

The Community Connection
Northeast Ohio Regional Sewer District
1989 Annual Report

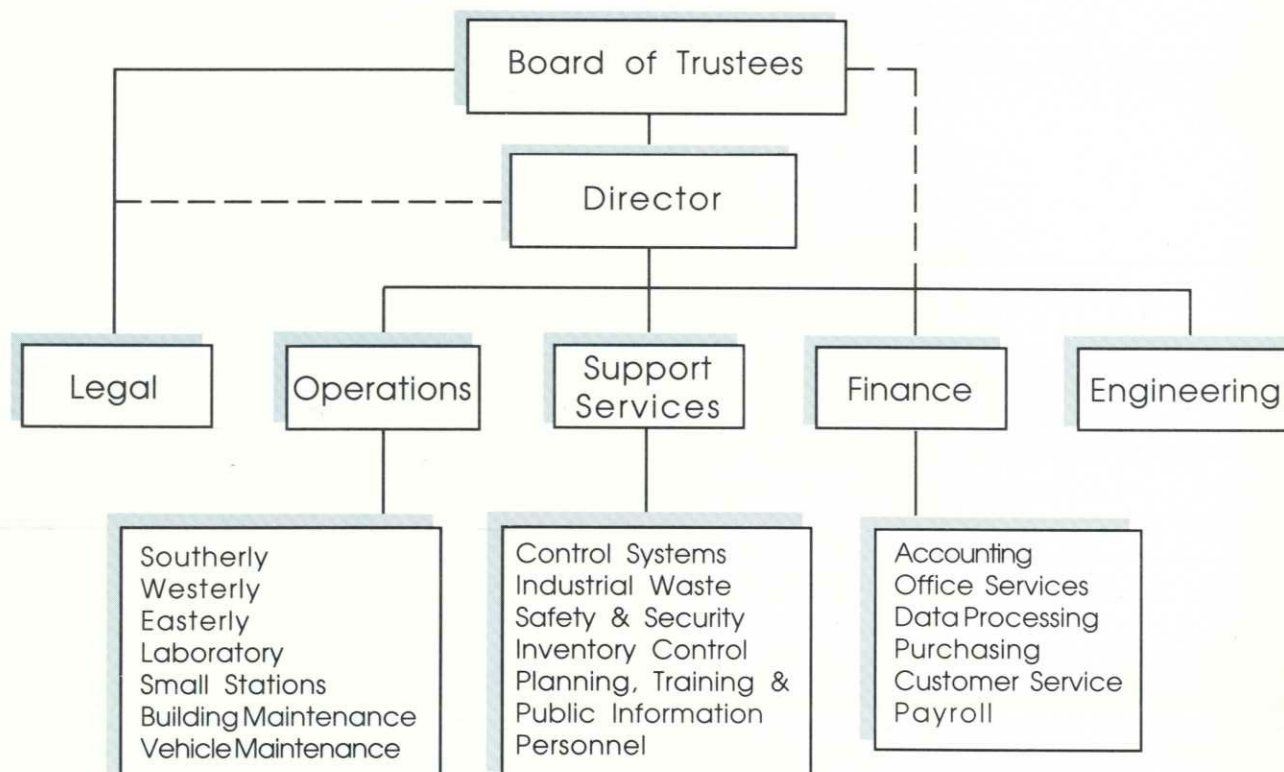


The Northeast Ohio Regional Sewer District is a special purpose public agency governed by the Ohio Revised Code, Section 6119.

Its mission is to economically and efficiently operate and manage wastewater collection, treatment and disposal facilities. The facilities include three major wastewater treatment plants (Southerly, Westerly, and Easterly) and a network of interceptors (large regional sewers) that carry wastewater to the treatment plants. The District also operates two small municipal plants (Berea and Strongsville "A") and other associated water pollution control facilities. The two municipal plants will be abandoned when new interceptor sewers now being built are finished.

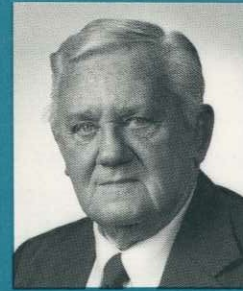
The District serves the City of Cleveland and 46 surrounding communities. This service area contains 295 square miles and has a population in excess of one million.

The District is governed by a seven member board of trustees. The director reports to the board and has five divisions reporting to him.



On the cover: Facing north, the Southerly Wastewater Treatment Plant in foreground and downtown Cleveland in upper left corner.

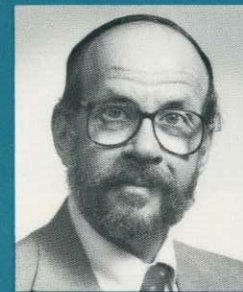
Board of Trustees



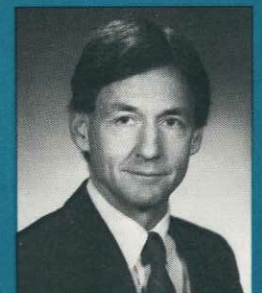
Lester C. Ehrhardt, President, was appointed by the Suburban Council of Governments in February 1984.



Rosemarie F. DeJohn, Vice-President, was appointed by the Cuyahoga County Commissioners in March 1987.



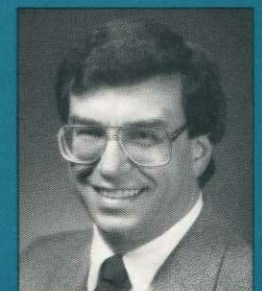
Edward H. Richard, Secretary, was appointed by the Mayor of Cleveland in March 1984.



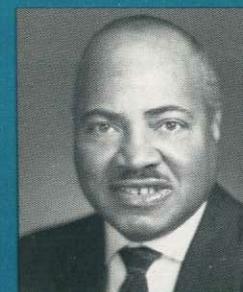
William J. Reidy was appointed by the Mayor of Cleveland in January 1983.



