to 4 percent solids, so 10 percent is a big change. We're thrilled because it will reduce our transportation and land application expenses."

DAVID SMITH

Clear, decanted water immediately drained through pores in the textile, which retained more than 99 percent of the solids. When Smith saw how effective the process was, he ordered two more containers and a WSLP-2400 F-10 progressive cavity polymer make-down unit to replace the rented one.

ALMOST FOOLPROOF

"The containers are easy to use, and the feed system almost fool-proof," says Smith. "Mike instructed an employee in its operation,

"Our problem is not enough tankers and not enough daylight hours to meet the demand of the agricultural community," says Smith. "Dewatering will eliminate a lot of truckloads and make it easier to stockpile the dried biosolids at some farms for spreading later." **tpo**

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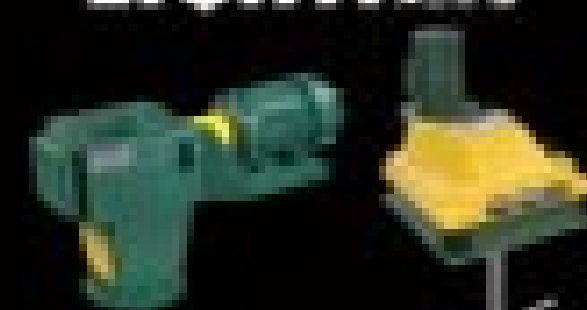
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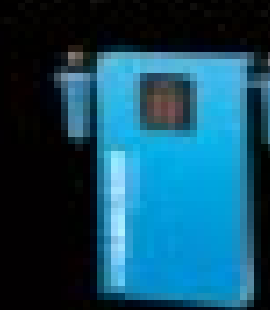
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Beautiful Water

profile

Riviera Utilities Wastewater Treatment Plant, Foley, Ala.

BUILT: 1983; upgraded in 1998 and 2008

POPULATION SERVED: 4,720 residential and commercial customers

TREATMENT LEVEL: Advanced secondary

FLOWS: 2.0 mgd average, 3.5 mgd wet weather

TREATMENT PROCESS: Oxidation ditch

BIOSOLIDS: Lagoon storage, land application by private contractor

STAFF: Richard Peterson, superintendent; Lee Kibler, supervisor; Gene Durham, chief operator and laboratory manager; Robert Davis, operator; Lee Gilley, trainee; Dan Davis, instrumentation specialist

ANNUAL BUDGET: \$1 million (operations)

WEB SITE: www.rivierautilities.com

Team members at the Riviera Utilities treatment plant include, from left, Robert Davis, Gene Durham, Lee Kibler, Richard Peterson, Lee Gilley, and Dan Davis. They're shown in front of the plant's spiral clarifiers from Lakeside Equipment Corporation. (Photography by Trisha LaCoste)

THE STAFF AT RIVIERA UTILITIES CONSTANTLY IMPROVES THE TREATMENT PLANT WITH HOMEGROWN SOLUTIONS THAT LEAD TO CONSISTENTLY HIGH-QUALITY EFFLUENT

By Jim Force

MUNICIPAL WASTEWATER TREATMENT PLANTS ARE known for resourcefulness in the face of operational challenges. But if there were a “Do It Yourself” award for improvements this year, it might go to the gang at Riviera Utilities in Foley, Ala.

Operators at this 2.0 mgd plant that discharges to the environmentally sensitive Wolf Bay watershed have come up with several upgrades — improving treatment and saving money. Chief among the solutions: installation of a new Salsnes filter system, distributed by Blue Water Technologies, in the headworks. The system has increased solids capture and removal and has helped the entire plant reduce BOD and suspended solids.

“The improvement has been dramatic,” says operator Robert Davis. “We’ve cut TSS and BOD loads to the rest of the plant in half. Other plants visit us to see how the unit works.”

The Salsnes filter system, which uses an endless mesh screen, is only one of the in-house improvements. Davis and team members Richard Peterson, Lee Kibler, Gene Durham, Lee Gilley and Dan Davis have upgraded the aeration system in the plant’s oxidation ditches, replaced pumps in the lift station, and added new mixers and probes — all measures that made the plant function better.

BROAD-BASED SERVICES

Riviera Utilities provides natural gas, water and sewer, and cable TV services to some 4,700 customers in and around Foley, located midway between Mobile, Ala., and Pensacola, Fla., and just a few miles inland from the Gulf of Mexico.

Wastewater is collected through 13.5 miles of gravity mains, 16.4 miles of force mains, and 38 lift stations. The treatment plant has a 3.5 mgd capacity for storm flow, approved by the Alabama Department of Environmental Management. The plant was put into service in 1983, and upgraded in 1998 and 2008.



Robert Davis adjusts the Salsnes filter (distributed by Blue Water Technologies), one of the upgrades made by plant staff members to improve plant functionality and treatment performance.

Effluent from the treatment plant discharges to Wolf Creek.



From the wet well, influent is boosted to the Salsnes headworks filter, where debris and gross solids are removed by an endless mesh screen that moves upward, concurrent with the influent flow. The material is then dewatered and transported directly to a dump container.

Following a splitter box, three oxidation ditches accept, mix and aerate the flow, functioning as an extended aeration system. Nitrification-denitrifica-

“We changed the PLC logic to run the aeration system in on or off modes, based on ORP. It works great, especially in the summer months. Last year we produced the best effluent I’ve ever seen.”

LEE KIBLER

tion is achieved by operating the ditches in both aerobic and anoxic modes.

Solids settle in spiral clarifiers (Lakeside Equipment). The effluent passes through Trojan Technologies UV units for disinfection. Final effluent travels down a waterfall cascade channel to Wolf Creek. Pumps move waste biosolids to a storage lagoon, where a private contractor (Synagro) periodically removes the material, dewateres it and transports it to land application sites around the area.

GETTING BETTER ALWAYS

This simple flow scheme belies the amount of time and effort that the plant staff has devoted to making things work better. Their improvements to the facility have paid off handsomely. Staff converted the old main lift station dry well into a wet well, and replaced aging shaft-driven lift pumps with suction lift pumps from Gorman-Rupp Co. to increase capacity for handling storm flows.

The addition of the Salsnes filter has increased the removal of gross solids by three times over the old microscreen system. “We had labor-intensive screens that were delivering a partial container full of material every three days,” says Davis. “We looked around for something better. By word-of-mouth, we learned of the Salsnes filter system. We pilot-tested it, and it

worked great. Now, we get a full cubic yard — a container load — of debris every day, and we have other communities contacting us to learn more about our system.”

Plant supervisor Lee Kibler agrees. “It’s been fantastic,” he says. Two of the plant’s oxidation ditches date to 1983 and were originally equipped with draft tube aerators. Both ditches have a capacity of around 200,000 gallons. A third 1-million-gallon capacity ditch was added in 1998, provided by Lakeside.

Recently, the Riviera staff upgraded the older units with new aeration equipment, mixers, and probes. “We gutted the older ditches,” says Kibler. “We started from scratch and performed the modifications ourselves with the help of our engineering staff and superintendent Richard Peterson.” It took about six months, during which flow was diverted to the other ditches that remained in operation.

“The aeration plumbing tubes were in bad shape,” Kibler says. “Corrosion of the galvanized plumbing resulted in inadequate aeration, and the handheld meter was giving us inaccurate DO readings. We contracted out the concrete removal and all the electrical installation, but our staff did everything else, including the process development work.”

BETTER LOGIC

The ditches are now equipped with rotary brush surface aerators (S&N Airoflo) and new probes (Insite) that include ORP monitoring so the ditches can be run as aerobic or anoxic zones to achieve total nitrogen removal. “We changed the PLC logic to run the aeration system in on or off modes,

The treatment process uses surface aerators from S&N Airoflo Inc.
INSET: Plant supervisor Lee Kibler.

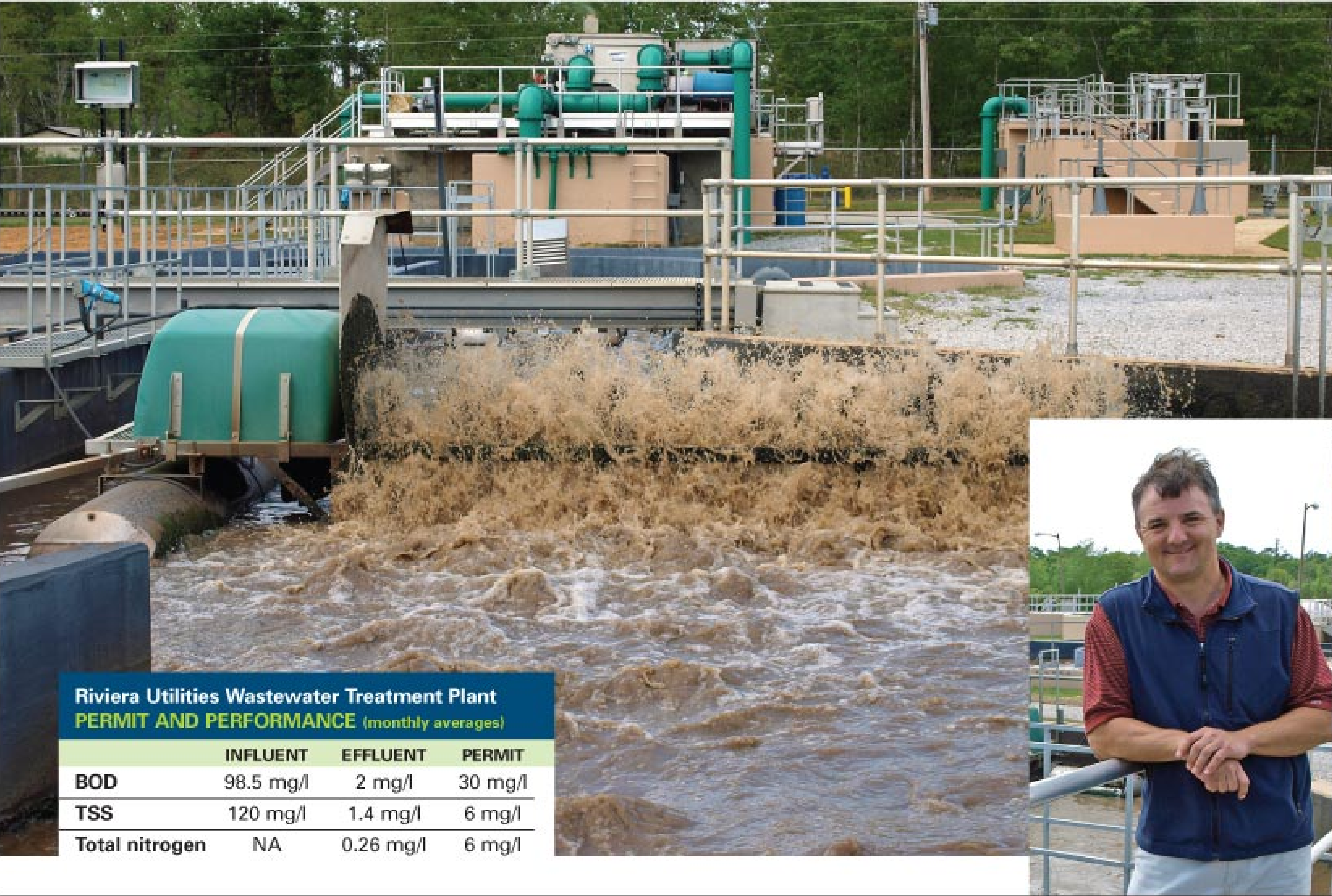
WATER AWARENESS

Clean water is precious anywhere, but even more so in South Alabama, where groundwater supplies are limited and runoff and other discharges can harm the Gulf of Mexico. That’s why Riviera Utilities encourages its customers to practice water conservation.

