

where does it GO?



UNDERSTANDING THE VALUE OF CLEAN WATER



presented by the NORTHEAST OHIO REGIONAL SEWER DISTRICT

where does it

first, what is “it”?

The “it” in this question refers to WASTEWATER, which includes the sanitary sewage from homes and businesses, as well as stormwater (rain and melted snow) that enters the street sewers, streams, or rivers.



so where does it go?

Wastewater goes either to the treatment plants of the NORTHEAST OHIO REGIONAL SEWER DISTRICT (NEORSD) or directly into streams and rivers. More important is where it ultimately ends up: in Lake Erie, the source of our clean water. Understanding this cycle highlights the essential role that managing sanitary sewage and stormwater plays in preserving Greater Cleveland’s most valuable natural resource.



Lake Erie is the source of our clean water.

The District transports and treats wastewater in the Greater Cleveland area. We are often confused with the Cleveland Division of Water, but we are two separate entities with very distinct responsibilities:

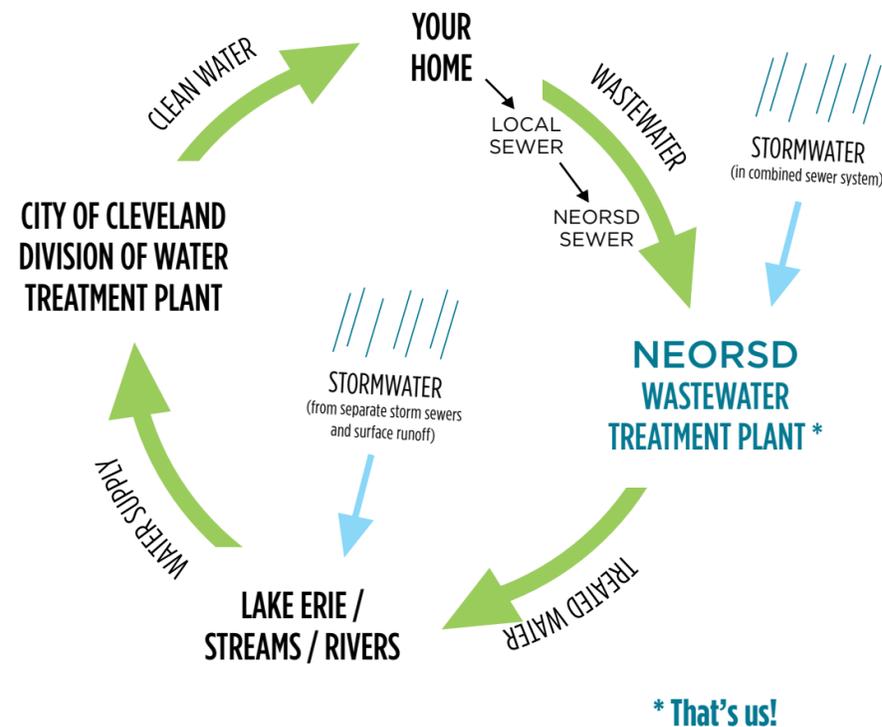
The Division of Water takes water from the lake and treats it BEFORE you use it for drinking, bathing, washing, and so on. The District cleans the water AFTER you use it.

After you flush or pour water down the drain, it is considered sanitary sewage. From the pipes in your home or business, it travels through your local sewer system into one of our large INTERCEPTOR SEWERS and then to one of our three treatment plants.

In our COMBINED SEWER SYSTEM (see page 7), we also collect and treat the stormwater that flows into street sewers.

Once we treat and clean the wastewater, it is transported back into the Cuyahoga River and Lake Erie, re-entering our water supply.

In most of our region there are SEPARATE STORM SEWERS that carry untreated stormwater directly into the streams, rivers, or Lake Erie. The District is developing a program to manage this stormwater as well.



* That’s us!

GO?

and why does it matter?