Newburgh Heights Mayor Ronald D. Sulik was appointed by the Suburban Council of Governments in January 1985.



Garfield Heights Mayor Thomas J. Longo was appointed by the Suburban Council of Governments in March 1988.



Reverend Emmitt T. Caviness was appointed by the Mayor of Cleveland in July 1989.

President's Message



As a public utility, keeping your water clean is our goal. It is neither an easy task nor an inexpensive one. We work with numerous publics to accomplish our goal, so it is important to us to have a cooperative relationship with these people.

The Ohio Environmental Protection Agency is one such public. They monitor and regulate our treatment plants and set the standards within which we must operate. We report our treatment efficiency to them. They distribute federal construction grants which we have used for construction projects to prevent water pollution. However, elimination of the grants program will force us to fund future projects on our own.

Local, member community governments serve as liaisons between us and our customers. They help us to inform customers about our efforts at battling water pollution. They are also team members in an area-wide program to improve our vast sewer network. Many communities are planning or are already building new sewers or rehabilitating existing sewers. Once completed, the system will prevent wastewater from entering and polluting the environment. Instead, wastewater will be directed to our treatment facilities.

Area schools and universities rely on us to help educate children of all ages about the importance of maintaining the environment. We have a cooperative education program which allows high school and college students to experience the work world while pursuing their studies. We work with teachers from elementary up through college level to provide tours, speakers, or literature regarding our organization and its efforts. We not only want to leave our children a clean environment, but also an appreciation of it so they can continue the mission.

The financial community helps us market bonds to obtain the funds needed for the local share of federally funded construction projects and projects not receiving federal assistance. They also help to manage our revenue and provide guidance for short-term investments. With an operating budget of almost 50 million dollars, we assure prudent management of public monies.

There are also special interest groups with whom we have linked up to strengthen our resources. One group is the Build Up Greater Cleveland Program, which is dedicated to restoring our infrastructure through a planned program of repair and maintenance. They have helped us secure federal funds for system improvements. It is this "power in numbers" approach that helps us to make progress which may not have been attainable on our own.

We view ourselves as an integral part of the community, yet we are as dependent on it as it is on us. This will be conveyed as you read through the report.

Lester C. Ehrhardt, President

Director's Message



Throughout the 1980's, the water quality in the Greater Cleveland area has made a comeback of equal magnitude to the other elements of the city. The visual improvements to our environment are apparent. The area around the Cuyahoga River is a thriving entertainment mecca. The North Coast Harbor and future lakefront development indicate Lake Erie is not only a natural resource but an economic catalyst. Boating, fishing and other recreational water sports are increasing.

The not so visual improvements made must also be recognized as they impact the community. Much of our efforts are not seen by the community as they are being done under the ground, yet contribute to the visual impact. We are constructing new interceptor and inter-community relief sewers throughout our service area to express separate sanitary wastewater to our treatment facilities. These improvements must continue, but the costs will increase.

Even with the improvements we have made, there are others which remain. Not only must new sewers be constructed, but existing sewers need rehabilitation. One of our concerns is the wastewater which overflows into the environment during a rainstorm. Much of the area's sewer system was built to carry both storm water and sanitary wastewater. When the system's capacity is reached, the excess overflows. These overflows degrade the environment. Our goal is to reduce the occurrence of overflows.

The 1990's present the dilemma of continuing required construction projects without federal construction grant assistance. Clevelanders have been used to economical wastewater treatment service charges. The District's sewer service charge today is lower than it was in 1981. The District reduced its charge in 1983, and only restored half of the reduction in 1986. This same service charge has been in effect since that time. However, future increases are unavoidable as system improvements must be made to meet discharge standards.

The improvements made so far have resulted in better water quality. The employees of the Northeast Ohio Regional Sewer District take pride in the results of their efforts and aim to provide even more improved operations in the coming years. These employees are the reason for the progress the District has made with water quality. These employees are listed throughout the pages of this report.

