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NORTHEAST OHIO REGIONAL SEWER DISTRICT • 1994 ANNUAL REPORT

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Executive Director's & Board President's Message



Standing: Allan R. Mills, President. Seated: Erwin J. Odeal, Executive Director.

Just as we rely on the 24-hour services of firefighters, police and the medical community, the Northeast Ohio Regional Sewer District depends on its more than 650 employees to enhance public health and preserve water quality around the clock. We work 24 hours a day, seven days a week, 365 days a year, to provide constant, efficient service.

While the work of our emergency response teams is highly visible, a large majority of our work is not. Therefore, we must dig deeper into the heart of our business to give you a closer look at what makes our organization tick. In this report we will give you an inside look at how our employees work around the clock to preserve water quality. To do that, we must explore all the hours we work, including those times when most people sleep or relax.

Standing [L to R]: Erwin J. Odeal, Executive Director; Charles J. Vasulka, P.E., Director of Engineering & Construction; David A. DeMarco, Director of Finance; Seated [L to R]: Will R. Baylis, Director of Plant Operation & Maintenance; William B. Schatz, General Counsel; Kenneth A Pew, Deputy Executive Director.

Today's clean water industry is especially challenging due to ongoing and ever-changing regulations. However, our employees meet new challenges with speed and efficiency. Our knowledge about wastewater treatment becomes obvious to visitors when we give educational tours of our facilities.

We have gained international recognition for our dedication to the unglamorous work of wastewater collection and treatment. Here, you will learn about the employees who are behind the scenes and are the foundation of our excellent reputation – those employees who, for example, take control panel readings at 2 AM Sunday morning as part of their scheduled shift or respond to a hazardous material spill or flooding emergency at any time of the day. Our employees, regardless of their positions or the times they work, are critical to our operation. They are safety conscious, prepared, resourceful and sincerely concerned about the environment. These are just some of the many qualities our employees possess that enable the Northeast Ohio Regional Sewer District to maintain a superior level of wastewater treatment every minute of every hour, every day of the year.

C



EFFECTIVE COMMUNICATION MINIMIZES THE INCONVENIENCE OF PROGRESS

Maintaining wastewater treatment quality and a safe working environment during major construction has been a major challenge for employees at the Westerly Wastewater Treatment Plant. In 1994, we turned half of our primary clarifiers, grit tanks, and thickeners over to contractors for modifications and refurbishment. This loss of equipment significantly altered the plant's primary treatment and biosolids thickening capabilities. Plant employees conducted extensive testing to determine the optimum chemical feed and biosolids withdrawal rates to compensate for the lost process equipment.

Also, our engineers instituted a system of "request for shutdown" forms to evaluate and coordinate the contractors' work that could affect operations. A strong commitment to using this system has minimized interruptions to the treatment process.

Early morning meetings between plant management, engineering staff, contractors, sub-contractors and design consultants has had a tremendously positive impact on the working situation between operations and

8:00

construction. A plant manager attends construction meetings and takes part in all aspects of operational changes due to construction. Likewise, design consultants attend the plant's daily strategy meeting to help communicate construction information that affects operations.

IMMEDIATE ACTION RESOLVES INTERCEPTOR BREAK

As with Westerly construction, effective communication minimized the inconvenience of the Westerly Interceptor break. A huge hole in the earth alerted us that something was wrong on a Sunday morning in August. Closer examination revealed a crack in the Westerly Interceptor. The possibility of wastewater overflowing into the environment prompted our quick action. We spent Sunday mobilizing equipment for the area.

9:00

Employee measures biosolids blanket level in the primary settling tank



On Monday morning, Engineering commissioned contractors to reroute the flow from the Westerly Interceptor to the Northwest Interceptor.

After Engineering informed Operations of the rerouting, Operations accommodated the change by continuously pumping the wastewater back from our combined sewer overflow treatment facility to the headworks facility. Operations processed the flow in the plant and avoided overflowing settled wastewater into Lake Erie. With the flow under control, the contractors repaired the interceptor – restoring it to full operating capacity.

EMPLOYEES QUICKLY RESPOND TO SHOREWAY FLOODING

Working in the wastewater business keeps everyone on their toes. This is especially true since employees don't know when they may need to respond to an emergency like a major sewer break, a flood, or a hazardous material spill.

10:00

In May, an overloaded sewer created a major traffic problem when the pressurized wastewater lifted the pavement around a manhole cover.