On the utility’s Web site, visitors get several practical suggestions for saving water — and money on their water bill. Some examples:


- Check your washing machine to make sure the water level on the dial matches the water level inside the machine.
- Like to water your yard? Get a separate water source for watering that beautiful green and save on your sewer costs — or collect rainwater.
- Properly chlorinate water in swimming pools — even the inexpensive backyard kiddy pools, so you don’t have to refill with water as often.
- Thaw frozen food in the refrigerator instead of running water over it.

Other tips advise customers to use water-saving appliances, check all water lines for leaks and drips, take short showers instead of baths, and use a broom instead of a water hose to clean off driveway or sidewalk debris.



Riviera Utilities Wastewater Treatment Plant
PERMIT AND PERFORMANCE (monthly averages)

	INFLUENT	EFFLUENT	PERMIT
BOD	98.5 mg/l	2 mg/l	30 mg/l
TSS	120 mg/l	1.4 mg/l	6 mg/l
Total nitrogen	NA	0.26 mg/l	6 mg/l





Lee Gilley (left) and Dan Davis perform planned maintenance on the plant's Gorman-Rupp suction lift pumps.



UV lights on the facility's Trojan disinfection units.

based on ORP," explains Kibler. "It works great, especially in the summer months. Last year we produced the best effluent I've ever seen at this facility."

Kibler says that long sludge ages during the colder winter months can create problems with filamentous growth, but the staff is working on that. "Once we get a portion of the old lagoon set up as an equalization basin, we'll be able to shut down one of the ditches during the winter, bank flow during the day, and bleed it back in at night. That should solve the excess capacity issue."

That old lagoon system is filling multiple functions, in addition to the equalization role Kibler is eyeing. A portion of it serves to store waste biosolids until the material is picked up by Synagro. Another section provides capacity for excess wet-weather flows. "Our sewer system has some old sections, and we experience serious infiltration and inflow issues from time to time," says Davis. "The lagoon provides a safety factor for rain events. We love it."

INSTRUMENTS AT WORK

Plant controls are getting continuous upgrading, too. Instrumentation specialist Dan Davis has been strongly involved with the plant's VTScada system (Trihedral Engineering Limited) for nearly a year, programming a variety of applications. "It's great information," he says, "the eyes and ears of the plant."

One innovation involves overlaying data on top of aerial maps of the

facility. "It's neat," says Davis. "It relates directly to what we see in the plant." For example, the DO ppm values appear directly over the image of the brush aerators on the map.

The headworks is tied in as well, as the SCADA system monitors the belt speed of the new Salsnes filter, hot water on and off, any overflow conditions in the wet well, and more, at 5-second real-time intervals.

The SCADA system also helps monitor some of the innovations the Riviera crew is working on for the future. One example is a percolation pond with natural vegetative treatment of effluent for additional nutrient removal.

About 13,000 gallons of effluent a day are directed to a nearby pond containing a variety of plants that take up nutrients. Then, a series of wells pulls the treated water back out of the ground to the plant's UV units for disinfection and final discharge.

"I'm an old codger, and I've been other places where the feeling isn't the same as it is here. We're a team and everybody's on board. I was surprised when I came here. Everybody joins together, cooperates, and tries to do the best they can."

GENE DURHAM

"We're meeting our nutrient loading limits, but we want to explore how we might achieve even greater reductions," Robert Davis says. "We want to get better." Housing development in this popular winter destination stalled during the recession, but the team knows it will come back. Meanwhile, they're taking advantage of the break and getting ready for the time when development and growth return.

TOGETHERNESS HELPS

The success of homegrown solutions at Riviera Utilities would be unlikely without teamwork and a strong sense of camaraderie among the staff. Gene Durham, chief operator and manager of the treatment plant laboratory, has been in the public wastewater profession for 40 years and thinks the success comes from a collective positive attitude.

"I'm an old codger, and I've been other places where the feeling isn't the same as it is here," he says. "We're a team and everybody's on board. I was surprised when I came here. Everybody joins together, cooperates, and tries to do the best they can. If we need to pull a pump, or clean up an area, we all work together. As a result, we put out beautiful water." **tpo**

more info:

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A Different Take on Education

THE AMERICAN ASSOCIATION OF WATER AND WASTEWATER PROFESSIONALS LOOKS TO BUILD A BROAD CURRICULUM OF COURSES WITH A HEAVY EMPHASIS ON HANDS-ON EXPERIENCES

By Ted J. Rulseh

They have a dream. The founders of the American Association of Water and Wastewater Professionals (AAWWP) picture a world where treatment operators will have access to a broad, structured curriculum of courses that can help them meet specific education objectives.

They also envision operators having fun during the classes and leaving with a great deal of new knowledge they can immediately apply at work. And finally, they foresee operators gaining more respect for being the professionals they are, and for the essential work they perform.

The AAWWP began in Richmond, Va., offered its first classes in October 2009, and is now building a curriculum and pilot-testing it in Virginia. In time, its leaders hope to expand the program to other states and, eventually, the nation. The association is a for-profit entity with three founders:



Terry Looney

"Our bigger agenda needs to be to raise the visibility of this industry. The only way we're going to do that is to raise these people's self-esteem, raise their own expectations of their professionalism, and offer classes to enhance that value."

TERRY LOONEY

- Terry Looney, president, owner of STX Inc., a company in Richmond that designs, builds and equips laboratories with analytical instruments.
- Dennis Campbell, vice president of education, owner of X2O Inc., a Roanoke-based distributor of specialty chemicals, pumps and equipment to small and mid-size wastewater treatment plants.
- Douglas Crooks, vice president of field services, a long-time water and wastewater treatment operator, manager and industry consultant, and division director of wastewater treatment facilities with Spotsylvania County Department of Utilities.

The three are now hiring instructors to develop and teach classes. Looney talked about the organization and its mission in an interview with *Treatment Plant Operator*.



PHOTO COURTESY OF STX INC.

A fun and engaging experience is part of the approach to training promoted by the American Association of Water and Wastewater Professionals.

tpo: Why did you see a need to start this organization?

Looney: When we started, we learned that new state regulations were going to require more education for wastewater operators. The Department of Professional and Occupational Regulation already required water operators to have continuing professional education credits. As of March 1, the same applies to wastewater operators.

When you look at education in the water and wastewater world, you find that it's about getting CEUs. It's about collecting units. You just have to endure a class for a day, whether you learn anything or not, and get your credits. We thought that wasn't right.

tpo: Is education the only mission of the AAWWP?

Looney: Education is important in these early stages, but it's only one part of the program. In the bigger picture, we want to help increase the value and perceived value of water and wastewater operators.

After Sept. 11, everybody began to realize how valuable police officers and firefighters are. Well, what would happen if the wastewater operators didn't go to work for a week? Nobody seems to recognize these people. They're unsung heroes.

Our bigger agenda needs to be to raise the visibility of this industry. The only way we're going to do that is to raise these

people's self-esteem, raise their own expectations of their professionalism, and offer classes to enhance that value. That's why we called our organization by such a long 5-letter-acronym name — because we wanted that word "professional" in there. We think that's the whole key to this.

These people to a large degree operate in the back room. It's not necessarily a career they're proud of — but they should be proud of it, and instilling that pride is a mission everyone in the industry should have.

Our goal is to have the most value-laden programs out there, and that means they are expensive. That's why we're developing partnerships with some of the big players in the industry, like Thermo Fisher Scientific, Hach Co., Thermo Scientific Orion, SNF Polydyne and Phipps & Bird.

tpo: There are many training programs for water and wastewater operators. How are your programs different?

Looney: When we look at training programs in the industry, we see that there are many fine programs and a number of truly excellent instructors, but in the big-picture view there is a lack of consistency. This course is free, that one costs \$300. This one is at a trade show, that one is by correspondence. We saw a need for more high-quality, goal-directed, professional education.

We asked: What if we could develop a curriculum where after you take classes for two or four years, you reach some recognizable objective? Now you've got something of value that is transferable within the industry. Of course, we're not at that point yet.

Over and over, we hear that water and wastewater agencies have training budgets, but in this economy they have virtually no travel budgets. So we want to bring the training to them. You can go to a hotel somewhere and take a class, but that's not a good hands-on experience. We're trying to bring that kind of thing close to the client.

tpo: Your Web site talks about a unique and fun approach to training. Why do you think that's so important?

Looney: We continually hear feedback that operators endure classes, but they don't enjoy classes. Training is not inherently fun. Most people don't go to class looking forward to it. We want to change that experience. People learn by having a good time and hearing real-world scenarios.

tpo: How does this approach play out in practice?

Looney: We just finished a class for the Western Virginia Water Authority in Roanoke. They had us do a regional class, and people from a few other cities were there. We worked cooperatively with them to put on the program at their facility. We brought in jar testers and other equipment and conducted a hands-on program. It was two days of training. There was a full day of lab analysis. The second day focused on process. It was a great example of what we're trying to put together. It was a huge success.

We go out of our way to make sure people have a good time. We did our first classes at a Bass Pro Shops store in a conference room upstairs. The Bass Pro people turned on the shooting arcade in the store for a half-hour over the lunch break and let the guys have a little fun.

We build a team environment and we do a lot of hands-on work. We go into a classroom session for maybe 30 or 40 minutes, and then we have a 20- or 30-minute lab. We have a binder of training materi-

als that we give to each individual. We try to take it up to a level that we feel is simply appropriate for training professionals.

tpo: What does your course curriculum look like now?

Looney: We have two classes in biological nutrient removal, a two-day lab class, a two-day process class, a basic operations class that is like an overview or refresher, and a math class that has been extremely well received. Among operators, we have had a huge demand for math education.

Jack Vanderland, who is retired from the Virginia Department of Environmental Quality, wrote that class and is sometimes also the presenter. Everybody gets a calculator. Everybody is working on problems. Even math can be fun if you make it fun.

"We continually heard feedback that operators endure classes, but they don't enjoy classes. Training is not inherently fun. Most people don't go to class looking forward to it. We want to change that experience. People learn by having a good time and hearing real-world scenarios."