Erwin J. Odeal, Director

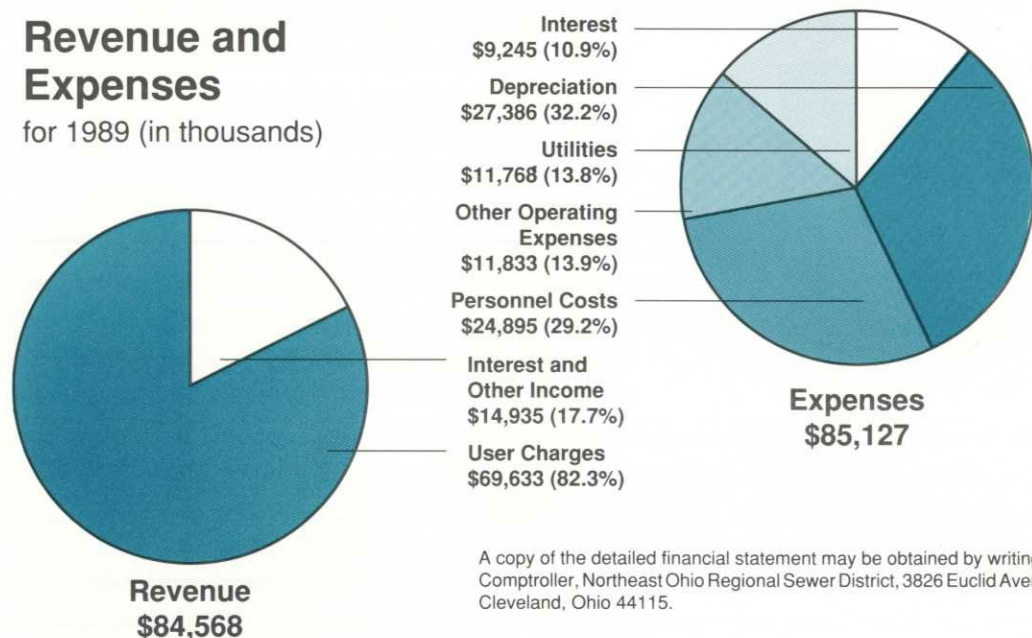
Finance

JANET ABDALLAH
DAVID ADAMANY
MICHAEL ADAMS
BOB ADKINS
LARRY ADLOFF
LEE ALDRICH
FREELON ALEXANDER
MICHELE ALEXANDER
PRESTON ALEXANDER
CHARLES ALLEN
RICHARD ALLISON
FRANK ANDERKO
ROBERT ANGIOCCHI
JONATHAN ANIELSKI
WAYNE ANIELSKI
RICHARD ARMSTRONG
KEVIN ARTH
JOHN ATKINS
JOHN AUGUSTINE
GEORGE AULT
JEAN BAACH
GEORGE BABEJ
BETH BADZIK
ALEX BALAZS
ALFRED BALEWSKI
LEONARD BALLYER
JAMES BARACZ
JOSEPH BARBERIC
NURU BARKARI
BRIAN BARKDOLL
BRUCE BARRETT
THOMAS BARRETT
ROBERT BARSIC
JOHN BARTONE
PERRY BATTAGLIA
LILLIE BATTLE
ROBERT BATTLE
WILL BAYLIS
ALFREDERICK BEAMAN
TOM BECKA
RICHARD BELCHER
RUSSELL BELL
GREGORY BENN
LYDELL BENSON
MICHAEL BERNAS
ERNEST BERTOK
LEON BEY
SUNIL BHNATNAGAR
MICHAEL BILEK
ROBERT BIRCH
HERMAN BISHOP
JOSEPH BITONTI
KRISTINE BLACKHAM
RAYMOND BLAIR
TONY BLANKENSHIP
RAYMOND BLEWITT
RICHARD BLUEMEL
MICHAEL BODE
MARGERY BOHNE
SANDRA BOING
JOHN BONNELL
ROBERT BONNETT
PATRICIA BOONE
FRANK BOONE
KARL BOOTH
JEFFREY BORUSZEWICZ
GEOFFREY BOSS

Through sewer service charges, our customers invest in maintaining water quality, and we maximize those investments by exhibiting fiscal prudence. Although revenues were down \$1 million from 1988, a 1% decrease, we still maintained the sewer service charge which has been in effect since 1986. However, future increases in that service charge are inevitable as construction projects are required but federal construction grants will be eliminated after 1990.

Revenue and Expenses

for 1989 (in thousands)



A copy of the detailed financial statement may be obtained by writing to: Comptroller, Northeast Ohio Regional Sewer District, 3826 Euclid Avenue, Cleveland, Ohio 44115.

Investment Policy Protects Assets

In 1989, an investment diversification program was instituted to reduce our exposure to loss. We adopted an investment policy which details our investment practices, authorities and objectives. Based on the investment policy, an Investment Program was established. We had been investing in certificates of deposit with banks, and savings and loans and are continuing those types of investments. But, we have added other U.S. Government Investments such as Treasury Bills. This allows us more flexibility with our investments by putting funds in different securities. Working with the financial community has enhanced our ability to invest effectively. We solicited quotes from numerous firms and hired two companies as advisors. These professional firms will advise us on the types and terms of investments available for purchase, solicit quotes from investment brokers and dealers, provide results of the solicitations and make transaction recommendations. Each will execute investment trades at our instruction, and maintain records of all recommendations, transactions and portfolio composition. Both will serve as an informal advisor in the timing and pricing of debt issues, and will compare our finances to industry standards. We also chose a bank to be a third party custodian for securities purchases. We plan to invest approximately 40 percent of our funds in Treasury Direct Account at the Federal Reserve Bank, 40 percent in dealer purchased investments and 20 percent in certificates of deposit.

ALLAN BOYD
CHARLES BOYD
JAMES BRAATZ
BARTHELMAS BRAND
JEFFREY BREITMOS
ROCHELLE BRICKER
DAVITA BRIGHT
JOSEPH BRILLA
BRUCE BROA
FRED BROWN
JOSEPH BROWN
PETER BROWN
RONNIE BROWN
SAMUEL BROWN
WADIEOLINE BROWN
WILLIAM BROWN
FIORE BUCCI
KENNETH BURNS
BEVERLY BURTON
STEVEN BUSH
DAVID BUTCHER
LEE CAGE
JAMES CAHILL
JAMES CALE
CRYSTAL CAMPBELL
JOSEPH CANDER
JOSE CARABALLO
MARINA CARAFFA
MICHAEL CARETTI
RALPH CAREY
BILLIE CARLIN
WILLIAM CARRUTH
ATEMUS CARTER
PHILLIP CARUSO
NOLAN CARVER
ANTHONY CASAVECCHIA
VICTOR CASCIATO
EMMITT CAVINESS
THOMAS CECULSKI
ROGER CERANKOWSKI
LINDA CERNY
RICHARD CHAMBERS
JAMES CHAMPION
JAMES CHAYA
MICHAEL CHEETHAM
FRANK CHILINSKI
WILLIAM CHIMELEWSKI
JOSEPH CHINN
DANNY CHISHOLM
MARK CHONKO
LAWRENCE CINADR
KENNETH CLANCY
HAYSE CLEVINGER
LARRY CLIFFORD
JAMES CLIPPER
JACQUELINE COATS
KELLY COBBIN
SIMMON COBBINS
DONALD COBBS
RICHARD COCKRELL
CHARLES COFIELD
SHAWN COLLINS
GARY COLLUM
CYNTHIA COLLYARD
CARMEN COMBER
RICHARD CONNELLY
RENATO CONTIPELLI

