

# CleanWaterWorks

a Technical Journal of the Northeast Ohio Regional Sewer District | Volume 8



Skilled Trades

Maintenance Training Program



Northeast  
Ohio Regional  
Sewer District

## FROM THE DIRECTOR OF Operation & Maintenance

As we celebrate the 50th anniversary of the Sewer District's creation, it's also time to take stock of the ground we've covered over seven issues of *Clean Water Works*. We've explored how our treatment plants operate, visited massive tunnel excavations, and received a crash course in stormwater management. We've tagged along with our Water Quality & Industrial Surveillance teams and Sewer System Maintenance & Operation crews and walked local beaches with our Investigators as they collect water samples for lab analysis. And we've stepped back to look at the larger environmental benefits of our work: the rebirth of the Cuyahoga River and measurable improvements to our local waterways.

In this issue, we're focusing on the hands-on expertise of the Sewer District's skilled tradespersons, with examples of projects that keep all of our motors, machinery, pumps, and process tanks in working order, making wastewater treatment possible.

Many of our employees have moved up through the ranks, having gained expertise through the District's Maintenance Training Program. Others joined the Sewer District after moving on from other industries, such as steel and automotive.

Our employees' ingenuity and collaboration in maintaining, repairing, and refurbishing decades-old equipment is yet another reason to celebrate this anniversary year, and I hope you enjoy this first-hand look at some of the in-house projects that are a hallmark of our teams' work.

For those interested in this type of work, please keep the Sewer District in mind, and visit our Careers page for new job opportunities.

Enjoy!

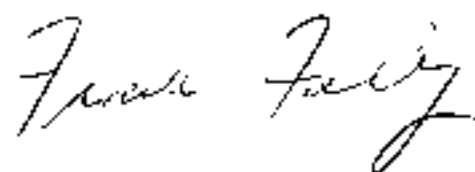


ILLUSTRATION BY YOLANDA KELLY

*Frank Foley began his career with the Sewer District in 1988 as an operator at the Southerly Wastewater Treatment Center. In his current role, he oversees the operation and maintenance of the District's three treatment plants and sewer system. He holds a bachelor's degree in Chemistry from the University of Dayton and a Master of Business Administration from Cleveland State University, and is certified by the Ohio EPA as a Class IV Wastewater Plant Operator.*

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### Our Mission

Provide progressive regional management of sewage and stormwater that protects the environment and serves our community.

### Our Vision

Be the environmental leader in enhancing quality of life in the region and protecting its water resources.

This annual magazine gives subject-matter experts the opportunity to explain in greater detail our work and that of our partner agencies.

*ON THE COVER: Westerly's Matthew Stack demonstrates an oxy-acetylene cutting torch. "I started here as summer help and liked it," he said. "I've always been mechanically inclined." Photo by Thomas Dang.*



*Electrician-in-training Jose Kozma worked in construction before joining the Sewer District seven years ago. He's wrapping up his fourth and final year in the Maintenance Training Program.*

## An Overview of Treatment Plant Maintenance

**O**ur clean water depends on diligent care for, and repair of, our wastewater-treatment equipment, some of which is a century old. Sewer District maintenance staff talk about their work to keep things running 24/7.

*Cover story page 4*

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# All hands on

## MAINTENANCE CAREERS ENSURE OUR CLEAN-WATER LEGACY

A

LTHOUGH THERE HAVE been many technological advances over the last century, much of Cleveland's original sewer and wastewater-treatment infrastructure endures to this day, thanks to a workforce skilled in maintaining, repairing, and improving upon thousands of pieces of equipment, structures, and controls that guarantee the success of the treatment process. To be clear: some of this stuff is over 100 years old!

As the Northeast Ohio Regional Sewer District celebrates its 50th year as chief steward of Cleveland's wastewater-treatment systems, *Clean Water Works* met with several employees to find out what led them to this work, their training and career paths, and their shared pursuit of excellence in the maintenance and improvement of the machinery and systems that provide reliable wastewater treatment—and safeguard our prized freshwater resources.

*“It’s our job to make sure everything stays up and running for the plant operators. It’s neat to see things I worked on still holding strong.” —Kate Rybarczyk*



P

LANT MAINTENANCE MANAGER Kate Rybarczyk came to the Sewer District knowing nothing about wastewater treatment. “I don’t know who does before they come here, really,” she said.

