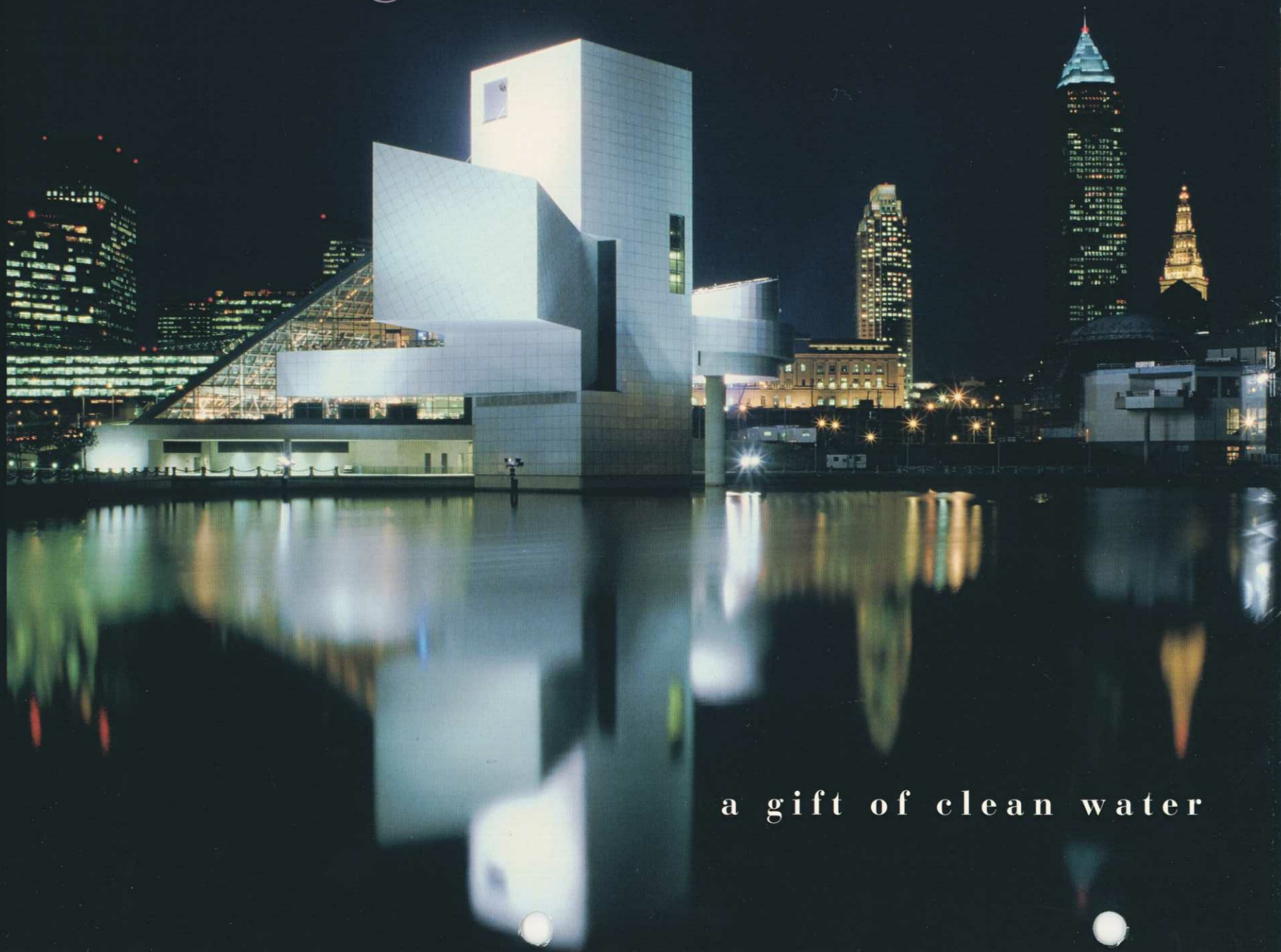


Northeast Ohio Regional Sewer District

Celebrating Cleveland's Bicentennial

1995

*annual
report*



a gift of clean water

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A Message

FROM THE PRESIDENT AND EXECUTIVE DIRECTOR

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The Executive Director Erwin J. Odeal and Board of Trustees
President Michael L. Nelson.