Financial Management System Refines Information Processing

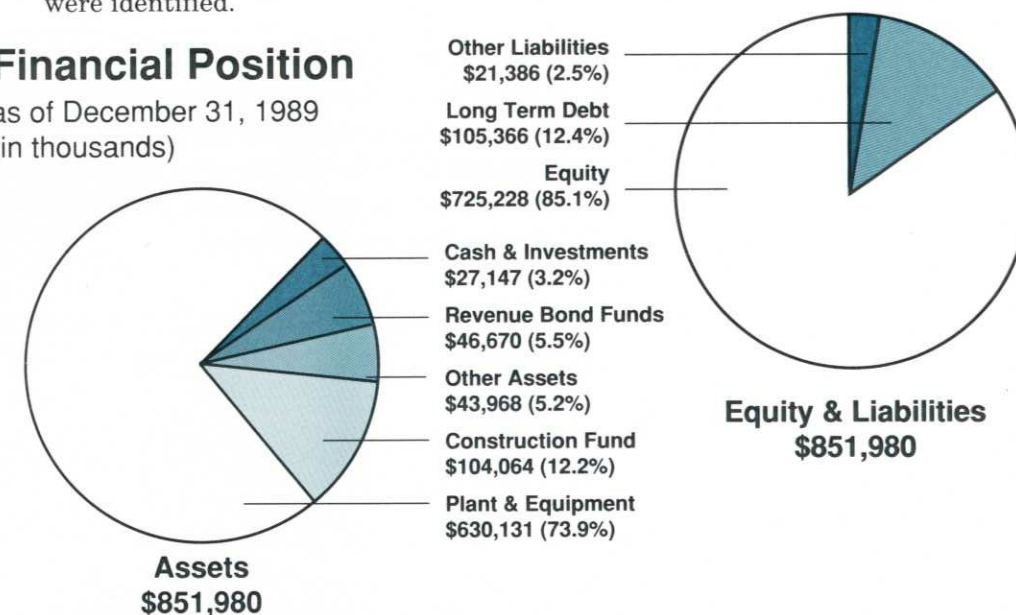
In 1989, we continued integrating all financial information into a single system through our computerized Financial Management System. The system allows various financial and payroll information to be accessible from integrated data bases. This makes Finance information readily available for Payroll and vice versa. The financial system applications which are in place and operable are general ledger, budgetary accounting and budget processing, accounts payable, project accounting, purchasing and encumbrance control, and fixed assets.

However, the system implementation is an ongoing process, and there are some applications yet to be finished. Those system applications not yet in place are purchase requisition processing, cash management, contract accounting, and personnel systems. We are still getting the "bugs" out of these systems, and will continue to refine and test them in 1990.

The fixed asset program involved the identification and recording of all our fixed assets. Co-op students were hired on a project-basis to aid in the inventory. Each fixed asset had an identification tag attached, then logged, and transferred into the data base record. More than 14,000 fixed assets worth almost \$700 million were identified.

Financial Position

as of December 31, 1989
(in thousands)



Customer Service Department Takes Care of Our Customers

We contract with the Cleveland Public Utilities department to issue customer bills. They are responsible for reading meters, totaling charges, mailing bills to our customers and collecting payments. Our Customer Service department takes care of our sewer service customers by answering any questions they may have regarding their sewer service and some billing questions. However, if a billing question arises that we cannot answer, we work with the Utilities department to clear up any customer inquiry. The Utilities department is yet another special public we work with to give our customers superior service. Our joint effort also gives customers the opportunity to speak with us directly in the event of a problem, or if there is a question about their wastewater treatment.

JOHN FISH
 THOMAS FITZMAURICE
 TERESA FLONNORY
 CHARLES FLOWERS
 FRANK FOLEY
 KENNETH FORD
 VERNON FORD
 JOHN FOREMAN
 DUANE FORTE
 CATHY FOSTER
 WILLIE FOWLKES
 GARY FRANZ
 EDWARD FRINGER
 FRANK GAGLIONE
 EDWARD GAIDA
 STEVEN GALISH
 PATRICK GALLAGHER
 FRANCIS GALLAGHER
 WILLIAM GALLITZ
 MARY GARAPIC
 MARTINEZ GARCIA
 LAVERNE GASDICK
 KAZIMIERZ GECA
 LARRY GEMBICKI
 GERALD GERHARD
 WILLIAM GERRICK
 DENNIS GHANN
 LAWRENCE GIBBONS
 EARL GIBBS
 ERNEST GIBSON
 BOBBY GILLESPIE
 RAYMOND GIRCZYK
 ANDREW GLADYS
 GREGORY GLOVER
 NAOMI GODBEY
 JOSEPH GODINSKY
 MARIO GONZALEZ
 ROBERT GOODE
 ROBERT GORSICA
 ROBERT GOW
 RUSSELL GRABE
 DEANNA GRABOWSKI
 DEBRA GRACE
 JOHN GRAVES
 DANIEL GRAY
 CHERYL GREEN
 FRANCIS GREENLAND
 DORIAN GREENWOOD
 MICHELLE GREGORCZYK
 ANDREW GROW
 JOHN GRUBER
 JEROME GRUSZCZYNSKI
 DAVID GUARNERA
 ROBERT GUILFOYLE
 LARRY GUK
 ROBERT GULAN
 ORA GUNN
 HARRY GUNVALSEN
 LAWRENCE GURGOL
 THOMAS GUSTIN
 MILTON HALL
 O'HOMER HALL
 EDWARD HALLER
 DONALD HAMILTON
 JACQUITA HAMILTON
 ROBERT HANDLOVICS
 RAYMOND HANNIKMAN

Support Services

Support Services has more than 100 employees each contributing their unique talents to the welfare of the environment and community. We value our employees and their work. It is important for us to attract good people, help them develop their skills to the fullest, and keep them on staff.