Let’s face it, without water—clean water in particular—we could not survive. Clean water is essential to public health, and it also plays a key role in stimulating our economy, protecting our environment, and assuring a bright future for Greater Cleveland. You may have never thought about all the ways clean water benefits our region!



CONTENTS

- 4 clean, safe recreation and valuable waterfronts
- 5 how does dirty water get clean?
- 6 water quality
- 7 controlling CSO and helping communities reduce flooding
- 8 stormwater
- 10 protecting the environment
- 11 getting to green
- 12 rebirth of our river
- 13 sewer rate increases / clean water moneysavers
- 14 a program for small businesses / meaningful careers
- 15 working with the schools / assuring a bright future for greater cleveland
- 16 clean water tips / take a tour!



“Of all of this region’s assets, none comes close to matching the importance of its abundant supply of fresh water.” —The Plain Dealer, December 2, 2007

clean, safe recreation and valuable waterfronts

Lake Erie is one of the largest bodies of fresh water in the world, and Edgewater Park is one of Ohio's most frequently visited state parks. The Cuyahoga River also is a huge recreational resource, offering such activities as fishing and rowing. Our waterfronts, and the promise of clean, safe recreation, bring significant revenue into our local economy.

Furthermore, the lakefront of the 1960s and '70s would not have been such a welcoming site for today's Cleveland Browns Stadium, the Rock and Roll Hall of Fame and Museum, and the Great Lakes Science Center.

Back then, who would have believed that Cleveland would host national fishing tournaments, or that major waterfront neighborhoods would evolve along the Cuyahoga?

Yet these are the results of the astounding recovery Lake Erie and the Cuyahoga River have made over the past four decades—a recovery the Northeast Ohio Regional Sewer District's work has helped make possible.



Lake Erie is one of the largest bodies of fresh water in the world.

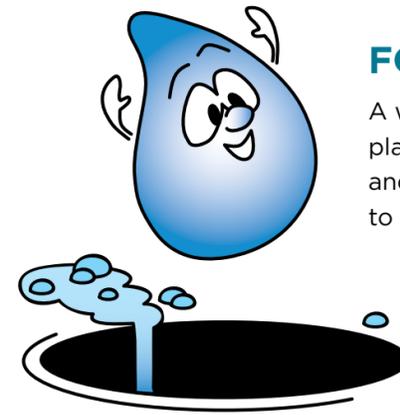


Our waterfronts bring significant revenue into our local economy.



how does dirty water get clean?

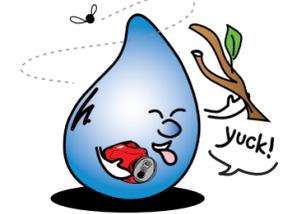
featuring WALLY WATERDROP



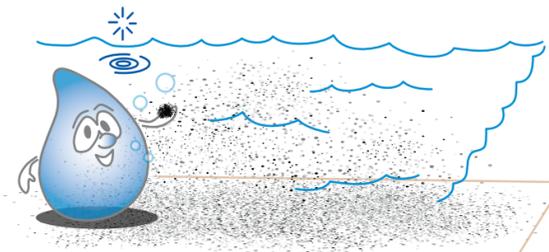
FOLLOW ME!

A wastewater treatment plant cleans dirty water, and it takes many steps to clean our water safely!

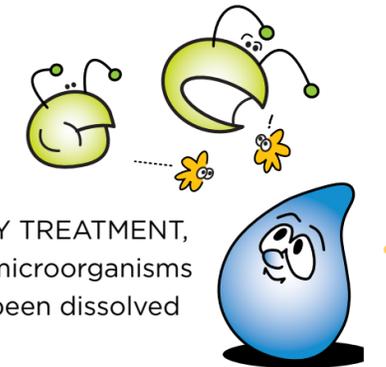
1. PRELIMINARY TREATMENT removes large debris like cans, leaves, and rocks from the water.



2. PRIMARY TREATMENT slows the water down to let solid waste sink to the bottom and grease float to the surface where it can be removed.