TERRY LOONEY

It's all about doing. Jack will put up a picture of a pipe and have the class calculate the volume of the pipe and the flow through the pipe. They work on practical problems that relate to what they do day in and day out.

tpo: Who else is involved in developing your classes?

Looney: They're developed by industry professionals. John Hricko, who is plant manager at the Town of Crewe treatment plant, wrote the refresher course in operations. He's also writing a two-day BNR course. Tim Jenkins, chief operator of wastewater treatment facilities for Spotsylvania County wastewater, wrote our basic BNR class.

By the end of this year, if all goes as planned, we will have offered a total of about 50 days of training classes. These are all hands-on courses. When you write a class for us, or if you're going to be the one who presents it, we want to see some passion. We want to hear anecdotes. Want to hear stories from your experience. Let's make this thing real and meaningful. Let's provide some real education.

Several industry-leading suppliers have helped us underwrite the costs of this training by providing us with equipment and supplementing hard costs for the courses. While we have a strong commitment to these partnerships, there will be no promotion of any company's products in our classes. This is not about selling products — this is about education. Our partners understand and strongly support that agenda.

tpo: How do you see the curriculum developing in the next several years?

Looney: Ultimately I envision it looking like a college catalog. In college, you have 100-level courses, 200-level courses and on up. Certain courses at the 300 level have 100-level courses as prerequisites. We envision something with a similar structure.

tpo: How do you plan to expand beyond Virginia? Is there a timetable?

Looney: We're using Virginia as our beta test. It's fair to say we'd like to complete the Virginia-specific testing by the first of the year and be ready to expand into other states. How many states would be in the first wave, we don't know yet. We'll test the waters carefully. We prefer to do a good job where we are and move gradually forward.

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TERRY LOONEY

evaluations after each class. People are saying things like, 'Wow, that was the best class I've ever had.'

tpo: How does all this further the aim of raising the status of the industry?

Looney: Our product — training — is really a means to an end. The end is to promote this industry. Ultimately, 20 years out, we'd love to be able to say we helped drive public recognition of the role these operators play, and helped drive legislators and decision makers to allocate more funds to allow them to do a better job.

And there's another critical issue: It is estimated that for every three people planning to retire from the water and wastewater world, there is only one replacement candidate. Isn't that largely because of the prevailing perception of this industry? We need to change that. We have a long way to go, but if we continue to get the kind of support we're getting and keep forming relationships, I think we can make a real difference. **tpo**

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B² BUSINESS BROKERAGE

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LISTINGS

Chicago-Area Biosolids, Land Application, Dredging and Industrial Services Business.

Established in 1985, owner is retiring. Reputable business includes real estate servicing the entire Chicagoland area with sludge and biosolids disposal and treatment services. Real estate and shop included with sale valued at \$750,000, business grosses in excess of \$3 million annually, \$6.3 million in equipment and assets including several TerraGators, Vac Trailers, dump trailers, loaders and much more. **\$4,900,000.** Huge potential, good profit and priced right. Non-Disclosure Agreement required, all P&L statements, list of assets, and financials available to qualified buyers.

Successful business with a large amount of equipment and inventory. Profitable sewer and septic business in central Pennsylvania. Increasing revenue over the past 3 years and a large amount of equipment and inventory. Equipment is a mix of old and new, but all is working and making money. **Selling price \$349,000.**

Well-Established and Profitable Texas Septic, Sewer & Installation Business For Sale. Price recently reduced. Grossing in excess of \$600,000 annually, customer list of nearly 2,000 accounts and 430 contracted customers. Includes nice late model equipment, most are 2007, 2008 model years. Owner retiring after nearly 40 years in business. Real estate available upon request. **Reduced to \$450,000**

Northern Minnesota Septic & Drain Cleaning Business For Sale. Established in 1965, owner is retiring. 3,500 customers including some contracted. Well-established name for 45+ years. Real estate available for additional fee that adjoins municipal dump site. Hunt, fish, snowmobile right out your back door. **Affordably priced at \$50,000.**

North Carolina Septic Business. Grossing in excess of \$125,000 annually. Includes 2,000 gallon service truck, backhoe, jetters and more. **\$110,000.**

Northern California/Reno, Nevada Area Portable Restroom Service Business For Sale. Averaging \$115,000 in revenue over past 4 years. Includes two service trucks, 100 restrooms, trailers and more. **~~\$75,000~~ REDUCED \$55,000** - motivated seller.

Dallas/Fort Worth Texas Area Sewer/Rehab Business For Sale. Drain Cleaning, TV inspection, Pipeline & Manhole Rehab/Relining, Municipal Cleaning and Maintenance business for sale. Excellent opportunity to expand or start your own business. Good revenue history and priced to sell. Includes all equipment to get started. **Asking \$150,000.**

Massachusetts Sewer & Drain Franchise For Sale.

Confidential listing, Non Disclosure Agreement required. Turn-key business, good revenue. **Asking \$165,000.**

Allentown, Pennsylvania Area Sewer Business. Specializing in collection systems, video inspection, jetting, municipal work. Includes CUES TV & grout truck, Sewer Equipment Corporation jetter truck, Vector 2100, RIDGID camera, confined space equipment and more! Good revenue history. Great opportunity to expand or start your own business. Current owner wants to retire. **\$330,000.**

Green Bay, Wisconsin Area Septic & Drain Business For Sale.

Solid and steady revenue history and nearly 20 years established. Excellent opportunity to expand or start your own business. Includes very well-maintained 3,800 gallon septic service truck, fully outfitted 2002 Chevy drain service van, drain & sewer equipment, all office equipment and computers, 2,700+ customer list, and more - a true turn-key or easy expansion opportunity. Very meticulously maintained equipment all kept inside a heated shop. Current owner is retiring. Large shop and real estate is also available if desired at additional cost. **Asking \$249,000.**

South Florida Commercial Real Estate, Plumbing & Sewer Business For Sale.

Established in 1969, owner is moving on. Nearly 8,000 customers in database including some contracted. Established name with real estate on turnpike. Real estate appraised in excess of \$2 million, business grosses in excess of \$1 million, close to \$1 million in equipment including Vector, Guzzler and Safe Jet trucks. Equipment has been featured in Cleaner magazine. Assumable SBA loan for bulk of selling price. **\$2,799,000 for the entire package.**

Digital Technology

By Benjamin Wideman

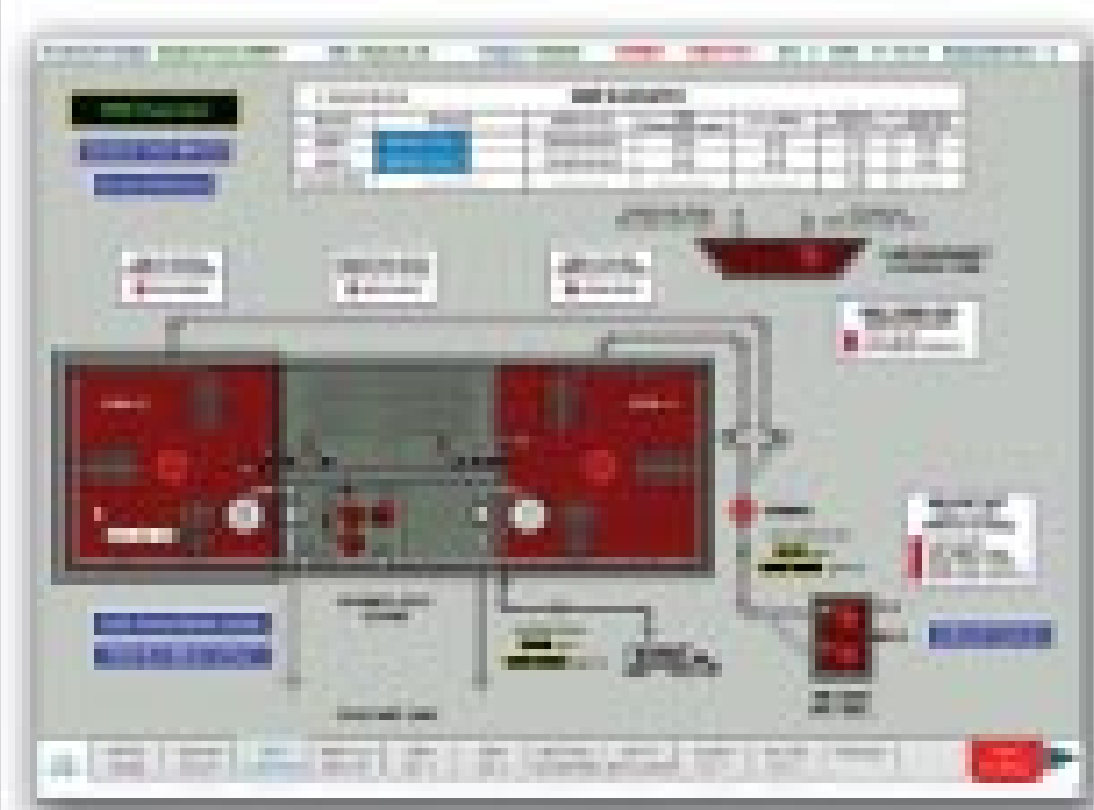
WITHSTANDS FOULING

The Rugged Dissolved Oxygen (RDO) optical DO sensor from In-Situ Inc. withstands fouling, high-sediment loads and rapid flow rates. Using an optical luminescence-based DO method, the abrasion-resistant sensor responds rapidly to changing levels, maintains a stable response even in hypoxic conditions, and operates with very low drift for long periods.

The sensor offers open-architecture communication protocols, including Modbus over RS485, SDI-12 (version 1.3), or 4-20 mA signal outputs. It easily integrates into SCADA or PLC systems. **800/446-7488; www.in-situ.com.**



RDO from In-Situ Inc.



SCADA systems from Aqua-Aerobic Systems

SINGLE-POINT CONTROL

SCADA systems for wastewater treatment equipment and processes from Aqua-Aerobic Systems provide a single point of control for plant-wide monitoring, detailed, dynamic graphics depicting equipment status and PLC command status, historical trending and logging of data, consolidated alarming, remote access, upgrade capabilities for existing controls,

and an optional electronic O&M manual. **815/654-2501; www.aqua-aerobic.com.**

WEB-BASED GATEWAY

The I-Link Lift Station Notifier from SJE-Rhombus offers system monitoring through a Web-based gateway that collects and reports system status and alarm events via a cellular phone modem. The unit can be installed in new control panels or retrofitted.