Benefits and Training Improve Work Environment

Employee benefits are as important as pay, and we continually try to improve them. The first step in making benefits more flexible was taken by adopting the "Cafeteria Plan." This plan allows certain medical and child care costs to be deducted from the employee's taxable income. We also evaluated becoming self-insured with Worker's Compensation in order to provide better service for employees and save them money.

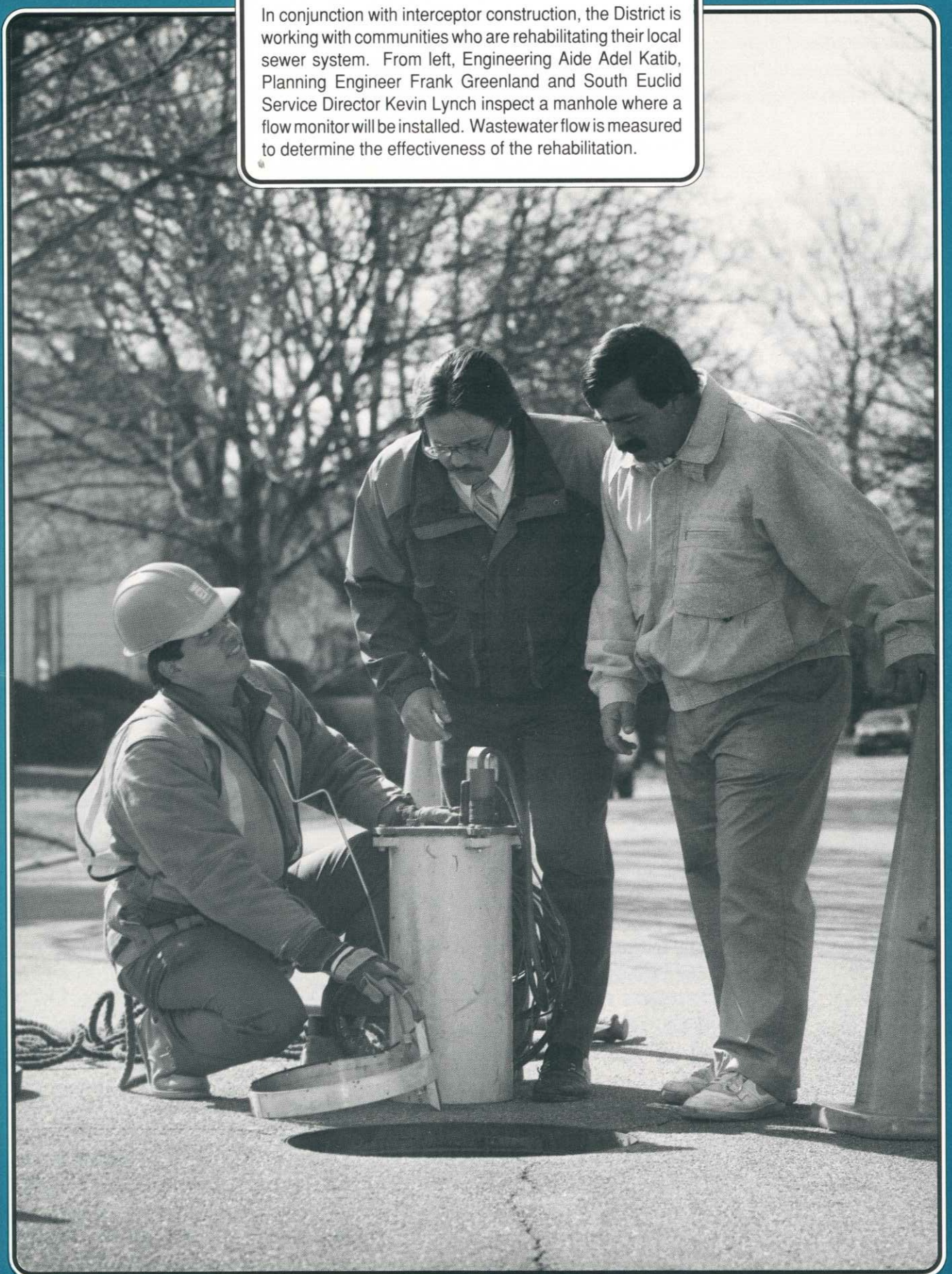
The well-being of our employees is important, so to maintain a safe and healthy work environment we established a comprehensive Drug-Free Awareness program as an educational effort to prevent and stop substance abuses that affect the work environment.

A hidden benefit is the training opportunities provided to help employees improve themselves. The BIG STEP project enhances employees' learning, reading and math skills. The program gives employees the skills to further their knowledge of wastewater treatment or any other area they wish to follow. The largest employee group is wastewater treatment plant operators. We offer multiple training programs to help them become state certified. This is a priority since upper level operator positions will require higher certification levels beginning in 1990.

Good Working Relationship Established With Public Services

Equally important, is keeping our more than 260,000 customers aware of our operation. We are committed to annually including information about our rates, operation, maintenance, and construction in our customer billing. Since the Cleveland Public Utilities department services our billing, intergovernmental cooperation is important to the efficiency of customer service and billing. Adding new customers to our service area calls for the same level of cooperation. As new city sewers are built, city officials contact our Industrial Waste Section (IWS) with a list of businesses and residences that will be using the new sewer. IWS then sends the list to Customer Service who contacts the Utilities department. The new customers are then billed once the sewer is on-line.

In conjunction with interceptor construction, the District is working with communities who are rehabilitating their local sewer system. From left, Engineering Aide Adel Katib, Planning Engineer Frank Greenland and South Euclid Service Director Kevin Lynch inspect a manhole where a flow monitor will be installed. Wastewater flow is measured to determine the effectiveness of the rehabilitation.