Like many young adults coming out of high school, Rybarczyk didn’t have a clear career direction. “I went to college for a semester, but I didn’t know what I wanted to do, and tuition was going up,” she said.

She decided to enlist in the Army Guard, and eventually completed basic training for Military Police. After four years of service, her interest in physical fitness (she earned her personal-trainer certification while in high school) led her to a job selling home gyms at Dick’s Sporting Goods. “One of my co-workers was also an employee at the Sewer District,” she said. “He had a part-time job in the Hunting & Fishing section at Dick’s, mainly for the employee discount and for beer money.” When he found out Rybarczyk was MP, the co-worker mentioned an opening in Security at the District. “I didn’t get that job, but Westerly needed a custodian, and that’s how I got my foot in the door.” Although she had

no background in wastewater treatment, Rybarczyk found the mechanical side of plant work interesting and moved into a maintenance worker position at the Southerly plant.

Rybarczyk soon began coursework towards earning her wastewater operator licenses. The Ohio EPA’s Wastewater Plant Operator Class I, II, and III certifications are based around three-hour, multiple-choice exams that cover wastewater-treatment theory and applied math. “To become an Operator, you need your Class II,” Rybarczyk said. “Assistant Superintendent requires you to get your Class III.” Those milestones lay the groundwork for a Class IV certification, which requires a written thesis demonstrating advanced understanding of the facility where the candidate works. “The Class IV covers plant design and operational data, detention times, permit allowances—basically how to run the plant,” said Rybarczyk.

She pulled one of her old study guides from a shelf and leafed through its heavily-highlighted and underlined pages. “The book learning helped me understand what happens here: how the wastewater moves from preliminary to primary treatment, into secondary treatment and disinfection.



*Shift Manager Sabrina Winkfield worked as a plant electrician for several years before becoming Shift Supervisor in 2005. She continued her advancement through CSU’s Leadership Academy and CWRU’s Weatherhead School.*

*“The Sewer District has been a champion through my whole career,” Winkfield said.*



tion, and what happens at each stage,” she said.

Through the District’s Maintenance Training Program (MTP), Rybarczyk broadened her knowledge, learning welding, blueprint reading, and hydraulics and pneumatics. “You learn to troubleshoot the equipment, understand the different pumps and what they’re good for, and make modifications to improve the process,” she said. To complete the MTP, trainees demonstrate competency in 18 different skill-sets. “You get out of it what you put into it.”

LIKE RYBARCZYK, SABRINA WINKFIELD DIDN’T know much about what goes into treating wastewater, although she did grow up with a love of Lake Erie. “Most Saturdays my family would go to the lake and end up at Captain Frank’s on the East 9th Street Pier for ice cream,” she said.

In high school, she explored optometry as a career. “I worked in an optical lab for a couple years, but I was discouraged because my boss didn’t make a lot of money, and he’d been doing it for 20 years.” A family friend suggested work in the trades and directed Winkfield to the Building Laborers’ Local 310. She joined up and worked as a laborer at the steel mill and in some local schools, but the recession in the early ’90s made it difficult to stay employed.

Winkfield used that down time to earn a stationary engineer’s degree from West Side Institute of Technology and became licensed to operate a steam boiler. She put in an application at the Sewer District and was hired as an operator at Westerly, the plant where she has worked for 27 years.

“I had never been in an industrial environment, and it was intimidating initially, just so unfamiliar,” she recalled. “For years, I was the only female operator.”

WINKFIELD AND RYBARCYK EACH TOOK ADVANTAGE of financial and academic opportunities to advance their careers at the Sewer District. “The District has always promoted advancement through its Tuition Assistance Program,” Winkfield said. The in-house electrical apprenticeship program gave her the opportunity to learn a trade, and she also went on to earn her Class III wastewater license.

Winkfield worked as a plant electrician for several years before becoming Shift Supervisor in 2005, which broadened her responsibilities. “I was exposed to so many different things,” she said. “I was doing outreach with the middle schools, teaching math to new employees taking Wastewater Prep Courses, and working with students from Central State University through the Louis Stokes scholarship program.”

She continued to advance her own career through Cleveland State University’s Leadership Academy and offerings at Case Western Reserve University’s Weatherhead School. In 2007, she earned a bachelor’s degree in Public Safety Management. (She says she is “very safety conscious.”) Today, as Shift Manager, Winkfield oversees projects and makes sure her staff have the supplies they need to get things done. “I always have my radio and phone on me,” she said.