An unusual amount of rain exceeded the capacity of a sewer under the West Shoreway. The wastewater lifted the pavement and peeled up several hundred feet of asphalt on the eastbound lanes near Edgewater Park right before Monday morning rush hour.

Employees were contacted during the early morning hours and at 6 AM an emergency contractor met with District personnel to begin repairs. By 8:30 AM the contractor mobilized a work crew and equipment. The contractor then cut away the damaged Shoreway pavement sections and prepared the old exposed concrete surface. By 5 PM the work crew started pouring asphalt which they completed by 9 PM. Though traffic remained off the Shoreway until 3 AM, it opened for rush hour the next morning. Quick, expeditious service by District personnel and the contractor completed the

emergency repair within a day and turned what might have been a drawnout emergency into a quick, responsive action.

EMPLOYEES EDUCATE PUBLIC ABOUT WASTEWATER TREATMENT

Educating the public about the District's role in wastewater treatment is a high priority for employees. This year, on a Saturday in September, employees at the Southerly Wastewater Treatment Plant took time out to show the plant to the public. We held the tours in conjunction with the Remedial Action Plan's Cuyahoga Caravan. During the two hour tour, employees explained the District's many functions to the visitors. The tours provided an opportunity for interested citizens to learn about wastewater treatment and the issues that face treatment facilities today. Children learned more about the environment and why it is so important to keep it clean. Another part of the Caravan included a boat cruise on Lake Erie, where volunteers

discussed water quality issues and visual points of interest along the lake front.

The District hosts plant tours for the public annually. Visitors from schools, professional organizations and international groups also make requests to visit our facilities throughout the year. In 1994, more than a dozen groups toured our facilities.

The District also takes pride in participating in exhibits and career days. For the last four years, the District has hosted an exhibit on Earthday. This year's annual celebration took place on a Sunday in April. The EarthFest Coalition sponsors the event which gives us the opportunity to share some of the progress we have made in improving water quality. Employees discuss the District's water quality improvements with visitors. More than 50,000 people attended the 1994 EarthFest celebration.



SAFETY, A HIGH PRIORITY AT ALL TIMES

Given the potential for danger in our work, it is important that we maintain a safe working environment at all times. To address this need, we continually conduct safety training throughout the District. Safety training has significantly reduced absences due to work related accidents. In fact, both the Easterly and Westerly Wastewater Treatment Plants finished 1994 with no lost time due to work related accidents.

We attribute part of our impressive safety record to hands-on confined space safety training that plant employees conduct every two weeks. Regular training enables us to maintain a level of proficiency so if an emergency does arise, we are prepared. We also hold monthly safety meetings. These morning meetings serve as a forum to discuss safety issues and view safety training videos. Furthermore, employees survey designated areas to identify potential dangers and discuss the results at the meetings.

Our progressive safety training benefits others as well. The Hazardous Material (HazMat) Drill and our Confined Space Rescue Training services are just two examples of how we train other people to use safer behavior.

1:00

Employees conduct confined space rescue training

11:00

NOON

HAZMAT DRILL TURNS SHOPPING CENTER INTO A TESTING GROUND

On an early May morning, alarms blared, black smoke spattered overcast skies, and paramedics raced from person to person. But District employees remained calm. This scene at Randall Park Mall was actually just a (HazMat) Drill, and we were the judges. Our employees helped create a scenario where they evaluated emergency response agencies from 12 cities on how quickly and efficiently the agencies responded to a disaster involving hazardous materials.

With the understanding that the District has previous experience in this area, the County Local Emergency Planning Committee (LEPC), the Chagrin/Southeast HazMat Team and the Institute for Real Estate Management asked us to help design the drill and serve as judges to rate performance. The drill's objective was to assure that the appropriate agencies can respond to an emergency at any time, day or night.

Once the drills ended and the District judges tallied their scores, it was clear that there is a competent group of emergency response teams in the Greater Cleveland area.

EMPLOYEES PROVIDE CONFINED SPACE RESCUE TRAINING FOR FIRE SQUAD

Since outside organizations respect our safety efforts, they often ask us to share our knowledge so they can prepare for emergency situations. In this spirit, we provided confined space entry and rescue training to the Aircraft Rescue and Fire Fighting Squad at Hopkins Airport.