GEOFFREY HANSON
ALPHERT HARDY
FRED HARRIS
WILLIAM HARRISON
RONALD HARTER
LAURA HARTON
ROBERT HASMAN
ARLENE HASQUIN
EVA HATVANI
EDWARD HAVRILLA
RICKY HAYNES
WILLIAM HAZEL
RONALD HEBEBRAND
JOE HENDERSON
LAWRENCE HENDERSON
RONALD HENLEY
EUGENE HENRY
JOSEPH HERTEN
HARRY HEYDORN
ILDIKO HIBA
DOTTIE HILL
MARK HILL
MATTHEW HILL
LUTRAIL HOBBS
DAVID HOBSON
DARRELL HOLLEY
FRANK HOMICK
TERRY HORN
SCOTT HORVATH
CLYDE HOUESHELL
DOUGLAS HOVEN
SHARON HOWARD
MICHAEL HRICK
MARK HRUSOVSKY
PAULETTA HUBBARD
DANIEL HUDSON
JEFFREY HUMMEL
CALVIN HUNT
JEFFREY HURLEY
NICK IAROCCHI
SCOTT INGRAM
FRANK INTIHAR
MONIR ISKANDAR
JERRY ISKOWIZ
ROBERT IVANS
DIANNE JACKSON
ELLIS JACKSON
LEA JACKSON
DAYNOR JAMES
FRANK JAMES
JESSE JAMES
SPAIN JAMES
OLJEG JAMNICKY
RONALD JANASHAK
ROBERT JANKULOV
DANIEL JANTONIO
DONALD JANTONIO
EDWARD JAROSZ
CLIFFORD JEFFERSON
LEONARD JENKINS
JEFFREY JENNINGS
BARBARA JOHNSON
BRENT JOHNSON
CHARLES K. JOHNSON
CHARLES W. JOHNSON
ROBERT D. JOHNSON
ROBERT E. JOHNSON

Specialized Equipment Helps Perform Complex Tasks

Special equipment can be found in every department and keeps our workplace running smoothly. It also gives our employees the chance to work with the latest in technology, and allows efficient communication within and outside our offices and plants.

Much equipment is used when monitoring the condition of the environment or the method we apply to protect it. Our Sewer Control Systems group maintains our sewer system, fixing cross connections and pipe breaks by using unique equipment. We recently received a portable manlift system, which makes entering a manhole less dangerous and less expensive. The access shafts for the interceptors can be 180 feet deep making stairs, ladders, and elevators either dangerous or expensive. The mechanical manlift allows crews to enter the manhole without the effort of climbing stairs or ladders.

Other equipment we use are the Combination Machine and Video Rig. The Combination Machine acts as a vacuum cleaner to siphon debris that gets dumped into the sewers from the streets or washed in by storms. The Video Rig allows the crew to observe the inside of sewer pipes without physically going underground. A special video camera is attached to a line and is mechanically maneuvered through the sewer pipe. Meanwhile, the picture is seen and recorded on a monitoring deck on the surface.

Another piece of specialized equipment used by Sewer Control Systems is the automated regulator. An automated regulator prevents sewage from overflowing into the environment. Overflows result when storms temporarily overwhelm the sewer capacity, resulting in raw wastewater being discharged into area streams, the Cuyahoga River or Lake Erie. The regulator consists of an inflatable dam that controls discharges to the environment and hydraulic gates and valves that control diversion of water to the interceptor. The regulator controls flow by retaining it in the sewer until adequate capacity becomes available at the treatment plant.

Departments Work to Upgrade Water Quality

The Industrial Waste Section (IWS) monitors overflow points and their sources. The Ohio Environmental Protection Agency (OEPA) issued a National Pollutant Discharge Elimination System permit to control combined sewer overflow being spilled into the lake and river. IWS monitors 137 discharge points throughout our service area by installing flow meters and samplers.

IWS also gathers data to determine the status of our area's water quality. They are teaming with the OEPA and the Ohio Department of Natural Resources in this effort. They use a special piece of equipment called an electrofishing rig. The District purchased the rig in 1989 and will test it on the Cuyahoga River in early 1990. The rig is a 16-foot flatboat with a generator that sends an electric field into the surrounding water. Fish are electrically stunned and float to the surface where they are netted, identified, measured, weighed, visually inspected and

returned to the stream. The types of fish and their health help determine the river's water quality. The Fish Tissue Task Force was created, locally, to analyze the fish tissue samples taken from some fish during electrofishing rig tests. This test is not required by the OEPA, but we believe it is important for us to evaluate the river's water quality.

The Planning department represents the District on the Cuyahoga Coordinating Committee in developing the Remedial Action Plan (RAP) for the Cuyahoga River. The river has been identified as one of the 42 Great Lakes Areas of Concern. The essence of the RAP is to identify the pollutants in the area waterways, and determine what needs to be done to clean them up.

The District works closely with member communities to control flow into interceptors through the Community Discharge Permit Program. Each community that has separate sanitary and storm sewers and discharges wastewater to our plants must follow guidelines. The permit program establishes those terms and conditions under which our member communities can discharge sewage to our treatment plants. Our member communities are responsible for the maintenance and rehabilitation of their local sewers. The Pilot Rehabilitation Project included research on completed local sewer rehabilitation efforts made by four of our member communities. We analyzed pre-rehabilitation versus post-rehabilitation flow monitoring data to determine the effectiveness of the rehabilitation. The information obtained from this study will be shared with each member community.

The departments that are Support Services work together with each other and the community to protect and preserve the environment. The effort exerted by this group of employees is reflected in the improved water quality of the Cuyahoga River, and the effective and efficient treatment of wastewater.