As the City of Cleveland celebrates its bicentennial, we believe it is fitting to recognize the Northeast Ohio Regional Sewer District's gift to the area – clean water. Over the past twenty-three years, our customers have made a major investment to bring water quality back to where it was before the region's original industrialization and population growth.

The leadership of the Cleveland area also deserves recognition for capitalizing on the strength of our water resources. The revitalized water quality in the area has created a renaissance by attracting new businesses and recreational opportunities. Today, the Cuyahoga River and Lake Erie shoreline thrive with visitors enjoying restaurants, parks, sports facilities and museums. The enhanced water quality has caused an increase in the number of parks both planned and created. By working to improve the water quality of this area, the District has contributed to improving the quality of life in Greater Cleveland.

This report provides a historical perspective on the transition in Cleveland's water quality from the time Moses Cleveland first set foot on the banks of the pristine Cuyahoga River – through the times when pollution threatened its well being – up to the recent improvements in water quality. It is these recent improvements in which the District has played a large role. This report will contrast, through words and images, the transition in water quality and the initial condition of sewers, interceptors and area waterways. We also feel that it is imperative we continue to inform the public about the important role they play in maintaining and improving water quality.

Although improved wastewater treatment and new sewer construction have largely revitalized our river and lake, we still have work to do. Combined sewer overflows (CSO's), polluted storm-water, and wet weather separate sewer overflows (SSO's) continue to impair water quality. Because pollution from CSO's, storm-water and SSO's enters the water through many locations, overflows are difficult to control. The ongoing challenge is to cost effectively address these dispersed pollution sources. The cost to meet regulatory and legislative requirements will continue to escalate. In addition, facilities constructed more than 20 years ago need rehabilitation and additional facilities remain to be built. All of these costs must be paid by our users since the federal construction grant program has been abolished.

The future of Cleveland's water resources is in the hands of its residents and its clean water utility, the Northeast Ohio Regional Sewer District. By working cooperatively, we can positively help shape its destiny.



BOARD OF TRUSTEES

Standing left to right: Michael G. Konicek, Mayor Thomas J. Longo, Allan R. Mills, and Rosemarie F. DeJohn.

Seated left to right: Sheila J. Kelly, Secretary; Michael L. Nelson, President; Gary W. Starr, Vice President.



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Plant Improvements

REQUIRED TO IMPROVE WATER QUALITY AND EXPAND SERVICE AREA



Easterly Wastewater Treatment Plant

In the early 1900's, the Ohio State Board of Health warned Cleveland officials that polluted water could pose a serious health risk. In 1913, the city responded with an experimental work site located where the Easterly Wastewater Treatment Plant now stands at East 140th and Lakeshore Boulevard. There, scientists attempted different methods of wastewater treatment. The city built structures at the Easterly "Main Testing Station" and investigated hand-cleaned bar screens, grit chambers, sedimentation basins, roughing and trickling filters and sludge treatment devices.

Design and construction of full-sized preparatory works with chlorination facilities and a second submerged outfall for Easterly began in 1919. The "plant" was completed and began operation in 1922. That same year, the Westerly Wastewater Treatment Plant began operating as a primary treatment facility as did the Southerly Wastewater Treatment Plant in 1927. In 1938, Cleveland officials transformed Easterly into an activated sludge plant.

The city made improvements periodically over the next four decades, but nothing that could adequately treat wastewater in a rapidly growing city. Making matters worse, no industrial discharge regulations existed. Between the mid 1960's and early 1970's, the cumulative effects of our environmental neglect had become sorely apparent. The area waterways not only looked bad, they were ecologically unfit.

1796

Moses Cleveland arrives at the mouth of the Cuyahoga River.

1803

Ohio becomes a state with a population of 70,000.

1810

On July 16th the General Assembly of Ohio approves an act calling for the organization of Cuyahoga County.



Revitalized Skyline from Cuyahoga River

The city that had grown into a national industrial giant had become a victim of its own prosperity. Largely due to the deplorable condition of Lake Erie and other area waterways, Cleveland had become a national joke. So, when the District assumed responsibility for Northeast Ohio's wastewater treatment in 1972, we had our work cut out for us. The three treatment plants we inherited had poor discharge quality and needed major renovation.