3. During SECONDARY TREATMENT, tiny helpers called microorganisms eat waste that has been dissolved in the water.



4. DISINFECTION removes germs called bacteria right before the water goes back to the river and lake.

5. WALLY MADE IT!

Back to Lake Erie, safe, sound, and CLEAN!



water quality

The District's improvements to its sewer system and treatment plants, and our enforcement of industrial wastewater regulations, have dramatically improved water quality and the ecosystems that depend on it.

The interceptor sewers and storage tunnels that we build (see next page) help alleviate the flooding of local sewers, which directly benefits public health.

In addition, the District is actively involved in monitoring the environmental safety at our local beaches. Our environmental laboratory and water quality investigators sample and test the water in the lake during the recreation season and any other time we believe public health may be affected. Collecting this information allows us to further reduce the impact of pollution on the environment.



HOW DO WE MEASURE WATER QUALITY?

LAKE SAMPLING

Up to 21 lake sites along the Greater Cleveland shoreline are sampled for bacteriological, chemical, and physical parameters. These data can alert the District, other agencies, and citizens to problems.

Our sampling has contributed to Ohio's basis for issuing safe fish-consumption advice and safe-swimming postings at area beaches.



STREAM AND RIVER SAMPLING

We currently conduct chemical and habitat analysis on area streams. In addition to data on pollutants and habitat, we conduct biological surveys for fish and aquatic insects.

The types, numbers, and diversity of these organisms are indicators of the health of the stream's ecosystem.

DRY WEATHER OUTFALL SAMPLING

The District's investigators periodically inspect our area streams, searching for improper discharges of sanitary or industrial sewage to the environment.

Samples are collected and returned to our Analytical Services laboratory. If the lab's analysis

indicates the presence of sewage, investigators trace the discharge back to its source. Then we pursue the elimination of the discharge and notify the Ohio Environmental Protection Agency.



Our water quality investigators test the water in the lake and streams.

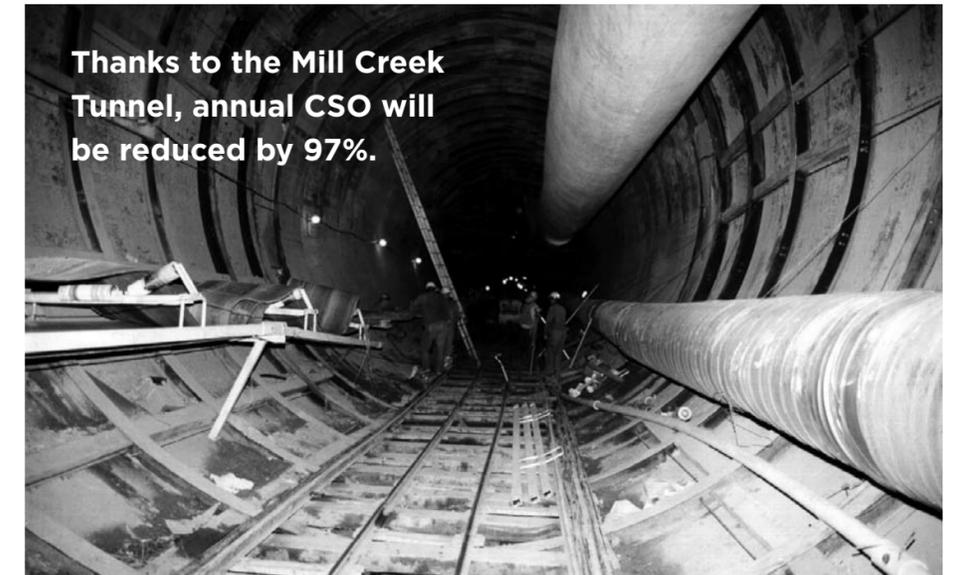
controlling CSO (combined sewer overflow) and helping communities reduce flooding

Cleveland's earliest sewers are "combined sewers" that carry sanitary sewage (from your house), stormwater (from rain and melted snow), and industrial waste in a single pipe. When indoor plumbing was first developed, the pipes from residences were fed into the original storm sewers, which would empty raw sewage directly into area streams and Lake Erie.