Two-way communication allows for monitoring of system performance and programming of system parameters from the user's PC. Reporting capabilities provide notification of a system event as it occurs, detailing complete event specifications. Normal operating conditions are reported daily. The system offers power-fail detection, service button interface, high- and low-level alarms, digital relay output, and three-pump run-time/cycle-count inputs. All unit products include access to a secure Web site to allow monitoring and administration of the remote site and its data. **800/746-6287; www.sjrhombus.com.**



I-Link from SJE-Rhombus

INDICATES LIQUID LEVEL

The Model 375 submersible level transmitter from Ametek M&CT/PMT Products provides the convenience of direct submergence for quick, accurate and reliable level measurement. It indicates liquid level by continuously measuring hydrostatic pressure via an isolated sensing element — an ion-implanted silicon semiconductor chip with integral Wheatstone Bridge circuit.

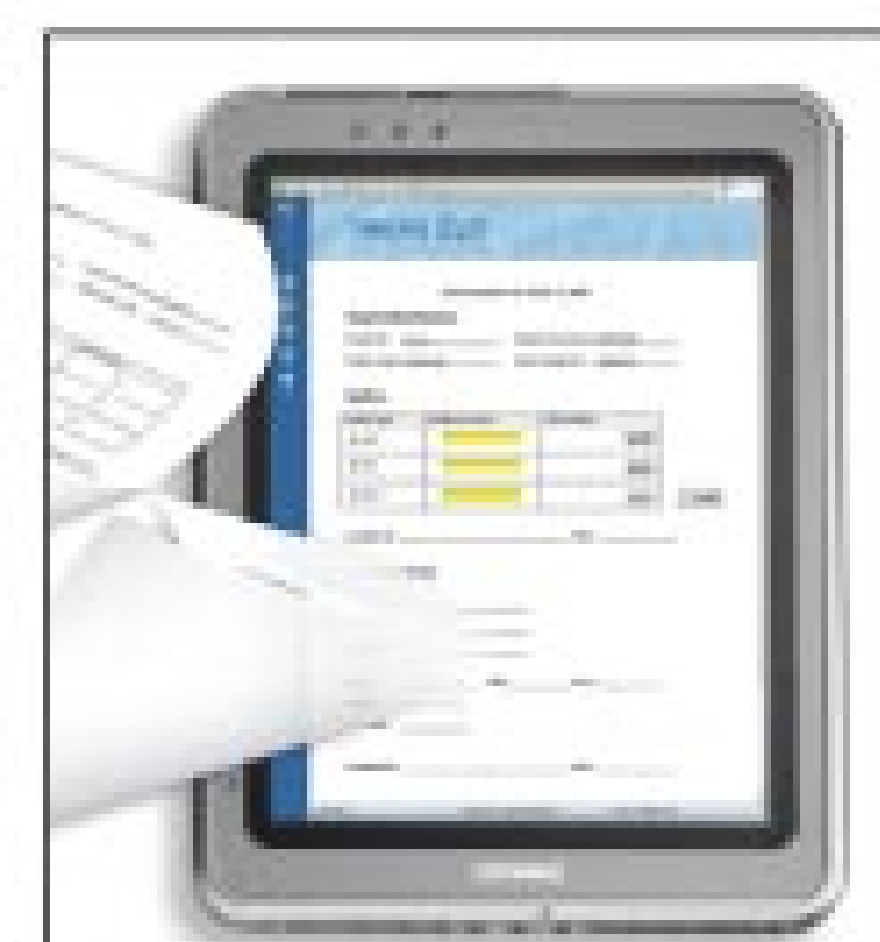
Once the sensor measures the pressure, the data is transmitted by a 4-20 mA output signal. All electronics are mounted in a submersible 316 stainless steel housing. A special cable is factory installed and sealed to insure liquid tight performance. The customer connection end of the cable is sealed and a desiccant package is installed to limit the amount of moisture allowed to enter the barometric reference of the sensor. **215/355-6900; www.ametekpmt.com.**



Model 375 from Ametek M&CT/PMT Products

AUTOMATED WORKSHEETS

Nexxis ELN from Labtronics is a versatile Web-based electronic laboratory notebook that uses ReDI technology to quickly convert existing paper worksheets, documents or SOPs into automated electronic worksheets that are ready to use in minutes. The system automatically checks training records, chemical inventories and instrument calibrations before analysts are allowed to continue with their work. It includes Nexxis SDMS, a fully searchable scientific data management system for storing completed worksheets. **519/767-1061; www.labtronics.com.**



Nexxis ELN from Labtronics



Active harmonic filters from Staco Energy Products

CORRECTS HARMONIC ORDERS

Active harmonic filters from Staco Energy Products provide high performance for cancellation of problematic harmonics. Based on power electronic technology, the filter corrects a wide spectrum of harmonic orders, from the third to the 51st. It uses an all-digital platform that continuously adapts to rapid load fluctuations. **866/261-1191; www.stacoenergy.com.**

MADE FOR SOLAR SITES

The NanoCourier Transmitter from Automata Inc. is available with spread spectrum or satellite telemetry. Data can be transmitted back to a home or office computer or can be made available via the Internet. Extremely low standby current makes the unit well suited for solar sites. The unit directly supports most flowmeters and many other frequency output devices with no additional interface circuitry. It includes a set of configurable parameters that add versatility to many monitoring applications. **530/478-5882; www.automata-inc.com.**



NanoCourier Transmitter from Automata Inc.



iQpump from Yaskawa Electric America

PUMP CONTROLLER

The iQpump controller from Yaskawa Electric America is rated at 5 to 50 hp at 208 V and 5 to 500 hp at 480 V. It automatically adjusts pump operating conditions as the process variables change while maintaining optimum pump performance and protection. It can replace existing mechanical pump systems using throttling valves, bypass valves or other means of flow control to improve regulation and save energy.

The unit was designed to control typical pumping applications that require systems to regulate constant pressure, constant flow or variable flow/pressure. It also can replace

phase converters when converting from a single-phase to a three-phase pump motor. **800/927-5292; www.yaskawa.com.**

FITS IN TIGHT SPACES

The V-Cone Flowmeter from McCrometer Inc. features built-in flow conditioning and fits in crowded equipment installations. It reduces flowmeter straight pipe run requirements by up to 70 percent. With reliable differential pressure technology, the unit offers accuracy and repeatability over a wide flow range. It operates over a flow range of 10:1 with low head loss and supports line sizes from 0.5 to greater than 120 inches. Accuracy is ± 0.5 percent with a repeatability of ± 0.1 percent. **800/220-2279; www.mccrometer.com.**



V-Cone Flowmeter from McCrometer Inc.



Model 1020 from Scaleton Industries

CHEMICAL MONITORING

The Model 1020 Controller from Scaleton Industries provides accurate monitoring of water treatment chemicals such as chlorine gas and sodium hypochlorite. It helps ensure operator and plant safety. Available with one or two channels, each with 4-20 mA standard, the controller simultaneously monitors levels in two separate chemical containers independently. It allows users to monitor chemicals in a variety of formats, including pounds, kilograms, gallons or liters. **800/257-5911; www.scaletonscales.com.**

LAB INFORMATION

The MSC-LIMS from Mountain States Consulting is a flexible, secure and stable GALP-compliant laboratory information management system designed for small to mid-size facilities. It integrates smoothly with handheld PCs or PDAs to import data recorded in the field. The Excel interface can be used to create analyte-specific calculating data entry screens and import operations data from instruments.

The interface also allows labs to use existing regulatory report formats. The system supports basic statistics, trend graphs and control charts. It is available in single-user and multi-user versions in labs processing up to 75,000 samples per year and up to 300,000 analyses per year. **307/733-1442; www.msc-lims.com.**



MSC-LIMS from Mountain States Consulting



SmartWireless from Detcon Inc.

WIRELESS/CORDLESS AUTOMATION

The SmartWireless product line from Detcon Inc. is a wireless/cordless automation system that can be used with numerous gas-detection sensors and a wide range of industrial automation products, process measurement devices, remote data acquisition systems, and audio-visual alarm stations. Included is the Model RXT-300 wireless transceiver, designed for transmitting signal data from analog 4-20 mA or serial Modbus devices. Transceivers are able to hop through line-of-sight obstacles and congestion to communicate. **888/367-4286; www.detcon.com.**

LABELING SYSTEM

The Green Machine labeling system from K-Sun Corporation uses standard AAA batteries or low-voltage 11 VDC power. It includes MaxiLabel Pro Ver 3 general labeling software and can be used in the field or on the desktop with 32-bit/64-bit versions of Microsoft Windows XP, Vista and 7. The software has thousands of safety and industry-specific symbols, plus three add-on symbol libraries. **800/622-6312; www.ksun.com.**



Green Machine from K-Sun Corporation



Model 5081 from Emerson Process Management

HAZARDOUS ENVIRONMENTS

Model 5081 digital communications transmitters from Emerson Process Management can be used to measure pH, ORP, conductivity, oxygen, free chlorine, total chlorine and ozone. The transmitter comes in a NEMA 4X or NEMA 7B enclosure. The design allows use of the transmitter in hazardous environments.

The transmitter can be wireless when coupled with the SmartWireless THUM Adapter. All Emerson Smart Wireless field network devices can be integrated directly into existing automation architecture without up-front engineering, site surveys or additional software. **800/833-8314; www.emersonprocess.com.**

COMPLETE ANALYSIS

DUMPStat from Discerning Systems is a statistics package that guides the user through importing lab data and defining the site, then provides complete analysis with a single click, automatically selecting the most appropriate statistics to minimize false-positive and false-negative rates for the entire facility.

The system includes gamma prediction limits that are robust to censored data and skewed distributions. Other statistical enhancements include additional options for trend detection, outlier testing and trace value reporting. Annotations allow users to enter additional notes directly on graphs. **877/374-7744; www.discerningsystems.com.**



DUMPStat from Discerning Systems

REAL-TIME REMOTE CONTROL

Telecomm panels from Orenco Systems provide SCADA capability for commercial and community water/wastewater/stormwater treatment systems. Compatible with virtually all sensors and motors, they provide data logging and real-time remote access and control. Panels can function independently or can be networked. They can communicate over the Internet with a CAT5 Ethernet IP connection or through a phone line. Touchscreen interfaces are available. **800/348-9843; www.orenco.com/controls.**



Telecomm panels from Orenco Systems



Arrow Hunter Plus from ECHO Process Instrumentation

CLAMP-ON FLOWMETER

The Arrow Hunter Plus from ECHO Process Instrumentation is a clamp-on transit-time flowmeter for clean or dirty liquids. It measures flow in metal or plastic pipes with liners from 3/8-inch to 118-inch diameter. It uses Dual DSP technology and measures flow velocity from 0.03 to 82 fps. Accuracy is ± 0.5 percent factory calibrated. **850/609-1300; www.echopi.com.**

MOTOR-INTEGRATED VFD

MOVIMOT motor-integrated variable-frequency drives from SEW-EURODRIVE are well suited for applications that need vector-oriented motor control and four-quadrant operation up to 5 hp, indoor and outdoor. The D Series can be used with bus communications, PC connection for diagnostics, or configurable parameters for extended functionality. **864/439-7537; www.seweurodrive.com.**



MOVIMOT from SEW-EURODRIVE

OPTICAL DO SENSOR

The Triton DO8 sensor from Electro-Chemical Devices Inc. is an optical dissolved oxygen sensor that uses fluorescence quenching to determine the oxygen concentration. Its design provides a solution for long-term measurements in aeration basins and all types of environmental water.