On a sunny late morning in June, our staff lowered Hopkins firemen into a dark narrow underground shaft with ropes and pulleys. These shafts serve as access tunnels to the electrical wiring beneath the runways. The objective of the training was to rescue what appeared to be a lifeless form at the bottom. This was not an easy exercise for either party, especially with the firemen's added weight of oxygen tanks, masks and fireproof suits. Confined space rescue training helped prepare them for the possibility of such future emergencies.

TAKING QUICK ACTION TO DEAL WITH COBALT-60 FINDINGS

Problems arise at the District to which we must quickly respond. In 1994, the District again dealt with discharges of cobalt-60 into the sewer system and the failure of other agencies to adequately regulate dischargers.

During investigative work, District employees uncovered a manhole and found cobalt-60 residue in a sewer. The District determined that a company discharged the cobalt-60 and proceeded to conduct around the clock surveillance of the suspected discharger. By placing samplers in the sewer line outside the company, employees monitored the company. The findings led us to terminate the discharger's sewer service.

In June, our Executive Director, Erwin Odeal, presented testimony to a United States Senate subcommittee regarding the Nuclear Regulatory Commission's (NRC) failure to adequately regulate the discharges of its licensees. His testimony shared our concerns regarding the protection of employees, the public and the environment and the cost for our clean-up efforts. The District has spent approximately \$1.5 million over the last three years because the NRC failed to adequately regulate the discharger. Mr. Odeal stated that the NRC failed to give any reasonable assurance that their regulatory program will prevent future occurrences of treatment plant contamination. Therefore, he recommended they



create a task force of representatives from other agencies to develop a meaningful regulatory program based on the methodologies of the Clean Water Act.

Also, during a surface survey in February, we discovered elevated readings of cobalt-60 at the Easterly Wastewater Treatment Plant. Following removal of soil samples, the site returned to normal reading levels. We worked quickly to educate the public about the situation and to assure them that the found substance did not pose any potential health risks.

The above cobalt-60 related incidents are only a few examples of the significant resources the District has dedicated to radiation issues over the past three years.

PRUDENTLY MANAGING FINANCES AND AGGRESSIVELY SECURING FUNDING

The District takes pride in its prudent management of finances and borrowing methods to finance capital improvement projects. We make secure investments and borrow money wisely so our user rates remain affordable.

We follow conservative practices and invest only in secure instruments. The District purchases obligations of the U.S. Treasury and government backed agencies. We also invest in a State of Ohio short term money market fund that invests in U.S. Government securities and we purchase fully collateralized certificates of deposit.

To finance our construction projects, we sell revenue bonds and borrow from the Ohio Environmental Protection Agency's (EPA) Water Pollution Control Loan Fund (WPCLF). While we had no need to sell revenue bonds this year, we received nearly \$58 million in WPCLF loans for plant and interceptor improvements. The program provides funding with below-market interest rates for a wide range of water pollution control improvements. Our personnel's understanding of the EPA's former grants program enabled us to quickly adapt to the WPCLF program requirements. The District's commitment to improved water quality necessitates ongoing construction which makes us eligible for loan program application. The District's financial strength and ability to repay is an attractive element as the state seeks to leverage future proceeds to expand the loan fund's capital.

There are several advantages to borrowing from the WPCLF program. The cost of marketing bonds is absent, the 20-year repayment period is delayed until project completion, and the interest rate is approximately two percentage points below the market rate for funds generated through the sale of revenue bonds. As the table below indicates, we saved approximately \$16 million by borrowing from the WPCLF instead of selling revenue bonds.

1994 FINANCIAL POSITION/UNAUDITED (IN \$ MILLIONS)



1994 WATER POLLUTION CONTROL LOAN FUND PROJECTS

PROJECTS	Award Month	AMOUNT AWARDED (IN MILLIONS)	WPCLF Interest Rate	MARKET INTEREST RATE	MARKET REPAYMENT (IN MILLIONS)	WPCLF (IN MILLIONS)	SAVINGS (IN MILLIONS)
Olmsted Falls Connector	March	\$16.6	3.54%	5.91%	\$28.7	\$23.4	\$5.3
Easterly Biosolids 142 G & E, 143A	March	15.3	3.54%	5.91%	26.5	21.6	4.9
Southwest Contract 7	April	6.1	4.18%	6.23%	10.8	9.1	1.7
Heights/Hilltop 2B	September	7.0	4.18%	6.30%	12.5	10.5	2.0
Easterly Biosolids 143B, 143 C1 & C2		12.6	4.18%	6.30%	22.5	18.8	3.7

EASTERLY WASTEWATER TREATMENT PLANT



14021 LAKE SHORE BOULEVARD, CLEVELAND

SOUTHERLY WASTEWATER TREATMENT PLANT



6000 CANAL ROAD, CUYAHOGA HEIGHTS

WESTERLY WASTEWATER TREATMENT PLANT



5800 W. MEMORIAL SHOREWAY, CLEVELAND

PLANT PERFORMANCE DATA



Treated 54.0 billion gallons of wastewater. Pumped 666.4 million gallons of biosolids to Southerly. Employs 64 people.