Thankfully, treatment plants were built to clean the dirty water before it enters the environment. But numerous COMBINED SEWER OVERFLOWS (CSOs) along the length of the pipes were kept—to release excess water that the sewers cannot fully contain during heavy rains, and to help prevent street and basement flooding. In this way, some untreated sewage is released into the environment.



Cleveland's earliest sewers are "combined sewers."



Thanks to the Mill Creek Tunnel, annual CSO will be reduced by 97%.

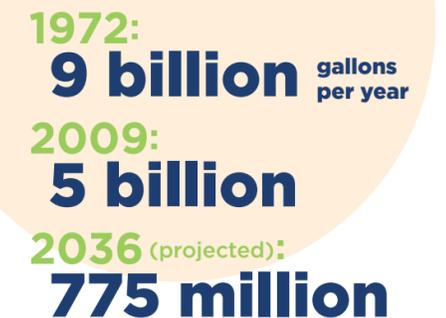
To reduce these overflows and to meet EPA mandates, the District is building gigantic storage tunnels to hold the overflow until the rains subside and our treatment plants can process the water. These tunnels provide relief for overloaded pipes, which can help local communities alleviate sewer backups and flooding problems.

The largest of our CSO-control projects to date is the Mill Creek Tunnel, which can store up to 72 million gallons of overflow from the Mill Creek Interceptor (which serves 12 communities, including Cleveland, Cuyahoga Heights, and Garfield Heights). Thanks to the Mill Creek Tunnel, annual CSO from the Interceptor will be reduced by 97%.

Mill Creek is one of many CSO-control projects the District has undertaken to improve water quality in area streams and Lake Erie.

neorsd.org/cso

Since 1972, the District's projects have drastically reduced the amount of CSO released into our region's waterways:



stormwater

STORMWATER PROBLEMS ARE REAL



The inability to effectively deal with stormwater results in flooded homes and streets, more pollutants entering our waterways, and serious erosion problems.

Across our region, pavement has replaced the natural green spaces that once slowed the pace of stormwater runoff (rain and melted snow and ice). Roads, parking lots, driveways, and sidewalks can't absorb water, so it moves quickly over these surfaces into nearby streams or sewers.



As it flows over the ground, stormwater picks up debris, chemicals, and pollutants that can contaminate our drinking and recreational water supply.

Solving stormwater problems can be difficult, since runoff from one community drains into another. A regional approach is needed.

An established regional organization, the Northeast Ohio Regional Sewer District is joining more than 1,000 communities—including Columbus, Cincinnati, and Toledo—that have created user fees to support stormwater programs.

Stormwater problems must be addressed regionally, and the Northeast Ohio Regional Sewer District has the experience to manage them.

WHAT WILL THE DISTRICT'S STORMWATER PROGRAM DO?

- The District will continue to build projects and maintain streams and the large pipes that carry stormwater.*
- We will continue our rigorous water-quality monitoring activities.
- To address regional drainage problems, we will expand watershed planning and floodplain management support.
- We will provide technical expertise to integrate multiple objectives—reduce flooding, develop green space, and reduce stormwater pollution—that benefit each other.
- We will coordinate educational programs that promote the importance of healthy watersheds.
- We will develop regional partnerships to address the problems that cross community borders and boundaries.
- When possible, we will promote on-site, green alternatives to traditional “pipe and pond” practices. Priorities will include: bioretention, floodplain restoration, vegetated swales, pervious pavement, and other low-impact development.

* The District's program focuses on large regional problems. Catch basins and small sewers remain the responsibility of local communities.

HOW MUCH WILL THE PROGRAM COST?