The device is a member of the C22 analyzer/controller family. The standard configuration is a single-channel or dual-channel instrument with 110/220 VAC power supply, one 4-20 mA and two 230 VAC 5A relays per channel. **800/729-1333; www.ecdi.com.**



Triton DO8 from Electro-Chemical Devices Inc.

BIOLOGICAL DO CONTROL

Two process-based design elements are important to the BioChem Technology BACS dissolved oxygen controller. It responds to actual, real-time biological conditions by using the Oxygen Uptake Rate with the

Oxygen Transfer Efficiency (in each control zone) to calculate the required volume of air. Control algorithms are based on actual airflow. Both the blower (supply) and valve (distribution) controls are incorporated. The unit is PLC-based, works with any brand of blower or diffuser, and can work independently or integrated with a SCADA. **610/768-9360; www.biochemtech.com.**

I/O EXTENDER

The wireless CIX communication interface extender system (in 900 MHz and 2.4 GHz versions) from Data-Linc Group provides an industrial-grade I/O extender that directly connects a PLC's communication ports to I/O points without PLC programming or proprietary software. With a ratio of up to 16 remotes for each master, a full network provides a total of 384 I/O points. Each unit provides eight discrete inputs, eight discrete outputs, four analog inputs and four analog outputs. **425/882-2206; www.data-linc.com.**



CIX from Data-Linc Group



Model 1600 Dipper sampler from Hach Company

ALL-FIBERGLASS BODY

The Model 1600 Dipper sampler from Hach Company has an all-fiberglass body and refrigeration components corrosion-protected with chemical-resistant coating. It is available with a 2.5-gallon glass or a 3-gallon polyethylene composite container, as well as 475 ml polyethylene bottles. **800/227-4224; www.hach.com.**

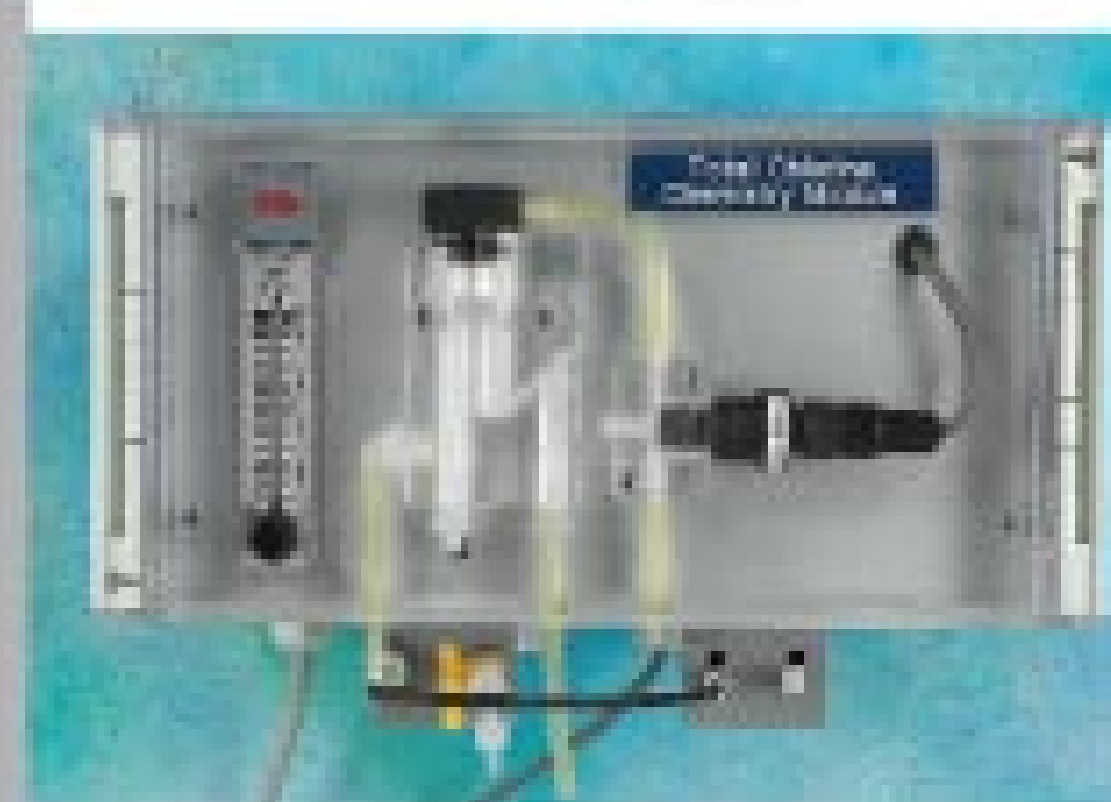
DAISY CHAIN NETWORK

The TA-20008MB/2016MB digital Modbus control system from Mil-Ram Technology features multi-drop daisy chain network architecture using Model TA-2100 gas detection transmitters. The product is available in eight- or 16-channel versions for convenient wall mounting. Several network modules are available to achieve desired functionality in a cost-effective manner.

The sensor technology eliminates false alarms. The multi-drop transmitter network eliminates separate wiring to each detector. Backlit LCD auto-scrolls provide channel data and fault diagnostics. **888/464-5726; www.mil-ram.com.**



TA-20008MB/2016MB from Mil-Ram Technology



A15/79 from Analytical Technology Inc.

TOTAL CHLORINE

The A15/79 total chlorine monitor from Analytical Technology Inc. uses the standard iodometric method for determining total chlorine in highly contaminated samples. A sensing technique is used to determine total chlorine concentration, while minimizing system maintenance. The system takes the reacted sample-containing iodine and uses a membraned gas sensor rather than exposed electrodes. The gas permeable membrane allows only iodine to permeate into the sensor. **800/959-0299; www.analyticaltechnology.com.**



SEL-734 from Schweitzer Engineering Laboratories

POWER METERING

The SEL-734 advanced power metering system from Schweitzer Engineering Laboratories accurately measures energy usage and advanced power-quality parameters. It facilitates monitoring, recording, and automating process decisions through built-in logic functions. Low-cost outdoor enclosure options bring high-quality metering to virtually any location. 509/332-1890; www.selinc.com.

TREATMENT-SPECIFIC FORMULAS

Operator10 from AllMax Software Inc. creates and calculates treatment-specific formulas to provide control information at the user's fingertips. Loadings, removals, solids inventory, F/M ratio, SVI and hydraulic rates among the calculations available. The system has built-in state and federal regulatory agency reports, operator notes, hourly to yearly DataViews, and 3D graphing capabilities. 419/673-8863; www.operator10.com. tpo



Operator10 from AllMax Software Inc.

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7

incubator temp in:	19.4	Water CAL D.O. in:	9.45	at temp:	21				
incubator temp out:	19	Water CAL D.O. out:	9.46	at temp:	22				
Seed Correction:	1.19								
pH	Initial DO mg/L	In Temp. C	Final DO mg/L	Final Temp. C	DO Depletion mg/L	Correction Factor Applied	Corrected for seed mg/L	800 mg/L	Reported 800 mg/L
6.88	8.15	20.20	6.09	19.99	0.88				
6.88	8.15	20.20	4.56	19.99	4.58			115.20	
6.88	8.16	20.20	3.45	19.99	5.71			114.20	
6.88	8.16	20.20	2.14	19.99	7.82			105.30	119.87
N/A	8.14	20.20	3.99	19.99	5.15	1.19	3.94	198.00	198.89
7.48	8.15	20.20	5.84	19.99	3.55	1.19	2.32	48.40	
7.48	8.15	20.20	6.82	19.99	2.33	1.19	1.34	49.20	43.30
7.48	8.16	20.20	6.95	19.99	0.22	1.19	-0.58	6.80	
8.28	8.13	20.20	6.45	19.99	6.88	1.19	7.48	148.80	
8.28	8.15	20.20	2.47	19.99	6.88	1.19	5.48	184.70	
8.28	8.16	20.10	9.36	19.99	3.88	1.19	2.81	156.90	160.85

1. TIME MARK OFFERS 42A PUMP CONTROLLER

The Model 42A pump controller management system from Time Mark can control up to three pumps with a 4-20 mA input or two pumps with a 4-20 mA input and backup floats. Alarm inputs for seal failure, over temp, contactor fail and alarm output relay are provided. The graphic display shows current depth, a liquid level graph with set points, date/time and alarm status. Four buttons allow access to configuration settings (password protectable), pump status with run-time meters, alarm status and real-time alarm event logs with alarm type, date and time. **800/862-2875; www.time-mark.com.**

2. BINMASTER OFFERS DUAL TIMER PROBES

Dual timer capacitance probes from BinMaster Level Controls feature a flexible time delay for covered and uncovered conditions, enabling the user to set a probe to react either immediately or with up to a 30-second delay. **800/278-4241; www.binmaster.com.**

3. ARIZONA INSTRUMENT INTRODUCES J605 ANALYZER

The Jerome J605 hydrogen sulfide analyzer from Arizona Instrument has an accuracy of ± 1 ppb at the calibration of 5 ppb, fulfilling U.S. EPA requirements for H₂S testing. The analyzer has a resolution of 20 ppt and detects hydrogen sulfide levels to 3 ppb. Data acquisition is available using USB communication, SCADA compatibility, 4-20 mA output and menu-driven programming options. **800/528-7411; www.azic.com.**

4. HEMCO OFFERS UNIFLOW FUME HOODS

UniFlow SE Air Stream laboratory fume hoods, constant volume CAV and variable airflow VAV models from HEMCO Corp. are available in 48-, 60-, 72- and 96-inch widths. The hoods feature unitized composite fiberglass construction for chemical and corrosion resistance. The picture frame sash opening is angled and has an aerodynamic air foil for uniform airflow entry into the one-piece, molded fume chamber with covered corners. Surfaces are glass smooth for cleaning and reflectivity. **800/779-4362; www.hemcocorp.com.**

LAROX INTRODUCES PROGRESSIVE CAVITY PUMP

The progressive cavity pump from Larox Flowsys utilizes Evenwall 3D technology with 2-lobe rotor geometry for rigid and tighter pumping. Features include quick replacement of the mechanical shaft, stepless adjustment of the suction connection, lower startup and running torque, easy installation and layout design. **410/636-2250; www.larox.us.**

5. ABB INTRODUCES CONTROLMASTER PROCESS CONTROLLER

The ControlMaster process controller and indicator instrumentation from ABB, available in four models, feature full-color, thin-film-transistor liquid crystal display, menus and operator prompts. Formats include dual-loop displays and historical trending. Functionality includes dead-time compensation, feedforward and ratio control, totalization, delay timers and problem-solving diagnostics. **800/829-6001; www.abb.com/instrumentation.**