Kate Rybarczyk started utilizing the District’s Tuition Assistance Program in 2009, and is still doing so today, finishing up a bachelor’s degree from Baldwin Wallace University in Organizational Leadership with a double minor in Management and Human Resources.

Rybarczyk was promoted into management in 2016. “I have a crew of maintenance workers, mechanics, a custodian,” she said. “It’s our job to make sure everything stays up and running for the plant operators.” Her role as a supervisor is more hands-off and computer-based, assigning pre-



*Verdell Lyle, a Plant Utility Maintenance Person (PUMP), worked at a sanitary waste company and a box factory before joining the Sewer District 28 years ago.*

*“When I was growing up I learned to fix things by watching my uncle and my friends work on their cars, and asking questions,” he says.*

*Verdell continued his hands-on training, along with classes at Southerly, through the Maintenance Training Program.*



ventive maintenance tasks to her team and, like Winkfield, making sure they have what they need.

“I don’t regret not being a Plant Utility Maintenance Person anymore, but sometimes I miss it,” Rybarczyk said. “Taking equipment back to the shop for rebuilds, playing music and doing your thing. It’s neat to walk through here and see things I worked on still holding strong.”

One of those projects was the installation of a new induction mixer for chemicals used during the plant’s disinfection season (May through October, also known as the “recreation season,” when extra measures are taken to kill any remaining bacteria before the treated wastewater is returned to Lake Erie). “We set up the scaffolding in the chlorine contact tank and welded the brackets and bracing for all of that,” she said. “It was fun.”

Less enjoyable tasks include emergency repairs. “Wastewater is not kind to machinery and piping,” Rybarczyk explained. “The sand and grit coming into the headworks is like liquid sandpaper, and if you don’t get it all out, it makes its way into the process.” In one case, a worn-out bearing provided an unwelcome morning surprise. “The bearing supported an auger, or screw. When the bearing failed, the screw began scraping the housing. We came in one day and there was a hole [in the housing] and a bunch of sludge cake on the floor. We had to go up there and patch it, change the bearings, and get it all set up again. It was a dirty job!”

EASTERLY UTILITY MAINTENANCE TECHNICIAN Brian Bunjevac is a man who can’t sit still.

“When I go home from here, I’ll take a shower, eat dinner, and then head right out to the garage to work on my Harleys or tear apart a lawnmower,” he said. “I go to bed at midnight and get up at 4:30 a.m., even on the weekends. I like to stay busy! I don’t watch TV. In winter, I’ll snowplow a path in the back yard for my dog so he can run around.”

Bunjevac grew up in Garfield Heights. “I was always fiddling around in my parents’ garage, tearing stuff apart and figuring out how to put it back together,” he said. “I’ve been working on cars for 40 years.”

Prior to joining the Sewer District, Bunjevac worked at a metal processing company. “I learned every aspect of the plant, ran the furnaces and the cranes,” he said. He had moved into a supervisor position with a crew of 35 people when the company went out of business. “My wife and I had just bought a house,” he recalled. He took a job as a corrections officer, but soon learned about opportunities at the Sewer District from a cousin who worked here.

From his first day at Easterly, Brian’s main area of expertise has been the plant’s Primary Settling Tanks. “I’ve seen everything that could possibly go wrong with them,” he said. “No matter what we do, they’re going to break, which is unfortunate because redoing a whole tank is a lot of work. But I enjoy it!”



*“I was always fiddling around in my parents’ garage, tearing stuff apart and figuring out how to put it back together.”*



Bunjevac likes the variety of tasks at the treatment plant. “We weld, replace and rebuild pumps, swap motors out,” he said. “When there’s not much going on, I’ll cut grass or do custodial work. It doesn’t matter to me! I have an old-school work ethic. When I punch in, I owe a day’s work.”

“Brian and I work well together,” said Plant Maintenance Manager Wayne Messer. “I rely on him. He helped me along when I came to the Sewer District ten years ago.”

Making repairs on equipment that dates back to the 1930s poses challenges, including replacing heavy machinery in spaces that weren’t designed for easy access. “Since this plant is so old, we’re always trying to figure out how to pull something out of cramped spaces,” Bunjevac said. When basement flooding damaged two electric motors, he drilled holes through the concrete floor and fed chains through the holes to lift and maneuver the new 700-pound motors into place. “I just visualize what I want to do and I do it,” he said. “If I come up with something, Wayne says ‘go ahead’ because he knows it’s going to work. He trusts us to keep this place running.”