A stormwater utility is based on the premise that the urban drainage system is a public system, similar to water or wastewater systems. When a demand is placed on these systems, the user pays.

When a forested or grassy area is paved, a greater flow of water enters the drainage system. The greater the demand created (i.e. the more the parcel of land is paved), the greater the user fee.

RESIDENTIAL PROPERTIES

The stormwater user fee is based on an Equivalent Residential Unit (ERU) equal to 3,000 sq. ft. of impervious surface (such as roof and driveway). **The proposed cost for one (1) ERU is \$4.75 per month.**

Residences are placed in one of three categories:

- Small (less than 2,000 sq. ft.)
- Medium (2,000 to 4,000 sq. ft.)
- Large (more than 4,000 sq. ft.)

It is proposed that a small house pays about \$2.85 per month, a medium house pays about \$4.75 per month, and a large house pays about \$8.60 per month.

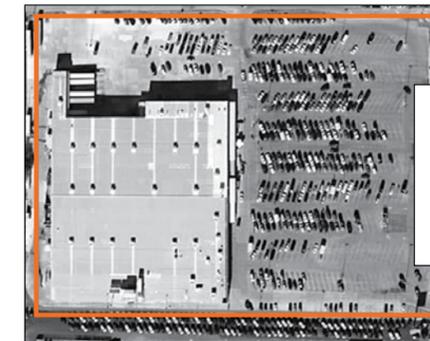
NON-RESIDENTIAL PROPERTIES

A typical non-residential property is billed on the number of ERUs of impervious surface it has.

CREDITS

Customers can receive a reduction in fees if they take measures to reduce the stormwater volume or minimize the pollutants flowing from their properties. These can include on-site strategies such as rain gardens, vegetated swales, and other practices that keep stormwater at its source.

neorsd.org/stormwater



Roof + parking lot = 120,000 sq. ft. = **40 ERUs** (minus any credits)

In this example, the amount of paved surface is 40 times the size of one ERU, so the fee is based on 40 ERUs. So if the fee is \$4.75 per ERU, the monthly bill to this property would be 40 x \$4.75 = \$190 (minus any credits).



Roof + driveway = 3,000 sq. ft. impervious surface = **1 Equivalent Residential Unit (ERU)**

Fewer flooding incidents, healthier waterways, and a better quality of life for Greater Cleveland are the goals of the District's stormwater program.

protecting the environment

BRINGING STREAMS BACK TO LIFE

The District's ecological work has evolved in conjunction with its efforts to improve water quality through projects like the Mill Creek Tunnel (see page 7). Along with working to reduce combined sewer overflows, the District wants to be at the forefront of a holistic approach to WATERSHEDS (see below) and stream restoration.

"We work closely with communities to identify and restore streams that have degraded due to erosion or in terms of habitat," explains Environmental Planner Mark Link.

One of the restoration projects Mark is working on is West Creek, a tributary of the Cuyahoga River that flows nine miles through Parma, Seven Hills, Brooklyn Heights, and Independence.

The project involves eight restoration sites along the creek, including a modification to a concrete barrier (constructed during the creation of Interstate 480), to allow for the unimpeded migration of steelhead trout.

Mark notes the unfortunate results of taking our streams and lakes for granted. "We've lost 90% of our wetlands, which once helped to protect the Lake Erie shoreline and control stream erosion," he says. "But it takes just one community to change its practices and serve as a model for the others."

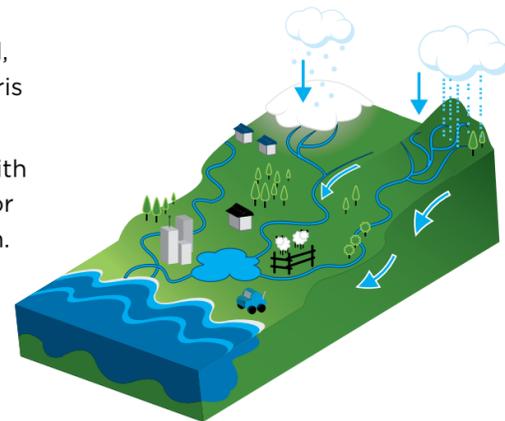


WHAT IS A WATERSHED?