These circumstances allowed for our humble beginnings. Since our creation in 1972, we have made great strides in improving and upgrading the three major wastewater treatment plants. Millions of dollars went to improving the capacity and quality of the wastewater treatment process.

Perhaps the most recent and significant plant improvement is the completion and successful operation of Westerly's trickling

filter contact system. This accomplishment, which occurred in 1995, enabled Westerly to completely meet its discharge limits for the first time in seven years. More impressively, these are the best pollutant removal rates the plant has achieved since its beginning in 1922.

At the Southerly Plant, we have made substantial progress in curbing odors that are sometimes inherent to the wastewater treatment process. In 1995, we relocated biosolids recycle and waste liquor streams away from the thermal conditioning process. Moving these streams prevented the heat process from intensifying the odors. Southerly and Easterly have consistently received awards for meeting discharge limits.

Improving our wastewater treatment plants is a continuous process. Over the next four years, Southerly's aging biosolids system will undergo major renovations, and Easterly will witness the installation of a wet weather flow treatment system.

1825

Digging begins for the Ohio and Erie Canal, creating a water link between the Great Lakes and Mississippi River.

1827

The first canal vessel, *The State of Ohio*, travels from Akron to Cleveland. This event symbolizes the new era of transportation and industry along the Cuyahoga.

1850-70

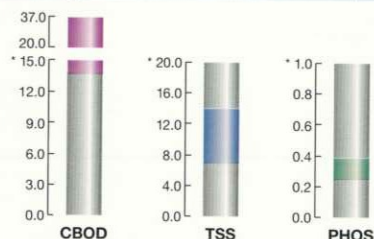
The Cuyahoga River becomes neighbors with oil refineries, rubber plants, iron ore docks and sawmills.



Service Area

AND PLANT PERFORMANCE CHARTS

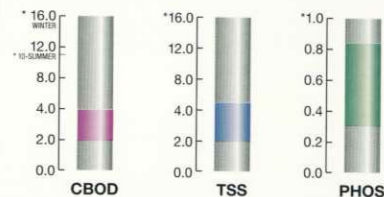
Westerly Plant Performance



Shaded area represents Plant Operating Range for 1995
* Number Represents NPDES Permit Limit

Treated 14.6 billion gallons of wastewater,
Processed 31,319 wet tons of centrifuge cake,
Incinerated 29,214 wet tons of biosolids,
Hauled 2,105 wet tons of biosolids,
Employs 65 people

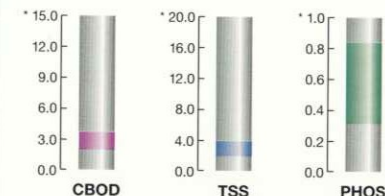
Southerly Plant Performance



Shaded area represents Plant Operating Range for 1995
* Number Represents NPDES Permit Limit

Treated 46.4 billion gallons of wastewater,
Processed 93,378 wet tons of biosolids,
Incinerated 82,319 wet tons of biosolids,
Hauled 11,059 wet tons of biosolids,
Employs 227 people

Easterly Plant Performance



Shaded area represents Plant Operating Range for 1995
* Number Represents NPDES Permit Limit

Treated 58.3 billion gallons of wastewater,
Pumped 682.58 million gallons of biosolids to Southerly,
Employs 65 people

MAP KEY

- A** Administrative Office
- M** Environmental & Maintenance Services Center
- E** Easterly WWTP
- S** Southerly WWTP

- W** Westerly WWTP
- Combined Sewer Area
- Separate Sanitary Sewer Area
- Cuyahoga Valley Interceptor
- Northwest Interceptor

- Southwest Interceptor: Main Leg
- Southwest Interceptor: West Leg
- Hilltop Interceptor
- Heights Interceptor

- CBOD** Carbonaceous Biochemical Oxygen Demand
- TSS** Total Suspended Solids
- PHOS** Phosphorus
- NPDES** National Pollutant Discharge Elimination System

Interceptors Meet

THE NEEDS OF A GROWING AREA

A visual testimony to our presence in Northeast Ohio is our continual interceptor sewer construction. Before our inception in 1972, the majority of sewer construction was sporadic and often uncoordinated.