6. WEIDMULLER INTRODUCES LINE OF SOLID-STATE RELAYS

Long-life, single-phase and three-phase Power Solid-State Relays from Weidmuller are designed to readily switch AC loads up to 20 amps. The PSSRs operate silently and have the ability to switch high loads over a long period of time without wear. Each relay features a green LED for easy identification of operating status. **800/849-9343; www.weidmuller.com.**

7. ATL INTRODUCES EXCEL-BASED BOD MASTER

The Excel-based XL BOD Master software tool from Accelerated Technology Laboratories, integrated into Sample Master Pro LIMS, automatically calculates and reports the BOD/CBOD results based upon Standard Methods. The software will flag data that is not within acceptable limits and will complete all required calculations. Features include customized or template analysis sheet with breaks between samples for tracking, drop-down menu for adding samples and color-coded results. **800/565-5467; www.atlab.com.**

8. ULTIMO INTRODUCES DENSITY AND VISCOSITY METER

The Density and Viscosity Meter from Ultimo Measurement LLC is a non-invasive technology and device that continuously measures the density and viscosity of any liquid or loose solid material. The device has the potential to perform laboratory grade measurements for inline processing

and can be used for both absolute and relative density/viscosity determination. Features include non-invasive and non-contact exterior installation, built-in AC/DC control, analog/digital outputs, two-point calibration or no calibration method, self-diagnosing and fail-safe functionality. The unit is ready for on/off control and supports multipoint and remote electronics. **401/647-9135; www.ultimompd.com.**

9. MOYNO OFFERS MAG DRIVE PUMPS

Mag Drive 500 Series pumps from Moyno feature a sealless, magnetic drive design for zero leakage. The pumps can handle toxic, aggressive, caustic or even flammable and explosive fluids. Other features include pulsation-free low-shear pumping action and flow rates from 0.1 to 900 gph. Stator materials include nitrile or EPDM (ethylene propylene diene monomer) with optional FPM stators and titanium rotors. Skid-mounted, turnkey systems are available. **937/438-3434; www.moyno.com.**

INVENSYS RELEASES INFORMATION SERVER 4.0

Wonderware Information Server 4.0 software from Invensys Operations Management provides Web-based graphical visualization, reporting and analysis of real-time plant operations data. The latest version features support for Archaestra graphics, enhanced operating system support and graphics based on Microsoft Silverlight technology. **469/365-6651; www.invensys.com.**

(continued)

product spotlight

DDI Heat Exchangers Provide Non-Clog Performance

By Ed Wodalski

Rectangular Square Cube heat recovery systems from DDI Heat Exchangers are designed to handle sludge with more than 26 percent solids without plugging.

Heat from sludge warmed for anaerobic digestion (95 degrees F Class B, 135 degrees F Class A) is recovered and used for direct heating of incoming cold raw material. By using direct sludge-to-sludge heat recovery, cold raw sludge can be heated to 75 degrees F before entering the digester, saving on boiler or electrical output, says Erwin Schwartz, company president.

To avoid plugging, the DDI system uses parallel 3-inch-high rectangular channels (3- to 6-inch sludge side gap and 1- to 6-inch channel water side gap). The channel width promotes fast flow and avoids the risk of baking. The funnel inlet allows passage of large, stringy, fibrous or viscous solids or debris.

Stacked layers of hot and cold sludge flow side by side for efficient heat transfer. As further insurance against fouling, high turbulence in the specially designed return bends and channels remove the stagnant internal film on the heat exchanger wall. Stacking also results in a compact footprint.

The unit is designed for high flows and very high viscosity. Two doors with removable Davit Arms, on opposite ends of the unit, swing open to provide access for cleaning if needed. Flushing connections are provided. A self-cleaning process using an external-mounted pig is available. The heat exchanger can be made from any weldable metal, including carbon steel, stainless steel, or duplex stainless steel.

The DDI unit requires minimal maintenance and can operate for seven years or more without cleaning, even at high percentage solids, although cleaning once every five years is recommended for most municipal applications. Standard and custom models are available, from small to very large. The system incorporates computerized data acquisition for system efficiency evaluation. **514/696-7961; www.ddi-heatexchangers.com.**

Rectangular Square Cube heat recovery systems from DDI Heat Exchangers





10. SENTRY INTRODUCES AUTOMATIC SAMPLER CONTROLLER

The Model SBC automatic sampler controller from Sentry Equipment is a dedicated logic control system designed for use with Sentry samplers in a general purpose environment. The unit features both local and remote modes. The local mode enables the operator to obtain a single grab sample or to sample continuously. Remote mode uses a dry contact interface to start and stop the sampler along with relay outputs for sampler running and alarm status. 262/567-7256; www.sentry-equip.com.

11. SHARPE OFFERS MIXERS, AGITATION EQUIPMENT

Agitation equipment for water and wastewater treatment from Sharpe Mixers can be configured from fractional horsepower clamp-on units up to 300 hp top- and side-entry systems. The mixers feature HYFLO hydro-foil impellers with geometries designed to match process requirements and can incorporate a variety of drive systems, including helical and worm gear reducers and V-belts. 800/862-3736; www.sharpemixers.com.

12. SPX EXPANDS MIXER OPTIONS

The Nettco i-Series portable and fixed-mount mixers from SPX offer expanded design features, including bung adaptor, sanitary flange mechanical seal assembly, sanitary flange lip seal, angle riser and air motor option. The bung adaptor allows for mixing in drums, while the mechanical seal clamps to sanitary tank flanges. The angle riser is available for open tank units for off-center positioning of the mixer. The motor option can operate wherever compressed air is required or available. 585/436-5550; www.lightninmixers.com.

13. PENTAIR LAUNCHES OIL DETECTION SYSTEM

The Hydromatic ODS Series oil detection system from Pentair Flow Technologies features a Hydromatic 1/2 hp sump/effluent pump with PENTEK control system, approved for applications where water is removed but oil and other hydrocarbons must not be discharged. The system alerts to high levels of oil and water and will shut down the pump before discharging harmful substances. 763/545-1730; www.pentair.com. tpo

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ARC Report Says Live Video Maximizes Operator Performance

Adding video to HMI operator stations in automation and process control can improve ergonometics, while enhancing safety, security and regulatory compliance, according to a brief by Craig Resnick of the ARC Advisory Group. The report, "Real-Time Video Provides a Fourth Dimension for Intelligent Visualization and Control," can be downloaded at www.longwatch.com/in-the-news/arc.php.



Godwin Pumps Opens California Branch

Godwin Pumps has opened a branch location in Carson, Calif. The facility offers 2,400 square feet of office space, 12,000 square feet of building space and another 75,000 square feet of yard space.

Neptune Names Gessner VP, General Manager

Neptune Chemical Pump Co. has named Ralph Gessner vice president and general manager. Gessner earned a Bachelor of Science degree in mechanical engineering from California State University-Long Beach and an MBA from the University of Phoenix.



Randy Delenikos



Russell Clark



Tom Warnert

LAKOS Names Vice Presidents

LAKOS Separators & Filtration Solutions appointed Randy Delenikos vice president of Waterworks and Specials Accounts and named Russell Clark as vice president of Groundwater and Irrigation. The company also announced that Tom Warnert, vice president of international sales, will take on increased responsibilities for U.S. and Canada industrial markets.

Hitschfel Instruments to Represent Olympus Industrial

Olympus America has named Hitschfel Instruments to handle distribution of its industrial microscope products in central and southern Illinois, Missouri, Nebraska, Kansas, Oklahoma and Memphis.

AWWA, ASME-ITI Issue ANSI Standard

The American Water Works Association and American Society of Mechanical Engineers Innovative Technologies Institute have developed a risk and resilience management standard for water utilities. The J100 standard, created in response to Hurricane Katrina and other recent disasters, is designed to help water and wastewater utilities identify potential threats to U.S. water infrastructure and prepare for or mitigate damage. A detailed summary is available at www.awwa.org/standardJ100. **tpo**



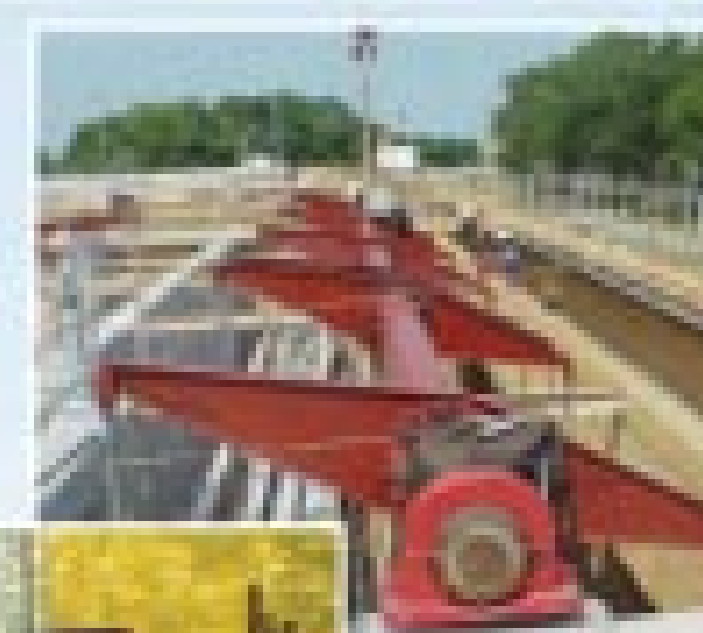
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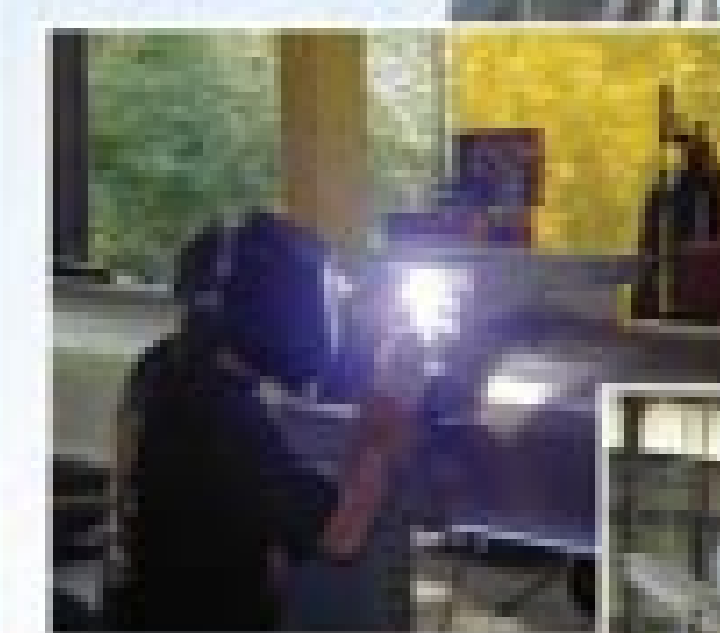
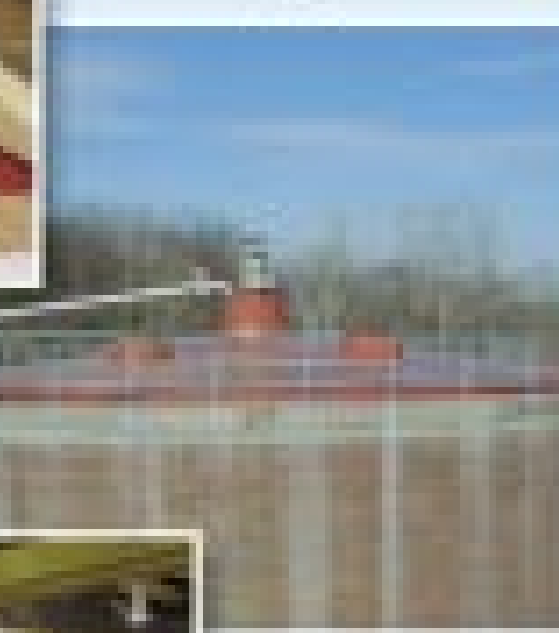
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people/awards

International Dehydrated Foods (Monett, Mo.) received a Gold Industrial Wastewater Pretreatment Compliance Award from the Missouri Water Environment Association.