A watershed is the area of land that drains into a common body of water, such as a stream or Lake Erie. Rainwater and melted snow flows downhill through the watershed to streams, rivers, and the lake, carrying any pollutants (motor oil, animal waste, fertilizers) and debris it picks up along the way.

Healthy watersheds provide us with drinking water, as well as water for irrigation, industry, and recreation. They also provide wetlands and open spaces that can store stormwater, providing natural flooding and erosion control.

Our wildlife depends on healthy watersheds for food and shelter. Everything that is done in our watershed affects the entire ecosystem.



getting to green

Part of the District's plan to become a regional environmental leader is the expansion of cost-effective, eco-friendly practices throughout its day-to-day operations.

To complement its recycling program, the District is exploring ways to bring its facilities closer to LEED (Leader in Energy and Environmental Design) certification, an international recognition of environmentally sound building standards and practices.

"We are assessing everything, from the light bulbs we use to our electrical and heating systems, our business practices, and our use of local vendors," said Administrative Services Manager Lisa Francisco.

"We're always looking for ways to eliminate waste," added Plant Superintendent Larry Cinadr. "For example, utilizing more of the plant effluent [non-potable water] in our process areas to conserve our city water usage."

"A priority for our department is developing sustainable design standards," said Kellie Rotunno, Director of Engineering & Construction. "We plan to minimize our carbon footprint on all major construction projects, from an energy-consumption perspective and in terms of reducing emissions and pollutants."

Carbon footprint is the total amount of greenhouse gases emitted directly or indirectly through human activity, and is the widely accepted standard of green-ness.

The District's plan to replace aging incinerators with more efficient furnaces (that can both reduce carbon-dioxide emissions and generate electricity) will minimize the plant's carbon footprint.

"These opportunities are pretty exciting," said Rotunno. "The District has taken a progressive stance, one that is not a common practice in the wastewater industry."

The District is replacing its incinerators with efficient furnaces that will minimize our carbon footprint.



rebirth of our river

June 22 marks the 40th anniversary of the infamous 1969 fire on the Cuyahoga River, which drew national attention and spoke to the urgent need to protect our natural resources.

At that time, the Federal Water Pollution Control Administration reported that “the lower Cuyahoga had no visible life,” a very gray outlook indeed.

But environmental legislation and the creation in 1972 of the Regional Sewer District to oversee Cleveland’s wastewater treatment plants and interceptors led to a remarkable comeback for the river and the eco-systems that depend on clean water.

Throughout 2009—the “Year of the River”—we celebrate the Cuyahoga’s rebirth and the essential role that the District plays in preserving the region’s water resources.

Our “Once Gray Now Green” educational outreach also highlights the District’s expanding role as an environmental leader, embracing green technologies and initiatives such as stormwater management.



CLEVELAND PRESS COLLECTION; CLEVELAND STATE UNIVERSITY LIBRARY

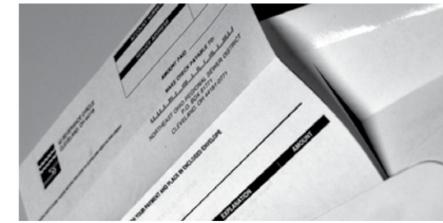


sewer rate increases

Sewer rates are increasing due to:

- **Increased energy costs**
- **Upfront expenses for major improvements to the plants**
- **Federally mandated projects to control sewer overflows**

We know this is unpleasant news, especially in these tough economic times. But it’s our responsibility to tell you that you will see higher sewer rates in 2009 and beyond.



The District is doing its best to keep rate increases to a minimum, and we will keep our customers informed of any changes so that they can plan accordingly.