Bunjevac extends the same diligence to maintaining his personal collection of cars, motorcycles, and firearms. “I don’t want to say it’s an addiction, but I’ve always enjoyed shooting,” he said. “In the early ’80s you could get old military rifles for \$60. I’d buy them off co-workers at the steel plant. I sold off a bunch to pay the bills when we had kids.”

The “go-to guy” at Easterly, Bunjevac has worked there the longest out of all the plant’s maintenance staff. One project he’s proud of is an upgrade to the plant’s grease-processing system. “Before, I was coming out here twice a week to pull the grinders out, bring them to the shop, clean them, and put them back in service,” Bunjevac said. His solution was to eliminate a 50-foot tangle of pipe and replace the six old

grinders with two new, more powerful units. “These things will chew up anything that comes through here,” Messer said. “We haven’t had a problem since,” added Bunjevac.

REFLECTING ON THE SEWER DISTRICT’S FIFTIETH anniversary and the changes she’s seen in her decade and a half here, Kate Rybarczyk says that the development of the Maintenance Training Program into a state-certified apprenticeship program (*see page 18*) has been a huge milestone for the organization. “When I went through, it was all done on evenings and weekends. I had to find the classes on my own,” she said. “Now the Training Center and trainers are right at Southerly, and the things you learn in class you can instantly apply. That’s a big improvement.”

Sabrina Winkfield noted the ongoing transition away from analog into digital technology. “When I started, everything was push-button or manual,” she said. “You’d walk out to the equipment to check the position of a gauge and make adjustments. Now, with the Human Machine Interface system, we do a lot of that work on a computer.”

She also commended communications efforts to bring the once under-the-radar work of the Sewer District into the public consciousness. “When I started, nobody knew about the Sewer District,” she said. “Even my dad would say, ‘My baby works at the Water Department.’ I enjoy seeing more people being familiar with the business that we do and that we’re doing a good job, because at one time people took it for granted.”

Rybarczyk pointed to wider cultural advances that have impacted the workplace. “When I was hired, sexual orientation was not a protected category, and there were no partner benefits,” she said. “To see how much that has changed is good. We’ve come a long way.”



Some changes are driven by employees finding areas to improve and becoming involved. “There are always people who gripe about things that need improvement,” Rybarczyk said. “You can’t just sit back and hope it works out. You have to make it happen.” Although she doesn’t necessarily enjoy being in the spotlight, she does like playing a part in fixing problems. “Ideally, you move up into a position of influence where you can affect positive change. This role I’m in now, it’s because I want to make change. Maybe one day I can sit at a different table, at a higher level, and discuss how to make the District even better. We’ll see!”

AS THE SEWER DISTRICT LOOKS TO THE FUTURE, its award-winning service to Northeast Ohio and Lake Erie will still largely depend on the people caring for the equip-

ment—and each other. “I’m here to make things easier, not only for me, but for the younger guys down the road,” says Bunjevac. “It used to take us six hours to drain and put new oil in these gearboxes,” he said. “I’d get so mad!” With a supply of 2” pipe and some shutoff valves, he built a more efficient piping assembly. “Two days later I had it done. Now the pumps only take 15 minutes to drain and 25 to fill back up.”

Bunjevac has straightforward advice for anyone starting out in treatment-plant maintenance. “You always want to be safe in what you do, and mindful of your surroundings,” he said. “The hydraulic lines on a tow motor can burst. I don’t care if it’s brand new. Things happen.”

Taking pride in one’s work is also important to Bunjevac. “If it looks better than it did before you started the project, you can be proud of that, and that shows that you’re a certain kind of person,” he said. He noted the importance of having respect for others and the value of working with people you like. “We have fun,” he said of his coworkers. “If someone needs a hand with something, we’ll even go over to each other’s homes and help out.”

Sabrina Winkfield also has a focus on the newer plant employees and their careers, encouraging them to pursue their work goals and find their niche at the District. “Talk to people who have your best interests at heart,” she said. “Follow through on the opportunities afforded to you. You can be great in whatever path you take here.”