The **Chambers Creek (Wash.) Regional Wastewater Treatment Plant** received the Wastewater Treatment Plant Outstanding Performance Award from the Washington Department of Ecology.

Dennis Priewe was named the president of the Illinois Water Environment Association.

The **British Columbia Water & Waste Association** announced award recipients at its 2010 annual conference:

- Mike Nolan, Stanley S. Copp Award
- Rob Mellander, Dave Forgie, Carolyn Stewart and Rick Hayhurst, Personal Recognition Award
- Indian & Northern Affairs Canada, Corporate Recognition Award
- Denny Ross-Smith and Kim Stephens, Bridge Building Award
- Curt Kerns, Wetlands Pacific, and Ian Hayes, RD of Bulkley Nechako, Decentralized Wastewater Management Award
- Kady Gannon and Derek Fisher, Okanagan College Scholarships
- Soubhagya Kumar Pattanayak and Ryan Irvine Thoren, UBC Graduate Studies Scholarships
- Mike Firlotte, Victor M. Terry Award
- Chris Johnston, Arthur Sidney Bedell Award
- Alex Wood, George Warren Fuller Award

The **Illinois Water Environment Association** announced award recipients at its 2010 annual conference:

- Jay Patel, Arthur Sidney Bedell Award
- Sanitary District of Decatur, Ill., George W. Burke Award
- Ted Denning, Paul Clinebell Award
- Darrin Boyer, William Hatfield Award
- Rebecca Rose, Laboratory Analyst Excellence Award
- Richard Helm, Life Member Award
- Ralph Pfister, Kenneth C. Merideth Award
- Arthur R. Schmidt, Technical Presentation Award
- Michael Turley, Golden Manhole Award

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

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education

Canada

The Atlantic Canada Water & Wastewater Association has Wastewater Treatment Level 1 and 2 courses Oct. 5-8 in Fredericton, N.B. Visit www.acwwa.ca.

Michigan

The Michigan Water Environment Association has a Collections Seminar on Sept. 9 in East Lansing. Visit www.mi-wea.org.

Missouri

The Missouri Water Environment Association has a Laboratory Workshop on Sept. 23 in Jefferson City. Visit www.mwea.org.

North Carolina

The North Carolina Water Environment Association has these courses:

- Sept. 9 – Automation, Greenville
- Sept. 9 – Construction Projects, Greenville
- Sept. 9 – Crafting Great Customer Service Policies, Greenville
- Sept. 14 – Disaster Preparedness, Clemmons
- Sept. 14 – Advanced Topics in Wastewater Treatment, Burlington
- Oct. 19 – Planning for the Future, Asheville
- Oct. 19 – Safety, Asheville

Visit www.ncsafewater.org.

Ohio

The Ohio Water Environment Association has a Plant Operations/Lab Analysis Workshop Sept. 1-2 in Columbus. Visit www.ohiowea.org.

Pacific Northwest Clean Water Association

The PNCWA has Safety and Occupational Health Webinars on Sept. 9. Visit www.pncwa.org.

Pennsylvania

The Pennsylvania Water Environment Association has a Wastewater Pretreatment Workshop on Sept. 30 in Reading. Visit www.pwea.org.

Texas

The Texas Water Utilities Association has these courses:

- Sept. 13 – Effective Instructional Design, Austin
- Sept. 14 – Wastewater Collections, Marble Falls
- Sept. 14 – Basic Wastewater, Waco
- Sept. 20 – Utilities Management, Waco
- Sept. 21 – Pumps and Pumping, Victoria
- Oct. 12 – Wastewater Collection, Victoria
- Oct. 18 – Utilities Management, El Paso

Visit www.twua.org.

Wisconsin

The University of Wisconsin Department of Engineering-Professional Development has a Wastewater Treatment Plants: Processes, Design and Operation course Sept. 8-10 in Madison. Visit www.epdweb.engr.wisc.edu. **TPO**

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CALENDAR OF EVENTS

Sept. 9

New England Water Environment Association Collection Systems Conference and Exhibit, Westford. Visit www.newea.org.

Sept. 12-15

WaterReuse Symposium, Omni Shoreham Hotel, Washington, D.C. Call 703/548-0880 or visit www.watereuse.org.

Sept. 12-15

Distribution Systems Symposium and Exposition, Nashville, Tenn. Visit www.awwa.org.

Sept. 12-15

Rocky Mountain Water Environment Association and Rocky Mountain Section-American Water Works Association Joint Annual Conference, Keystone Resort and Conference Center, Keystone, Colo. Visit www.rmwea.org.

Sept. 12-16

South Carolina Section-American Water Works Association Annual Conference and Exhibit, Myrtle Beach. Visit www.jsc.scawwa.org.

Sept. 15-16

New York Water Environment Association Watershed Science and Technical Conference, Hotel Thayer, West Point. Visit www.nywea.org.

Sept. 15-16

Kentucky Water and Wastewater Operators Association Wastewater Operator Fall Conference, Falls of Rough. Visit www.kwwoa.org.

Sept. 15-17

California Water Environment Association Northern Regional Training Conference, Modesto Convention Center. Visit www.cwea.org.

Sept. 15-17

South Dakota Water and Wastewater Association Annual Conference, Ramkota Inn, Sioux Falls. Visit www.sio.midco.net/sdawwa.website/index.htm.

Sept. 19-21

Northwest Biosolids Management Association Annual Conference, Campbell's Conference Center, Chelan, Wash. Visit www.nwbiosolids.org.

Sept. 21-24

Western Canada Water Annual Conference and Trade Show, Hyatt Regency, Calgary. Visit www.wcwwa.ca.

Oct. 2-6

Water Environment Federation Technical Exhibition and Conference, Ernest N. Morial Convention Center, New Orleans, La. Visit www.wef.org.

Oct. 19-22

Wisconsin Wastewater Operators Association Conference, Kalahari Resort & Convention Center, Wisconsin Dells. Visit www.wwoa.org.

Oct. 24-27

Pacific Northwest Clean Water Association Annual Conference, Bend, Ore. Call 208/455-8381 or visit www.pncwa.org.