Treated 46.5 billion gallons of wastewater. Processed 92,830 wet tons of biosolids. Incinerated 83,661 wet tons of biosolids.

Hauled 9,169 wet tons of biosolids. Employs 226 people.



Treated 12.6 billion gallons of wastewater. Processed 36,529 wet tons of centrifuge cake. Incinerated 34,757 wet tons of biosolids.

Hauled 1,772 wet tons of biosolids. Employs 75 people.

KEY



PREVENTING POLLUTION BY UPGRADING EQUIPMENT

Rainstorms can hit our area at any time. We must assure that our sewer system can handle these events to minimize combined sewer overflows (CSOs).

Some of the area's original sewers, known as combined sewers, carry both storm water and wastewater in

3:00

the same pipe. During rainfall, large volumes of storm water run-off combines with the domestic and industrial wastewater, increasing the likelihood of a CSO. CSOs are a major source of bacterial contamination for some of the streams in our area. CSOs also carry other floatable pollutants that end up in lakes, rivers and streams.

One of the steps we took to prevent overflows was to upgrade the automated regulators and other related equipment. Automated regulators operate nonstop, unattended, so we must assure they are in peak condition. Automated regulators minimize discharges into the environment by temporarily storing wastewater in trunk sewers during heavy rainfalls. In 1994, improvements to regulators near Edgewater Park resulted in increased storage capacity and reduced overflows at Edgewater beach. In addition to the automated regulators, we upgraded our network of 29 rain gauges to get more accurate data on local rainfall. The new gauges use microwave transmissions to send data instead of telephone cables. This is economically advantageous since we no longer pay for use of telephone lines. These upgrades are just one example of our commitment to reducing CSOs and making the Greater Cleveland area a safer place to live.

TYPICAL AUTOMATED REGULATOR



5:00

Employee repairs equipment in response to emergency breakdown



COMPUTER SYSTEM OPERATES 24-HOURS

Our computer system stores and processes information for all aspects of the District's operations. It is the foundation of the new electronic information system and network the District has been implementing over the past three years. The network will electronically link the entire District and allow access to high resolution printers, computers and a variety of other external hardware. Additionally, the network will allow us to access local and national databases.

During the year, we continued to develop the new electronic information system. At year end, the network serviced 62 personnel at three separate facilities.

6:00

Given the criticality of storing and processing information, support personnel are on call 24 hours a day in case the computer system malfunctions.

EMPLOYEES CONTINUALLY ANALYZE WATER QUALITY

Protecting water quality is important to us. Therefore, we regularly analyze treated wastewater and stream samples to check our wastewater treatment effectiveness as well as our treatment processes' effect on the environment. Plant employees are responsible for obtaining daily samples of wastewater before, during and after treatment. Automated samplers collect the wastewater samples at designated intervals. Operations employees change the sample bottles every 24 hours at midnight. In addition, Southerly shift supervisors gather upstream and downstream river samples every Tuesday morning to assess water quality before and after the plant discharges treated wastewater. We diligently take samples around the clock to make sure the wastewater treatment process is working properly.

Employees lend further support to our efforts by providing data to the treatment plants on parameters critical to meeting National Pollutant Discharge Elimination System permit limitations. This information, which they supply seven days a week, helps plant personnel make the necessary adjustments to the wastewater treatment process.

In addition, Analytical Services conducts tests to look for any signs of toxicity in our plant effluents. These toxicity tests take from four to seven

days and require weekend hours to complete. Analytical Services breeds small water organisms for this type of testing.

A form of testing we conduct that directly benefits the public is beach sampling. Beach sampling involves checking water along the beaches to determine if they are safe for public recreation. During the summer swimming season, May through September, personnel collect and analyze samples for coliform bacteria daily at Edgewater Park and Euclid beaches. We collect additional samples during and after rainfall. Employees send the results to the Ohio Department of Health and the Cleveland Lakefront State Park so they can inform and educate the public about water conditions.