THOMAS JOHNSON
ANTOINETTE JONES
ANTHONY JORDAN
PAMELA JORDAN
LEONARD JUFKO
JAMES KALAS
CLIFFORD KALKBRENNER
DAVID KALMAN
ANDREW KALUZA
WILLIAM KAMINSKI
WILLIAM KASBERG
ADEL KATIB
WILLIAM KEEN
RICHARD KEKIC
OSCAR KELLEY
JIMMIE KEMP
GERALD KENNEY
FRED KEYERLEBER
STEPHEN KEYS
ROSEMARY KIELISZEK
DENISE KILBY
JOHN KINNAIRD
ROBERT KLEINHENZ
LEONARD KLEPATZKI
KENNETH KLIR
DEBORAH KLOSZ
JAMES KLOSZ
JOEL KOPEN
JOHN KOPETZ
LOUISE KOSINSKI
DALE KOSKINEN
INGRID KOSMOWSKI
ZIG KOSMOWSKI
ROBERT KOTWICKI
ROBERT KOWNACKI
WALTER KOZLOWSKI
DALE KRAMER
JOHN KREPOP
GARY KRIVOS
DONALD KRUSINSKI
JOSEPH KUBA
WENDELL KUCERA
DONALD KUCZKOWSKI
PHILIP KUHN
KEVIN KULOW
ROBERT KUNKLE
JAMES LAHETA
KENNETH LAKOTA
MAURA LAMBERT
STEPHEN LANGDON
WILLIAM LANGMEYER
RANDY LAPOHN
HELEN LASTER
JOHN LAURIE
JOHN LAWS
PETER LeCASTRE
MILTON LEE
JAMES LEITH
HARRY LEMMEY
JOYCE LESCHINSKI
PETER LEVITSKY
ARNETTA LEWIS
PAULINE LINDERMAN
KEITH LINN
KAREN LISOWSKI
VALETTA LITTLETON
DAVID LIVINGSTON

RICKY LOCH
 THOMAS LOGAN
 ANTHONY LOMBARDO
 THOMAS LONGO
 JEFFREY LOOBY
 ROBERT LOOBY
 HERMAN LOOPER
 ALFREDIA LOWE
 JAMIE LUKAS
 GERALD LUNDER
 ROGERS LYDE
 MARY ANNE LYMAN
 MELVIN LYONS
 GAIL MACIEJEWSKI
 CHESTER MACK
 WILLIAM MACK
 CHARLES MACZKO
 JOSEPH MADRO
 MARK MAGALSKI
 JOHN MAKSYM
 JOHN MALEE
 ROBERT MALHEREK
 FRANK MANCUSO
 MARK MANDRAK
 DANIEL MANIK
 THEODORE MANNING
 ROBERT MANTELL
 ROBERT MANUEL
 GARY MARGOCS
 STANLEY MARKOWSKI
 JOSEPH MARSALA
 PAT MARSALA
 BERTHA MARTIN
 MICHAEL MARTIN
 DONALD MARTOWICZ
 DAVID MATTHEWS
 JOANNE MATTICE
 THOMAS MAXWELL
 JOHN MAYER
 JOHNNY McCARTER
 KEVIN McCARTHY
 NANCY McCARTNEY
 CHARLES MCCREE
 RONALD McCUNE
 WILLIAM McDONALD
 WILLIAM McGEE
 JEAN McGRATH
 WILLIAM McGREW
 JAMES McGUINNESS
 EDWARD McINTOSH
 DANIEL McKENNA
 MICHAEL McLAUGHLIN
 PATRICIA McLAUGHLIN
 JAMES McMURRAY
 SHAWN McNAMARA
 DAVID McNEELEY
 TERRY MEISTER
 RALPH MELENA
 PHILLIP MELICANT
 FRANK MERRICK
 THOMAS MEYER
 BETH MICHKO
 BRENDA MILLER
 CHARMAINE MILLER
 MARY MILLS
 EDWIN MINTER
 CARL MIROGLOTTA

Engineering

During the year, the District concentrated on improving existing systems instead of building new ones to reduce the cost of pollution control. The Engineering staff used this approach for several projects. These projects will reduce wastewater overflow and control pollution of our environment. This process often involves working closely with other entities to assure smooth progress. For example, the community of Olmsted Falls will be joining the District by connecting to our Southwest Interceptor instead of investing in a new wastewater treatment plant.

Interceptor Rehabilitation Prolongs Service

Engineering has been rebuilding, rehabilitating, and improving existing facilities. We started investigating the condition of older sewers to determine any problems. One of our biggest projects this year was the inspection and evaluation of the Big Creek Interceptor. This 7.9 mile sewer combines storm and sanitary flow from the southwest area of Cleveland and eight southern suburbs and carries it to Southerly.

During routine inspections we found certain areas worn out and bricks missing. We are evaluating the various methods of repair. The Big Creek project is only the start of our interceptor rehabilitation program. As part of our long-term goals to relieve the problems, we have scheduled rehabilitation to begin in 1990. This is one of the projects which will be introduced into the District's capital plan to ensure the structural integrity of older interceptors in Northeast Ohio.