In 1857, engineers constructed the first sewer in Cleveland on Euclid Avenue in response to complaints from its wealthy residents. Evidently, poor drainage frequently resulted in mud and flooding. Conditions had been so bad that the street had earned the nickname the village "frog pond." The residents who populated the street, also known as Millionaires' Row, paid for the sewer installation and all the accompanying accouterments.

During the 1850's, the city constructed a considerable number of sewers, but they continued to be nothing more than conduits for wastewater to discharge into Lake Erie and the Cuyahoga River. By the 1880's, despite an abundance of new sewer construction, water pollution was still a public menace. In fact, the mayor at that time, Rensselaer R. Herrick, declared the Cuyahoga River an open sewer. Although less wastewater accumulated on the city's streets, the area's waterways were quickly becoming fetid cesspools.

In the late 1800's, various proposals and recommendations emerged for improving wastewater disposal in the Cleveland area, but little concrete activity resulted. The city built more sewers to carry increased water pollution to Lake Erie and the Cuyahoga River. However, they did manage to move the problem farther out into the lake so it was not readily apparent.



Big Creek Interceptor Construction

8

1909

Canada and the United States form the International Joint Commission (IJC), an independent organization created to solve water problems along the boundary.

1917-21

The first two park districts established in Ohio: Cleveland Metropolitan Park District in 1917 and the Akron Metropolitan Park District in 1921.

1968

Tinkers Creek Gorge designated a National Natural Landmark by the U.S. Park Service. The 33-mile creek is named after one of Cleveland's surveyors, Captain Joseph Tinker.

Throughout the first half of the 1900's, the city continued to build sewers to accommodate the growing population. By 1909, there were approximately five hundred miles of sewer in the city. Nonetheless, water pollution continued to worsen. Until 1914, many sewer pipes emptied directly into Lake Erie and the Cuyahoga River. As early as 1910, engineers recognized the problems of Cleveland's combined sewer system.

During this time, the city built treatment plants in close proximity to the interceptors. This allowed the wastewater to receive primary treatment at the plant before discharging into the lake. About the same time, burgeoning suburbs began to connect newly built sewers to older combined sewers. This approach was problematic because the old sewers were often too small to carry the added flow.

Hence there were problems with basement floodings and overflows into the environment. In addition, our industrial heyday resulted in the Cuyahoga River burning, a catastrophe that forever remains in our collective psyche. Ironically, this incident brought national attention to the quality of our nation's waterways. The seriousness of the problem called for new institutions and regulations. In April of 1972, Judge George McMonagle created a new regional agency to protect the region's water resources. And, in response to national water pollution problems, Congress created the Clean Water Act.

After our inception, the first interceptor we built was the eight-mile long Northwest Interceptor that transports wastewater to Westerly. These excess flows had previously

overflowed into the Rocky River and Lake Erie. The next interceptor we built was the 22-mile long Cuyahoga Valley Interceptor (CVI). This interceptor, built between 1977 and 1984, accommodated approximately 29,000 additional households in southern Cuyahoga County and northern Summit County. The CVI also eliminated the need for smaller, insufficient wastewater treatment plants and directed their flow to Southerly. The CVI improved the Cuyahoga River water quality by bringing flow to Southerly where it receives advanced treatment before discharging into the river.

The overburdened separate sanitary sewer system that serves a number of suburban communities precipitated the planning and construction of our most recent pollution control projects, the Southwest Interceptor and the Heights/Hilltop Interceptor. Several studies conducted in the 1970's and 1980's recommended that we construct new interceptors to carry flow around the city's combined sewer system and transport flow directly to the plants. Therefore, in 1985 we began building the Southwest Interceptor and the Heights/Hilltop Interceptor at an approximate cost of \$347 million.

We completed the Southwest Interceptor in 1995, as scheduled. The Southwest Interceptor transports wastewater from Cleveland's southwest suburbs to Southerly. We also completed the Hilltop Interceptor this year. The Heights portion of this project will not be finished until the year 2000. The Heights/Hilltop Interceptor will serve about 252,000 residents and transport flow to Easterly. Both of these interceptors have eliminated several smaller plants and pump stations.



Bridges Over the Cuyahoga River

1969

The Cuyahoga River fire took place on Sunday, June 22 at approximately 12 p.m. The fire was brought under control about twenty minutes later, but not before it had done \$50,000 worth of damage.