9



INTERCEPTOR CONSTRUCTION CONTINUES

When working underground on our tunnel projects, workers sometimes don't know whether it is day or night. Entering a dark tunnel that may be anywhere from 50 to 250 feet below ground barely allows natural sunlight to beam in. Underground workers are digging their way through to create interceptor tunnels that will eventually be 24 miles long. These tunnels, which may be as large as 16 feet in diameter, are the super highways of the underground sewer system designed to transport flow to our wastewater treatment plants. During construction, the tunnels even come equipped with a rail car system to facilitate the projects.

The District is investing more than 350 million dollars in interceptor construction projects. These projects sometimes require employees to work over and beyond the normal work day to manage the construction or address unusual situations. To move forward with the next phase of such a mammoth construction project it is imperative that each construction phase meet its deadline.

This year the District awarded approximately \$24 million in construction contracts for the completion of

8:00

the Southwest Interceptor and the continuation of the Heights/Hilltop Interceptor. These two interceptors will serve more than one-half million residents in the District's service area.

The District started initial planning for the interceptor projects in the early 1980's to control sanitary sewer overflows, alleviate basement flooding and provide for the elimination of smaller inefficient pump stations and treatment plants. This year, the District closed the Strongsville "A" treatment plant. The Southerly Wastewater Treatment Plant now treats flow previously treated at the Strongsville "A" plant by way of the Southwest Interceptor.

9:00

Workers tunnel underground to build an interceptor



EMPLOYEES REPRESENT DISTRICT BEYOND REGULAR WORKING HOURS

Public interest in environmental issues requires that employees provide information about the organization at times other than the average work day. Employees frequently receive requests to spend their evenings speaking to a community organization, a special interest group or a city council meeting. During these presentations, they may address concerns about environmental issues or neighborhood projects. Employees often take personal time from their busy days and lives to attend these meetings so others may learn more about our projects and how they affect their neighborhood.

10:00

PUMP STATIONS OPERATE CONTINUALLY TO HELP US MAINTAIN WATER QUALITY

To provide constant and thorough wastewater treatment around the clock, we closely monitor our equipment and facilities. Pump stations are an important facet in wastewater collection that we must routinely check. Advanced technology allows us to check the pump stations without being physically present. Operators read remote monitors located at the main plants that relay information from the pump stations. They regularly check these remote monitors to assure everything is running smoothly. If things go wrong, plant management notifies the appropriate employees so they can go out and make the necessary adjustments or repairs.

Additionally, Operations employees routinely visit the pump stations at least once a day, every day of the week, to make sure everything continues to work as it should. Typically, two employees visit each pump station to check the sump pumps, heating systems, pump controls, electrical systems, the bar screens and reset the controls. They also analyze air gases.

It was around midday, during one of these routine equipment checks that an operator discovered one of our pumps at the Beech Hill Pump Station had stopped working. There are several pumps at each station, so there were enough working pumps to compensate for the malfunctioning one. But it was still necessary to repair the broken pump so it could be ready for future use. We completed the repairs the next day and restored Beech Hill to its full functioning capacity.

In 1994, the District assumed ownership of the Cranwood Pump Station. Cranwood's acquisition allows us to better control combined sewer overflows that occur near the pump station. Future plans to improve combined sewer overflow facilities in the Mill Creek area will probably eliminate the Cranwood Station and provide an environmental benefit to surrounding communities.

11



OPERATIONS WORKING ALL THE TIME

Out of necessity, our plants operate 24 hours a day, 365 days a year. If everything goes well, work is routine. Employees take hourly readings and make necessary adjustments around the clock. The procedure doesn't change significantly from day to night.

However, if an emergency arises, the night shift employees are in a different predicament. Since the night shift employees work with a reduced staff, they have to respond to emergencies without the assistance of a maintenance crew.

2:00

As noted throughout the report, all of our employees must be ready to deal with the unexpected. Whether it is a hazardous material spill, a water line break, or a computer malfunction, our employees are prepared to take the necessary actions to restore and maintain operations.

The bottom line is, we operate around the clock to serve the ongoing needs of our customers.

4:00

6:00

Employee takes boiler room control panel readings every hour

MIDNIGHT

NORTHEAST OHIO REGIONAL SEWER DISTRICT 3826 EUCLID AVENUE • CLEVELAND, OHIO 44115