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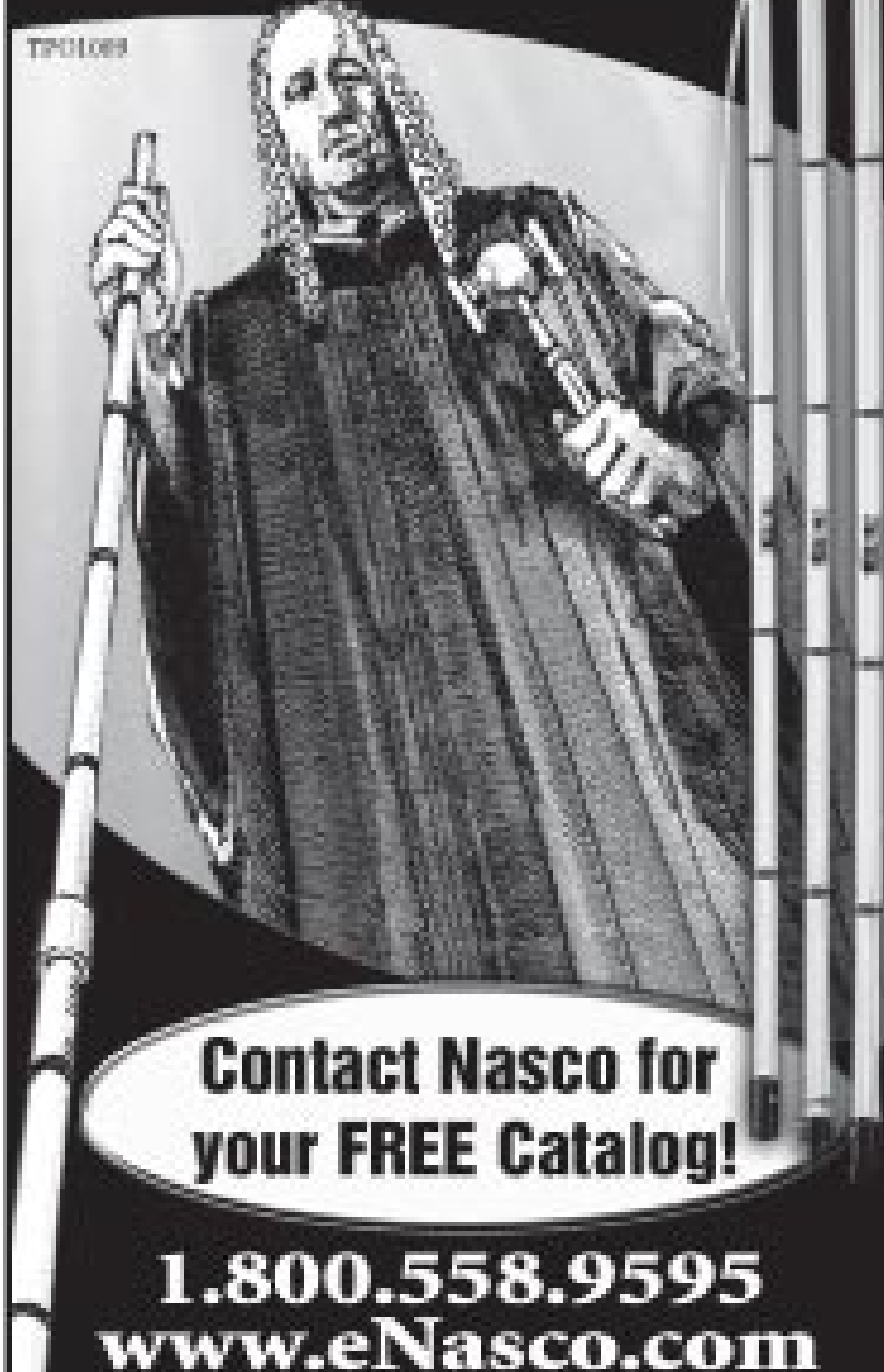
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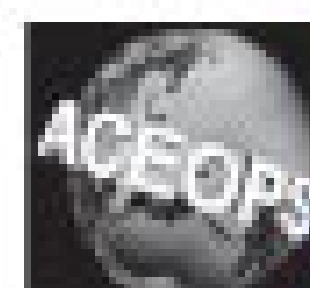
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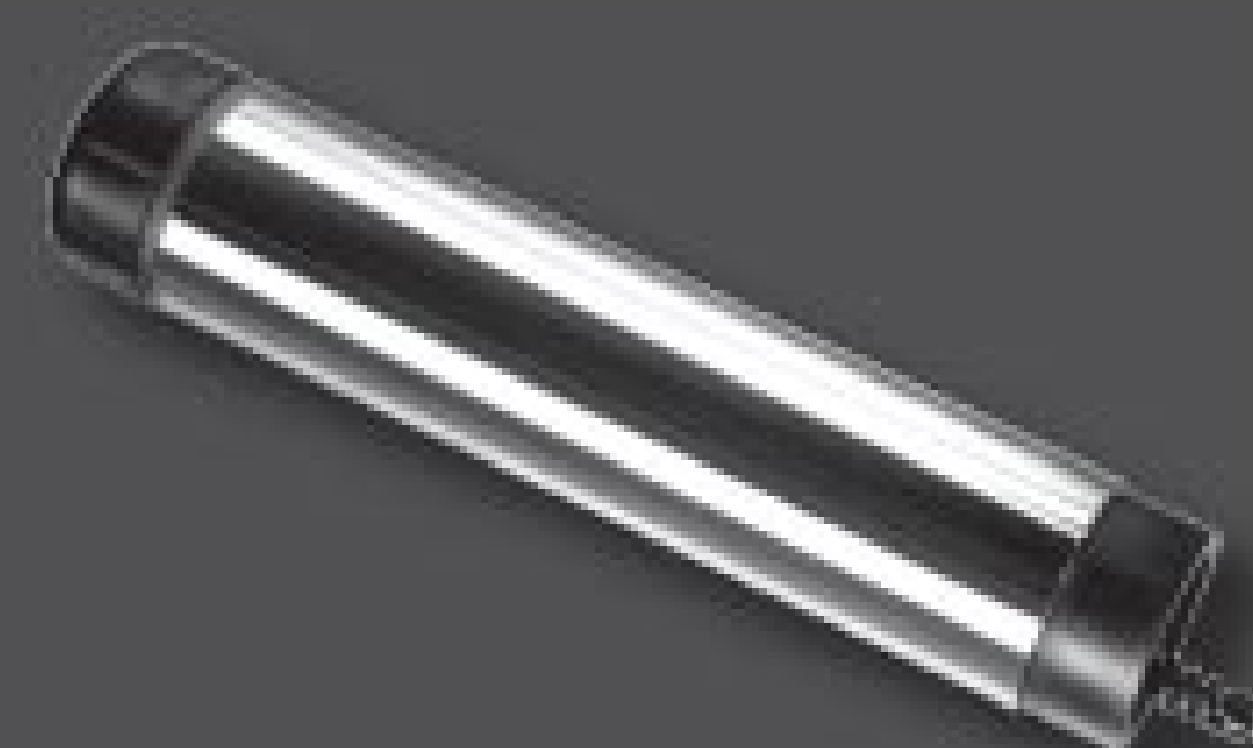


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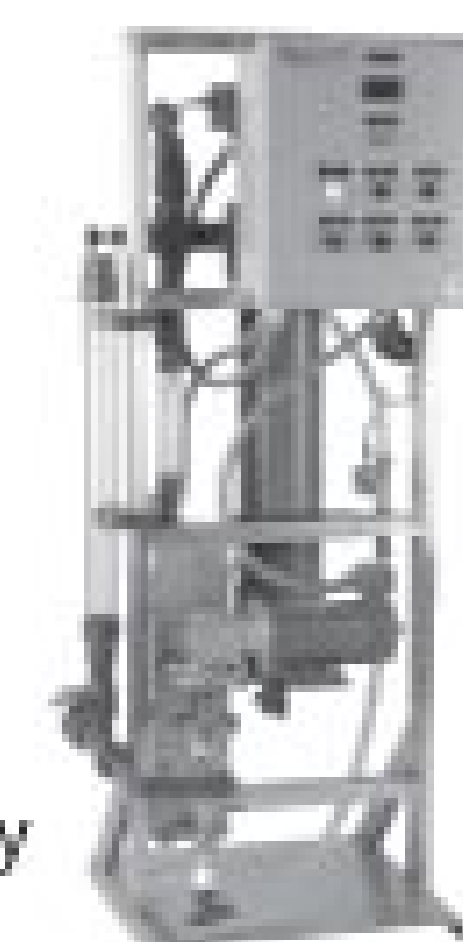
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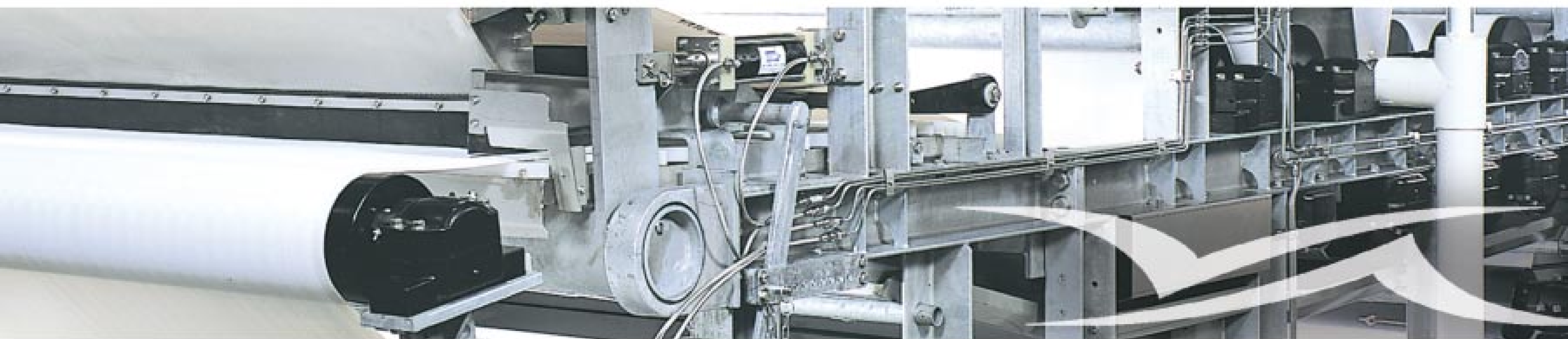
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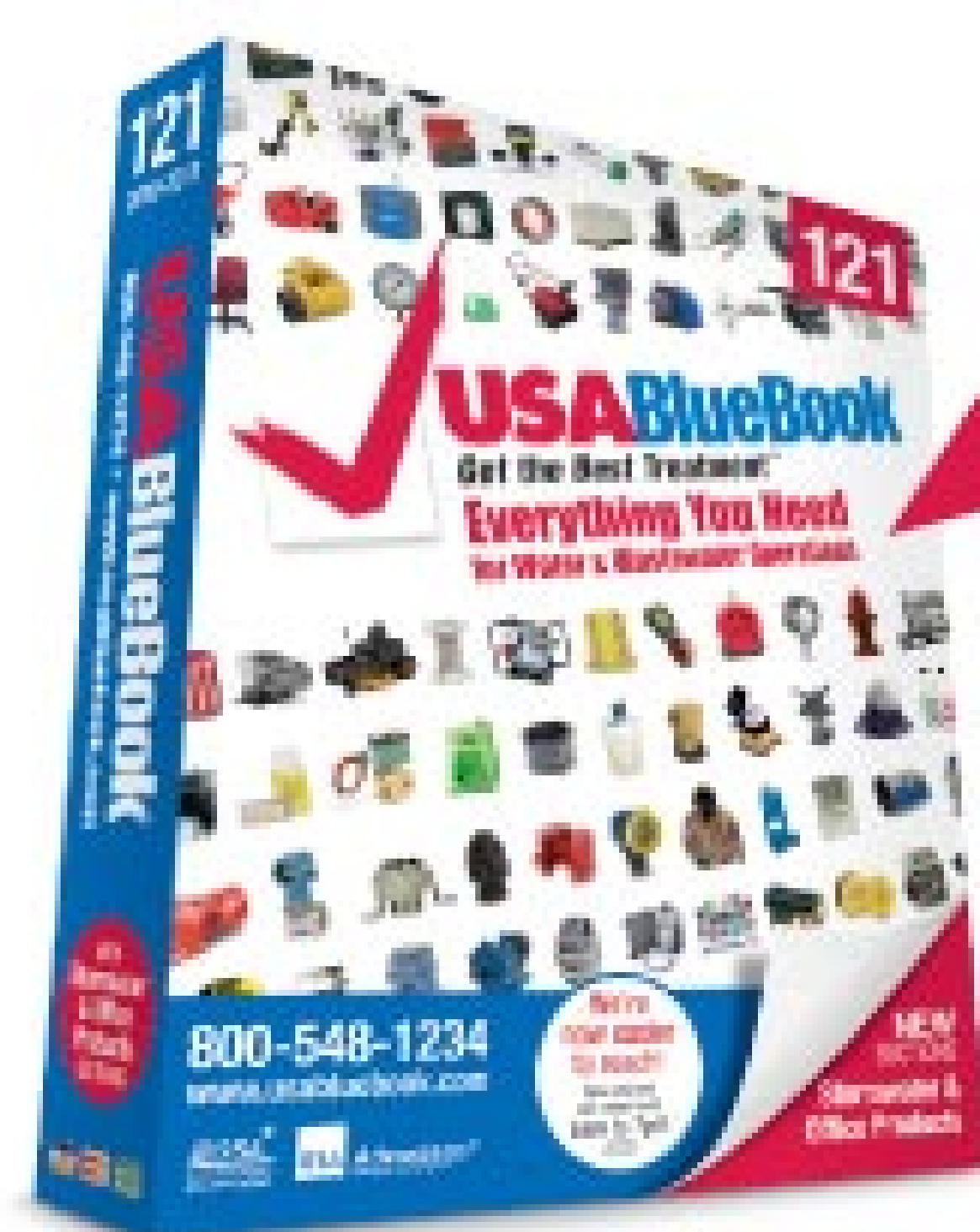
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