If you are eligible, please take advantage of our two rate-saving programs, described below.

YOUR INVESTMENT

- ... is our primary source of operating revenue.
- ... helps rebuild old and damaged sewers.
- ... protects public health and the environment by improving water quality.

clean water moneysavers

HOMESTEAD RATE PROGRAM

A reduced rate is available to customers 65 and older, or anyone under 65 who is totally disabled. Household income must not exceed \$28,650 and applicants must own the property on which they live.

SUMMER SPRINKLING PROGRAM

Customers typically use more water in the summer—watering lawns, filling pools, and so on—but this water doesn’t return to the sewer system. So from May 1 through September 30, sewer charges are based on average winter water usage or actual summer water usage, *whichever is lower*.

To qualify, you must reside in an owner-occupied one, two, three, or four family residence.

TO APPLY FOR EITHER OF THESE PROGRAMS:

Call Customer Service at 216.881.8247.

In BEREA, call 440.891.3308.

In CLEVELAND HEIGHTS, call 216.291.5995.

In NORTH ROYALTON, call 440.582.6234.



a program for small businesses

Our SMALL BUSINESS ENTERPRISE (SBE) program offers local companies more opportunities to compete for District work as prime contractors, subcontractors, consultants, or providers of goods or services.

The goal is to provide economic benefits for the region and provide the tools and resources necessary for businesses to grow independently and successfully.

The SBE program is race and gender neutral, and supersedes existing Minority Business Enterprise (MBE) and Women Business Enterprise (WBE) programs. (Vendors certified as MBE/WBE will maintain their status but must apply for SBE certification prior to receiving an SBE contract.)

New and existing vendors must complete an online registration form to have a greater opportunity to enter into contract for future work.

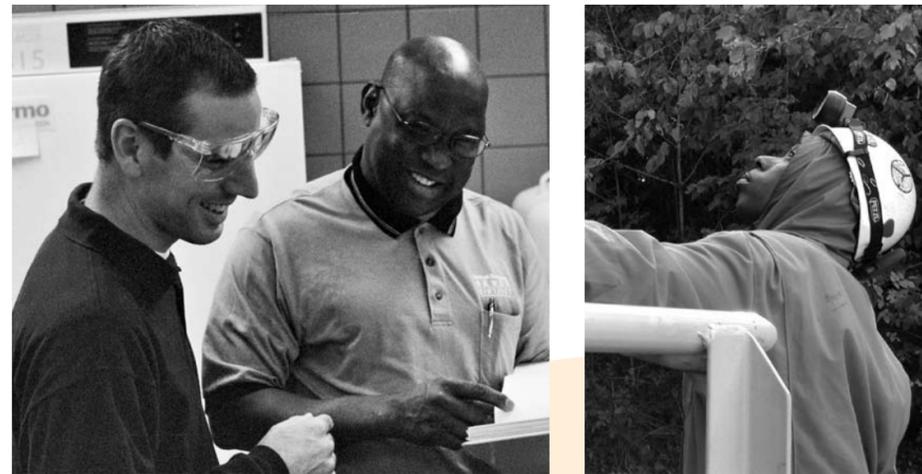
neorsd.org/sbe



meaningful careers

With a workforce of more than 600 people in over 200 different jobs, the Northeast Ohio Regional Sewer District provides opportunities for employment in technical disciplines such as biology, chemistry, engineering, environmental science, and wastewater plant operation—and in fields such as business, finance, communication, information technology, and law. Through job fairs and internships, the District makes a concerted effort to recruit talent from Northeast Ohio.

As our organization expands and long-term employees retire, individuals with a passion for this region and the appropriate skill sets will be able to discover a rewarding career in this industry.



Work at a place where you can grow your career.

Visit neorsd.org/careers or call the Employment Information Line at **216.432.7300**

working with the schools

The District's educational outreach activities enhance elementary and high-school learning, prepare students for proficiency exams, and provide scholarships for students interested in pursuing careers in wastewater treatment.