Bunjevac admits that it may soon be time for him to consider retirement, especially given a nagging shoulder injury. But, he said, that time hasn’t come just yet. “What can I say? I enjoy it here.” ♦





# Custom fittings bring a 90-year-old workhorse back to life

Recently, Easterly’s maintenance team replaced a critical piece of plant equipment: a mechanical oil pump on one of the five blowers that feed the plant’s aeration tanks. (The blowers introduce oxygen into the treatment process, to sustain the microorganisms that consume biosolids.)

The blowers date back to the earliest days of the treatment plant, built in the 1930s, and the oil pump in question had operated for over 90 years before self-destructing in 2021. “It just blew up,” said Maintenance Manager Jim Cassese. “Over the years, it had lost its ability to self-prime, and one day there was no oil

in it on start-up.”

Cassese and his co-workers researched the pump and looked for a replacement that had the same capacity and oil pressure as the original. “We went back and forth for months trying to find the right one,” he said.

The Easterly team reached out to the machinists at Southerly to fabricate a custom steel coupling that would join the new oil pump to the blower shaft.

Once a replacement was found, Plant Utility Maintenance Person Jack Cassidy led the installation. He drew up a list of all the required fittings, and he and his fellow

PUMPs piped in new unit. An impressive display of precision and craftsmanship, the new copper pipework gleams in the sunlight that pours in from the south-facing windows of the building.

The in-house project cost around \$10,000—not a bad investment to meet the needs of a blower unit valued at \$1 million. “With the rebuild, that blower will probably run for another 70 years,” Cassese said. “When we started it up again, everything just ran beautifully.”

Cassese said Easterly plans to do a similar pump replacement on each of the plant’s other four blowers.



*Plant Utility Maintenance Person Jack Cassidy led the oil pump replacement at Easterly.*



# Electric company

## TRAINEES GET STARTED ON THEIR CAREERS

**I**t was kind of spontaneous,” said Westerly’s Charlie Fowler about his decision to become an electrician. “I was going to go to college for Finance. At my high school, I saw a job posting on the bulletin board and got a summer help position at the Sewer District. I learned that I liked working with my hands and being outside instead of in an office.”

Fowler walked us around the shop area shared by Westerly’s mechanics and electricians. “The electricians do most of their work out in the field,” said Fowler. “We do some bench testing here, putting pieces together and then taking them out in the field and putting it all together.”

Today, Fowler would be testing a variable frequency drive (VFD) for one of the plant’s grit pumps. “The VFD controls the speed of pump motor, to ramp it up or go slower,” he said. “But the transformer blew up.” The transformer regulates and “cleans” the power going into the VFD. The damaged unit had been sent out to a contractor for refabrication and was now reinstalled and ready for testing.

But first, Westerly’s Operations staff had to unlock the equipment. All three District plants follow a strict lockout/tagout procedure designed to keep everyone safe. “Everyone has their locks—the electricians, Operations, the mechanics,” said Fowler. “The equipment is locked in the ‘off’ position so that when you’re working no one can turn it on.”

In his senior year, Fowler returned to the District as summer help and then became a maintenance worker before entering into the four-year training program. “I don’t know how I chose electrical over mechanical,” he said. “I tested well on the entrance exam, and I guess that was the deciding factor. I figured I was going to be better at it.”

During the first two years, he attended classes at Cuyahoga Community College twice a week. “We take some basics, such as math, and then get more involved with classes for the program we’re in, mechanical or electrical,” said Fowler. “We bring back all of that knowledge to the plant and use it on a day-to-day basis.”

The Sewer District’s maintenance training offerings have improved since it began utilizing in-house instructors.



*“Every day is a learning experience. You just have to be safe and take your time.”*





Fowler explains the variable frequency drive: it controls the speed of the motor on a grit pump.

“Before, you weren’t always sure which classes you needed, or if they’d be offered when you needed them,” said Maintenance Manager Theresa Vanderlin. She credits Manager John Corn and Electrical Instructor David Nemchik for developing the current Maintenance Training Program from scratch. “It’s not easy to set up a program, and I don’t see any other organizations doing what the District has done.”

Corn, a Marine who rose through the ranks from Private to Lieutenant Commander, believed that the best leadership roles are generally filled from within an agency. “If provided the opportunity, employees will seek to enhance their organization through self-growth and personal application,” he said. “Those who develop *esprit* within an organization become your most dedicated leaders.”