1970

Congress passes The National Environmental Policy Act to encourage productive and enjoyable harmony between man and the environment.

1971

The Safe Drinking Water Act instituted to provide for the safety of drinking water.

Developing Solutions

TO ENHANCE WATER QUALITY

The settlers' recognition of the Cuyahoga River as a vital waterway in the late 1700's, made an impact on Greater Cleveland, forever changing this region. On July 22, 1796, Moses Cleveland and his surveyors arrived at the mouth of the Cuyahoga River to build a new city and facilitate the development of the surrounding region.

From 1796 to 1853, most of Cleveland's drinking water came from wells, springs, and the Cuyahoga River. As the population grew, Lake Erie became the city's major water source. Cleveland businessmen took the Cuyahoga River water resource for granted in their zeal to develop the steel and oil industries. As a result, the water quality continued to deteriorate because of the pollutants discharged into the waterways.

Though Lake Erie and the Cuyahoga River are the most visible and instrumental in Cleveland's development, other waterways also play an important role in ecology, recreation and industry. These waterways run through neighborhoods, industrial parks and scenic public land like the Metroparks. Over the past 23 years, the District has contributed to the improvement of these waterways by collecting and treating wastewater at its treatment plants. Employees also sample the water quality to track water conditions and monitor improvements. Over the next several years, the District will direct projects more specifically towards improving water quality in tributary waterways.



Horseshoe Lake at Shaker Lakes

1972

In April, Judge George McMonagle creates a new regional agency to protect the area's water resources. This later became known as the Northeast Ohio Regional Sewer District.

Ohio Environmental Protection Agency (EPA) established.

The Clean Water Act created "...to restore and maintain the chemical, physical and biological integrity of the Nation's waters." EPA required to set water quality criteria, effluent limits and develop permits to regulate pollutant discharges.

The United States and Canada sign the Great Lakes Water Quality Agreement, recognizing pollution is threatening the Great Lakes.



Doan Brook is a good example of one of the small, little appreciated, yet significant, streams in the Cleveland area. The brook is named after Nathaniel Doan, who, in 1798, settled near Euclid Avenue. The area where Doan settled came to be known as Doan's Corner and is now the intersection of Euclid Avenue and E. 105th Street. The brook, which is nine miles long, flows under Euclid Avenue at University Circle, and then through Wade, Rockefeller, and Gordon Parks until it empties into Lake Erie.

Early on, settlers realized the importance of Doan Brook. Damming it in several places formed the Shaker Lakes and supplied power to grist mills. Though Doan Brook is small, it is a vital waterway in the composition of nature. Since it is surrounded by intensive human activity, it is susceptible to degradation. Future efforts by the District will focus on restoration and protection of smaller urban streams like Doan Brook.

The Mill Creek area first became prominent in 1799, when Wheeler W. Williams and Ezra Wyatt built a grist mill and sawmill at the bottom of the Mill Creek waterfalls. These mills attracted settlers to the Cleveland area and stimulated land sales in Newburgh Township. Early settlers supported profitable farming businesses by using the gristmill to produce flour and feed for cattle and the sawmill to produce lumber to build houses. At that time, farming provided economic stability for the residents. After the Ohio and Erie Canal opened in 1825, the mills were no longer needed because it was cheaper to ship products in and out of the area.

By 1852, steel mills opened in the neighborhood and a steam engine that was used to pump water to the steel mills was added to Mill Creek. The area attracted more people as they learned about the value of the waterway. Today many do not understand the complexity of area waterways. The fact that Mill Creek is hidden in an urban setting also decreases its visibility.

In 1995, the District began a major effort to improve the water quality of Mill Creek. The District started a two-year study that will focus on the pollution sources in the Mill Creek area. During the year, field crews investigated the condition of the existing sewer system by using smoke, dye and television equipment. We also monitored the flow in the sewers and the creek and looked at the biological composite of Mill Creek. The preliminary results of the study show solutions will include construction of a new storage and conveyance interceptor. The preliminary results of the study will most likely detail the need for new local sewers. Mill Creek is one of the areas requiring attention because of the number of combined sewers and storm sewers that overflow into it.