Our WASTEWATER PREP PROGRAM, a partnership with the Cleveland Metropolitan School District and the Urban League of Greater Cleveland, gives select high school juniors an opportunity to explore our industry and gain valuable work experience.

Students participate in weekly after-school classes with a team of District staff, and successful participants are interviewed for summer jobs with the District.

Some local seventh-graders participate in AQUABOTS, a groundbreaking robotics program at Stokes Central Academy on East 40th Street. The program is focused on enhancing students' math, science, computer, and communication skills.

Students collaborate to design a robot that can perform activities related to the District's clean-water work. In addition, oral presentations and computer assignments increase the students' awareness of future career options.



Wastewater Prep students participate in after-school classes with District staff.

assuring a bright future for Greater Cleveland

A built-to-last infrastructure is an investment in Cleveland's present and future. We constantly assess our sewers and treatment plants, making sure they are sustainable.

Since 1972, we've invested over \$2.2 billion in projects that have a direct effect on protecting public health. In the next three decades we'll invest \$5 billion to maintain our existing assets and facilities and expand our CSO controls.

The District also is implementing a Stormwater Management Program to help local communities control flooding, pollution, and erosion issues that come with heavy rains.

Our acceptance of these challenges means job and business opportunities for local contractors, engineers, suppliers, and support providers as we strive to best serve our region.



And, given the costs of these endeavors, we are always working to improve our financial processes to ensure proper stewardship of the public's funds.

We are proud of our contributions to water quality and the rebirth of Lake Erie and the Cuyahoga River. The rebirth continues, and our role in coming decades will be even more critical.

clean water tips

1. By properly disposing of hazardous wastes, you can avoid potential plumbing problems in your home and contribute to the safety of your community. Do not pour solvents, pesticides, paint thinners, motor oil, or other chemicals down the drain or into storm sewers.

In addition to treating over 229 million gallons of wastewater each day, the District participates in hazardous waste roundups throughout Cleveland and offers a free mercury thermometer exchange program.

2. Collecting rubbish can improve your community and help us continue assuring clean water for Greater Cleveland. As simple as it sounds, properly disposing of trash and discarded rubbish (cigarette butts, plastic bottles, fast-food wrappers) can enhance your property and keep your community and our waterways clean.

In 2008, the District collected over 33 tons of heavy debris and FLOATABLES (rubbish captured in our sewer systems and natural water resources).

3. Treatment plants are not designed to remove medicines, so they may pass through into rivers and the lake. To dispose of unwanted medicine, keep it in its original packaging, but black out or remove all personal information. Make the medicine unusable: crush or dissolve pills in a small amount of water, absorb liquid medicine with flour or table salt. Secure the package with strong tape, put it inside an empty yogurt or margarine container, and place it in with your household trash.



Where can I find more information about the District's work?

neorsd.org | wheredoesitgo.org

OTHER RESOURCES:

clevelandwater.com | gcbl.org | epa.state.oh.us | odh.state.oh.us | clevelandhealth.org
ccbh.net | cuyahogawd.org | cuyahogawcd.org | cuyahogariverrap.org | ecowatchohio.org

take a tour to see where it goes!

The Northeast Ohio Regional Sewer District provides opportunities for group tours at its wastewater treatment plants for an overview of the treatment process, and at the Environmental & Maintenance Services Center (EMSC) for a laboratory overview. Since the tours include outdoor walking and demonstrations, they are only offered between March and October.

To schedule a tour, contact Margie Nelson at 216.881.6600 ext. 6637.

SEWER PLANT OPEN HOUSE

In September, the District holds its annual Open House, a day of public tours of its laboratory and the Southerly Wastewater Treatment Center. Visit neorsd.org for information about this year's event.

This was printed on paper with 100% recycled content. Please pass it on to a friend or recycle it!
The District distributes 10,000 copies of this publication at a print cost of 13 cents per copy.