Corn sought to replicate aspects of the Navy/Marine Corps Integrated Learning Environment, which combines kinesthetic, classroom, and computer-based training to produce capable technicians. “The best results are achieved when the organization approaches training with clear timelines and expectations for trainee outcomes,” he said.

Upon completing their classwork, trainees can also apply to the Ohio State Apprenticeship Council’s certification program. “We took what John Corn developed and made it a full apprenticeship through the State,” said Training Manager Sharon Smith. “I was excited to get that OSAC stamp of approval for the District, because it gave this already-elite program a whole new dimension,” Smith added. “It acknowledges that our staff are not only well trained but also



Proud OSAC certificate holders (clockwise from top left): Lamont Murph, James Catalano, John Boyd, and John Zsiga.

understand the theory behind the work they’re doing.”

“I’ve been really impressed with the trainees,” Vanderlin added. “They are ‘all in,’ and that’s what you need to succeed. If you’re all in, our program offers everything you need to develop that expertise.”

Charlie Fowler will have plenty of equipment to work on at Westerly, as determined by monthly, quarterly, and yearly preventative maintenance schedules. “We go out and change

filters on units like this VFD, and make sure everything is tight and everything is clean,” he said.

The Operations staff arrived and removed their locks from the reinstalled VFD. It was time for Fowler to turn the unit on. He threw the switch and smiled.

“Every day is a learning experience,” he said. “It’s a lot of information, and I’m still learning. You just have to be cautious, and safe, and take your time.” ♦



# Multiple teams collaborate on an in-house upgrade

The Sewer District’s Operations & Maintenance staff often take on major asset repair and replacement projects, rather than hiring outside contractors. In the case of a recent water pump replacement at the Southerly plant, it was an easy decision to make. “We decided our guys could do it, and we could promote our in-house skills,” said Joe Yance, Superintendent of Plant Maintenance.

Maintenance Manager Ken Wilson explained that the old pumps were not living up to expectations. “The pumps supply Southerly’s waste heat boilers, which generate steam to power our electrical turbine,” he said. A feature of Southerly’s Renewable Energy Facility is its ability to recover heat from the incineration process. “To keep the boilers running and happy, you need a consistent, reliable feed.”

“These pumps operate in the 900-plus-PSI range,” said Wilson. “It’s a high-pressure pump with externally-mounted, oil-lubricated bearings.” (On the old pumps, the bearing was lubricated by the boiler-feed water.)

“What also makes this new pump different is its automatic recirculation valve,” Wilson said. “Sometimes pumps have to deliver more water, sometimes less, but they require a certain amount going through them at all times to keep them from overheating and cavitating.” *Cavitation* is what happens when liquid in a pump turns to a vapor at low pressure, and air bubbles that are created implode. This can damage the internal pump sur-

faces. “The automatic recirculation valve sends water back to the pump’s storage tank if it’s not needed by the boiler, to keep water flowing through the pump at a stable temperature and keep it from cavitating.”

Engineering & Construction staff researched different pumps and the Maintenance team worked with Southerly’s fabrication shop to demolish the old units and install their replacements. “Plant welder Rickey Tanno did all the piping welding and supports and our electricians did all the wiring,” Wilson said. “Multiple departments worked on the project, and I think it came out well.”



Cavitation damage on a pump casing (Photo courtesy of Central States Industrial)

Wilson and his team took additional steps to improve overall performance of the pumps. They installed expansion joints to help relieve pipe strain and reworked the concrete bases that support the pumps, for a more-precise alignment of the pump motor and the impeller, which pushes water through the pump. “Now we have a very nice alignment, and we’re very hopeful that the pump is going to meet our needs for many years.”

Wilson likes being part of these in-house projects. “We do good work because we’re doing it for ourselves,” he said. “We do what we do every day, so the equipment has to work. Reliability is key.”



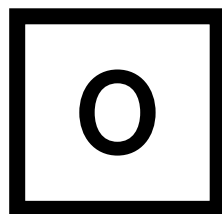
Southerly Maintenance Manager Ken Wilson has worked at the Sewer District for 18 years. “I started as a Plant Utility Maintenance Person, and then I got into the District’s Electrical Instrument Tech program,” he said.



# Opportunity knocks



Hand-skills assessments test ability to work with small parts.



On an afternoon last Fall at the South-erly Wastewater Treatment Plant, a group of applicants to the Maintenance Training Program (MTP) were seated at tables, fastening together small steel bars with nuts and bolts.