The District is taking a holistic approach to the Mill Creek area study to understand the full range of problems that impact the area's water quality. These problems include combined sewer overflows, undersized sewer lines, deteriorating sewers, water quality standard violations and connections between storm and sanitary sewers. The project is increasing community environmental awareness and is a catalyst for other efforts such as litter control, pollution prevention and storm water and flooding control.

One of the aspects of the study is to understand how pollution in the Mill Creek watershed limits recreational opportunities. Future development projects planned for the Mill Creek area will increase public contact with water. The projects include: a new housing development, access to the Mill Creek Falls and a Metroparks trail.



Falls on Dugway Brook in Lake View Cemetery

1974

President Ford signs the bill creating the Cuyahoga Valley National Recreation Area.

1985-87

The Great Lakes Water Quality Agreement is revised, requiring the development of Remedial Action Plans (RAPs) in polluted areas. The Cleveland Harbor in the shipping channel of the Cuyahoga River is one of 43 Areas of Concern.

1988

The Cuyahoga River RAP defines the Area of Concern as 10 miles of Lake Erie shoreline and 45 miles of the Cuyahoga River from Cleveland to Akron.

Education

IS THE KEY TO COMMUNITY SUPPORT

A lack of knowledge about public health threatened highly populated areas in the mid 1800's. Scientists began to connect the spread of parasitic infections such as typhoid fever, dysentery, and other intestinal disorders, to the inefficient disposal of human waste. Once effective sewer systems were built, the death rate from these parasitic infections plummeted. Today, protecting public health and the ecosystem are the most critical reasons for controlling water pollution. However, economic and recreational concerns are also important. This is why the District has taken a major role to educate the public.

Improving water quality requires the effort of the entire community. As an organization dedicated to water quality improvement, the District provides public educational opportunities by participating in community activities, teaching others about our role and services, and promoting activities to improve the environment.

The District provided a substantial amount of public education and information about its Mill Creek project. The District scheduled public workshops where residents had an opportunity to learn about the problems and proposed solutions. By involving the public in the planning process we hope to develop sewer solutions which are compatible with ongoing community efforts to manage Mill Creek as a regional resource.



"Discover the World Beneath Your Feet" Exhibit at EarthFest

1989

Cuyahoga River Community Planning Organization (CRCPO) formed to help with the RAP.

1992

Cuyahoga River RAP, Stage One Report released, summarizing existing pollution problems and sources.

1993

The Ohio & Erie Canal Towpath Trail opens in Cuyahoga Valley National Recreation Area. The trail parallels 22 miles of the river.



In April, we developed an exhibit titled "Discover the World Beneath Your Feet" for EarthFest at the Cleveland Metroparks Zoo. This event served as part of the educational effort for Mill Creek. Visitors learned about the wastewater collection system, the impact rain has on combined sewer overflows, and how they can help prevent pollution. The District set this same exhibit up at the Metroparks Garfield Park Reservation in September for visitors to learn about water quality and the Mill Creek project.

We also participated in a Student Teacher Enrichment Program (STEP) which helps seventh and eighth grade Cleveland students achieve success in the math and science disciplines. To do this, STEP provides field trips to a variety of working environments, especially in the area of public works. As part of our commitment, to the STEP program, we provided an educational tour of the Southerly Wastewater Treatment Plant. This tour showed students the complex plant functions and stressed the necessity of math and science on the job.

Throughout the school year, many local schools asked District employees to participate in their career days. The employees shared their knowledge about the environment, their work experience and education, and how they apply this knowledge to their careers.

The District also provided public tours for various schools and community groups. In conjunction with Coastweeks '95, the District and Remedial Action Plan (RAP) group invited the

public to learn about the Cuyahoga River and the wastewater treatment process. The September tours attracted more than 225 visitors.

Visitors touring the Southerly Wastewater Treatment Plant in Cuyahoga Heights learned about the treatment process and the issues that face wastewater treatment facilities today. Tour guides explained how the District improves and protects area waterways.

Simultaneously, the RAP conducted river boat tours to educate visitors about the Cuyahoga River, the history behind the river and the progress made to date to improve water quality.

The District also devotes a substantial effort towards community relations. By working with other public agencies and businesses, we educate others about our services and role in the community.