This was part of a hand-skills test. Their objective: build a replica of the assembled cube that sat on a nearby table, within a set time limit. Later in the afternoon the group would repeat the test, but from memory.

“We’re looking at their ability to work with both small and large parts,” said Mechanical Instructor Frederick Speerstra. “We also give them various grits of sandpaper to identify, have them sort screws, and other tests to gauge their color and touch discrimination.”

Passing the hand-skills test would qualify the applicants to take a computer test related to their specific field of interest. Success in these talent assessments could lead to a maintenance job at the District.

Every few years, the Operation & Maintenance department looks at its staffing needs and approves a testing schedule for MTP applicants. The test is made available to external candidates if not enough qualified District staff apply. The District initiated MTPs in 2014 and 2017, and a third began in 2021 to fill a handful of Plant Utility Maintenance Person (PUMP), Plant Maintenance-Electrical (PME), and Systems Utility Maintenance Person (SUMP) positions.

The District mandates between 8,000 and 10,000 hours of training for these jobs. Occasionally, there may be an opening due to a person retiring or leaving the District, and in those “as-needed” situations, tradespersons with previous experience can be hired with reduced academic and training requirements.

Many applicants to the District come from manufacturing plants, while some are referred by local unions for millwrights and electricians. Several came to the District after working at Cleveland’s Alcoa facility. “After a year of retirement, I was looking for a similar job,” said Easterly Plant Maintenance Manager Wayne Messer, who joined the District as a journeyman PUMP. “As millwrights at Alcoa, we did similar work, and it was a dayshift-only maintenance department at the Sewer District. That meant a lot. In most private industry, new employees usually have to work evening or night shifts.”

Given the limited number of openings, finding employment at one of the Sewer District’s treatment plants can be difficult, said Plant Operations Instructor John McGinnis, who has worked in wastewater management for 16 years. He had applied for jobs at the Sewer District a few times before finally securing an operator-trainee position. “I worked my way from the ground up,” he said.

“They may come from an auto plant, a steel mill, or rubber plant,” said Speerstra. “With our program, the District can train them to work in the wastewater industry.” ♦



## Many voices. One mission.

Our Diversity, Equity and Inclusion program ensures that the Sewer District is an employer and business partner of choice, where people of all identities and experiences are understood, appreciated, and fully included in creating a culture of performance excellence. We leverage the power of diversity to produce results that support our Mission, Vision, and Core Values.

Our DEI goals are:

- Be a workforce that reflects the communities we serve.
- Engage in strategic partnerships that are designed to eliminate barriers for groups and individuals.
- Maintain a work environment that fosters creativity and innovation and promotes employee engagement.
- Provide comprehensive communication of the goals, objectives, challenges, and successes of the program.

**Learn more at [neorsd.org/diversity](https://neorsd.org/diversity)**





Although he had little technical experience prior to joining the Sewer District five years ago, Bryson Wade is on track to become an electrician through the Maintenance Training Program.

“I’m learning it all here,” he said. “It’s challenging, getting back into the school aspect, learning math all over again, and studying. But I like it.”

“Show up, focus, and pay attention,” is Wade’s advice to new trainees.

“Everything else will fall into place.”



# The diagnosis experts

## THE DISTRICT'S HVAC-R TEAM DIVES DEEP

**R**ecently, the Sewer District’s Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC-R) technicians resolved a complex situation at Westerly, addressing temperature issues in the plant’s Administrative Building.

The building’s air-handling system can heat and cool simultaneously. The airflow is split into two, with one part being heated while the other is cooled. The airflows are then mixed to create the right amount of hot and cold for spaces throughout the building.

Although the air handler was only about four years old, various mechanical, control, and software problems required a multi-step analysis to make sure components were

working and programmed correctly. “It’s like peeling back the layers of a rotten onion to get down to a good foundation,” explained Building Systems Supervisor David Pastorius. “It’s the same with a car or washing machine: you might fix one problem but something else rears its ugly head. You have to get to that foundation to build outward and make the corrective repairs.”

For years, contractors had made visits to the plant to fix HVAC-R issues, with little success. “They just couldn’t get it running right,” said Pastorius. “It was a feather in our cap to get it doing what it was supposed to do.”

There are over 2,300 pieces of HVAC equipment throughout the Sewer District, including boilers, heat pumps, geothermal systems, and freezers. “If it heats, cools, humidifies,

*A summary report is prepared for each HVAC-R project. This one shows the diagnoses and fixes involved in fine-tuning multiple system components for consistent and comfortable air temperature at Westerly.*

**Condition 1:** Air handler not maintaining cold deck temperature or switching between modes.

**Resolution:** Programmed building automation to allow “dual mode” and “economizer,” which allows the system to automatically switch between modes and use outdoor air when outdoor temperature drops below a certain set point.

**Condition 2:** Return and fresh-air dampers functioning incorrectly with demand, and display on building automation reversed.

**Resolution:** Wired actuators correctly and cycled to ensure correct operation. Changed automation to show the actual damper position.

**Condition 3:** Hot-deck temperature exceeding set point and not modulating.

**Resolution:** Set DIP switch setting on water-coil actuator to interpret correct incoming command voltage.

**Condition 4:** Multiple zones overshooting set point or not maintaining set point correctly.

**Resolution:** Traced duct work through building for each zone and moved zone actuators to corresponding duct damper. Tested each thermostat and set temperature offsets to actual room temperature. Checked supply registers and opened for correct air flow to space.

**Condition 5:** Individually-ducted zones were not properly isolated from one another, causing a mixing of supply air streams.

**Resolution:** Installed hand-fabricated metal plates in supply duct below air handling unit to properly separate supply air and ensure correct air distribution.

or dehumidifies, we put our hands on it for preventive maintenance and repairs,” said Pastorius. “It’s overwhelming!”

“There are so many assets here, and new maintenance contracts often involve a learning curve for contractors in locating the asset and understanding its nuances,” said Maintenance Services Superintendent Kevin Zebrowski.

Following discussions of how to more effectively manage this equipment, the Sewer District created a specialized team in its Building Maintenance department for HVAC maintenance and repair work. “The in-house team can provide a quicker response to problems and more efficient service overall,” said Zebrowski.

The skills involved in this type of work include electronics, brazing (similar to soldering, but at higher tempera-

tures), and automation and controls, which itself is a broad topic. “Every time there is an electronic board involved, it’s controlling or monitoring something,” said Pastorius.

Pastorius got his start in the Navy as a boiler operator and then went to trade school. “With that training, I was able to apply for jobs that closely matched my experience,” he said. “People who are attracted to HVAC tend to be precise, and they enjoy the challenge of troubleshooting. It’s a well-rounded trade. You learn electrical, pressures, and flows, and many other aspects of heating and cooling.”

Of his current crew, Pastorius said, “There are so many examples of these guys going above and beyond what they were hired to do,” said Pastorius. “Some of these repairs are phenomenal.” ♦



Jacinto “Junior” Ortiz has worked in plant maintenance for 27 years. Before that, he did chrome plating for the landing gears on F-15 fighter jets and other military aircraft.

Coming to work at a wastewater treatment plant was quite a change. “My first day here, it was so cold, and there was a lot of snow,” he recalled. “I almost went back to my old job! But I love it here. Whatever needs to be done, that’s what we do.”

An accomplished bass and conga player, Junior plays jazz, salsa, and merengue with his family (“Everyone plays an instrument”) and has performed for audiences in Chicago, Florida, and Toronto.

For information on employment opportunities at the Sewer District, visit:

[neorsd.org/careers](https://neorsd.org/careers)







## The Sewer District and Public Engagement

As a public entity, the Northeast Ohio Regional Sewer District has a natural connection with everyone who uses our services. The many ways we educate and engage the public can strengthen that relationship.

Our goal is for the public to become advocates and well-informed stewards of our water resources, helping to make our organization stronger and more efficient.

We believe that the public has a right to stay informed about our work, weigh in on decisions that affect them, and have the means to share concerns, criticisms, and suggestions.

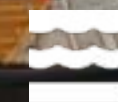
We approach our communications in a spirit of openness, with a willingness to inform, listen, and build and maintain strong relationships. And we invite you to join us in achieving the most positive outcomes possible.



**Learn more  
about our work!**



Get your FREE copies of *Clean Water Works* by emailing [askus@neorsd.org](mailto:askus@neorsd.org). You can also visit [neorsd.org/CWW](http://neorsd.org/CWW) and view them online!



**Northeast Ohio  
Regional Sewer District**





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