For example, during the Public Works Performance Awards program this year, two District employees received recognition for their achievements. The program commended their exceptional work, role model performance and attitude on the job. The Maxine Goodman Levin College of Urban Affairs at Cleveland State University sponsored this program for the fifth year. The awards program honored the many efforts of public works employees and recognized eleven with awards. Fellow workers recognize and nominate award recipients for their outstanding achievement, performance and attitude on the job.

In another effort to educate businesses, the District outlined steps to be followed to compete for District contracts. The District presented a seminar for minority and women owned businesses. Speakers at the program in November addressed standard purchases, contract requirements, public improvement projects and small purchases.



Tour at Southerly
Wastewater Treatment
Plant

1994

An Ohio EPA survey of the Cuyahoga tributaries shows improving trends in chemical water quality and biological health.

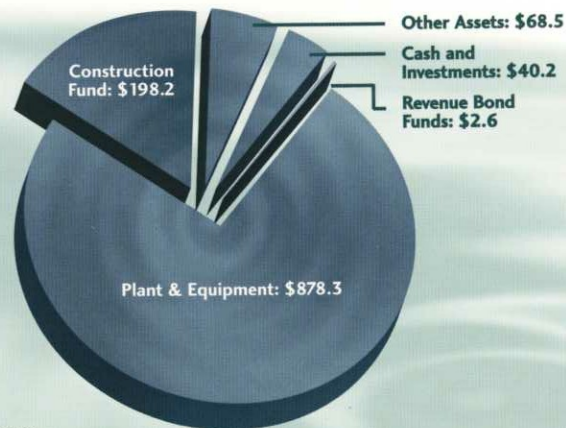
Great Blue Heron and Bald Eagle nesting sites are increasing in the Cuyahoga River Watershed.

Financial Position

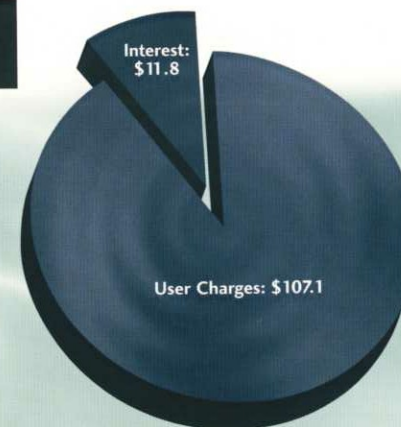
OF NORTHEAST OHIO REGIONAL SEWER DISTRICT

A copy of the detailed financial statement is available by contacting: Director of Finance, Northeast Ohio Regional Sewer District, 3826 Euclid Avenue, Cleveland, Ohio 44115 • Phone: 881-6600

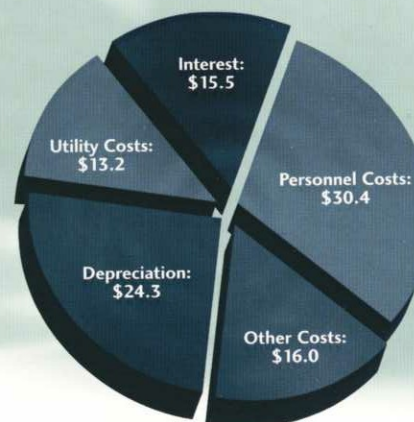
ASSETS (UNAUDITED/IN MILLIONS) Total Assets: \$1,187.8



REVENUES (UNAUDITED/IN MILLIONS) Total Revenues: \$118.9



EQUITY & LIABILITIES (UNAUDITED/IN MILLIONS) Total Equity & Liabilities: \$1,187.8



EXPENSES (UNAUDITED/IN MILLIONS) Total Expenses: \$99.4

1995

Cuyahoga River Stage One RAP Update released, incorporating new data, research and issues.

The Rock And Roll Hall of Fame And Museum opens to the public, heralding a new era of waterfront recreation on the Lake Erie shoreline.



"Protecting Your Clean Water Investment"

COPY: Janet R. Cannata & Kim C. Jones

DESIGN: McMann & Tate Advertising

EDITOR: Janet R. Cannata

COVER PHOTO: Rock And Roll Hall of Fame And Museum at North Coast Harbor

BACK COVER PHOTO: Euclid Creek

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