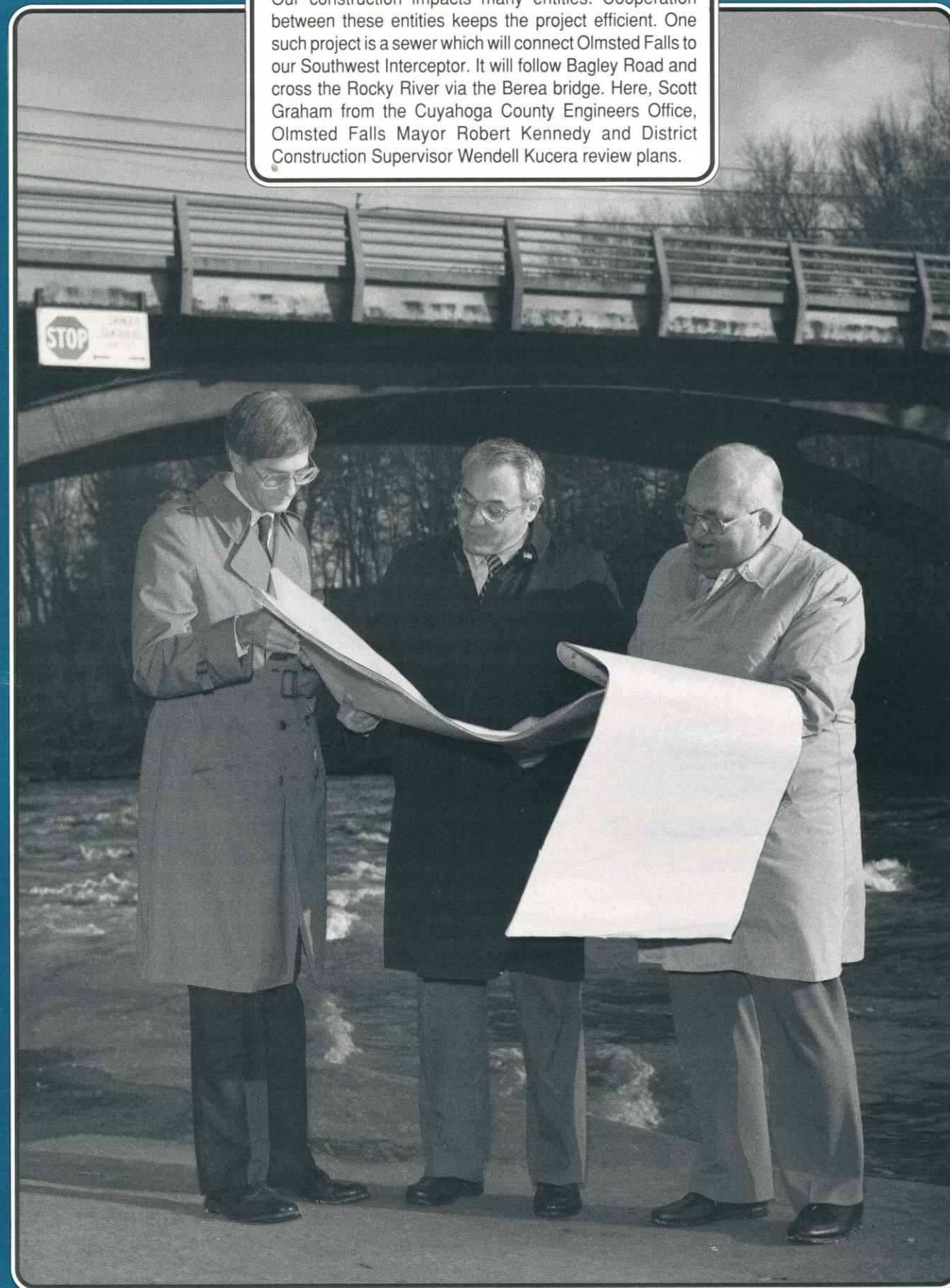
Staying Ahead of Overflow Control Regulations

Another rehabilitation project was evaluating our combined sewer overflow control system. The system was built in the 1970's. It uses unique equipment to store wastewater and minimize overflow of combined sewage into the environment. Our goal is to eliminate all dry weather overflows.

This entire process is computerized and new technology allows us to upgrade and expand the system. We evaluated methods to increase system flexibility and will be adding new hardware and revising computer software. We will be upgrading our rain gauge and flow level monitoring equipment to improve information collection. We will be improving the telemetry to insure that accurate information about conditions inside the sewer reaches the central computer.

By evaluating and updating our process we are preparing ourselves for future changes in combined sewer overflow regulations.

Our construction impacts many entities. Cooperation between these entities keeps the project efficient. One such project is a sewer which will connect Olmsted Falls to our Southwest Interceptor. It will follow Bagley Road and cross the Rocky River via the Berea bridge. Here, Scott Graham from the Cuyahoga County Engineers Office, Olmsted Falls Mayor Robert Kennedy and District Construction Supervisor Wendell Kucera review plans.



DENNIS MOEHRING
LEONARD MOLNAR
PAUL MONTGOMERY
STEPHEN MONYAK
WALTER MOORE
EDWARD MORAD
MURIEL MORRIS
EUGENE MUELLER
PAUL MURPHY
GEORGE MYERS
JOSEPH NAGY
ARTHUR NAPIER
CLARENCE NELSON
THOMAS NEMCEK
ALAN NEMECEK
WILLIAM NEUNDORF
CHARLES NEWMAN
SAMELLA NEWSOM
CURTIS NICKLE
LUTHER NORMAN
WILLIAM NORTON
MICHAEL NOTARO
GLENN NOVAK
MARK NOWACK
SA-ID NURED-DIN
JENNIE O'BANNON
RAYMOND OBOJSKI
ERWIN ODEAL
JOHN OLESINSKI
GEORGE OLESKO
ADA OLMEDA
RICHARD OLS
LESLIE OLSIESKI
CHRISTOPHER OPALACH
GARY OUTZS
DOLORES OWEN
LEROY OWENS
MICHAEL PAAD
VLADIMIR PACAS
ARTHUR PAETH
ANTHONY PAGLIA
BRYON PALITTO
GEORGE PALKO
OLIVO PALLINI
ANDREW PAPP
ERIC PARHAM
KIRIT PARIKH
LINDA PARNTHER
KENNETH PASTOR
DALE PATRICK
MARY PAUGH
JUDITH PAVLIC
THOMAS PAVLICA
GLENN PAVLIK
MICHAEL PAVLIK
JOHN PELLERITO
GARY PEPERA
EDMUNDO PEREZ
EDWIN PEREZ
CLARENCE PERRY
ERNESTINE PERRY
JAMES PETRIE
THEODORE PETRYSZYN
KENNETH PEW
JOHN PHELPS
EDWARD PICHA
RANDY PICKERING

Westerly Analyzing Process Options

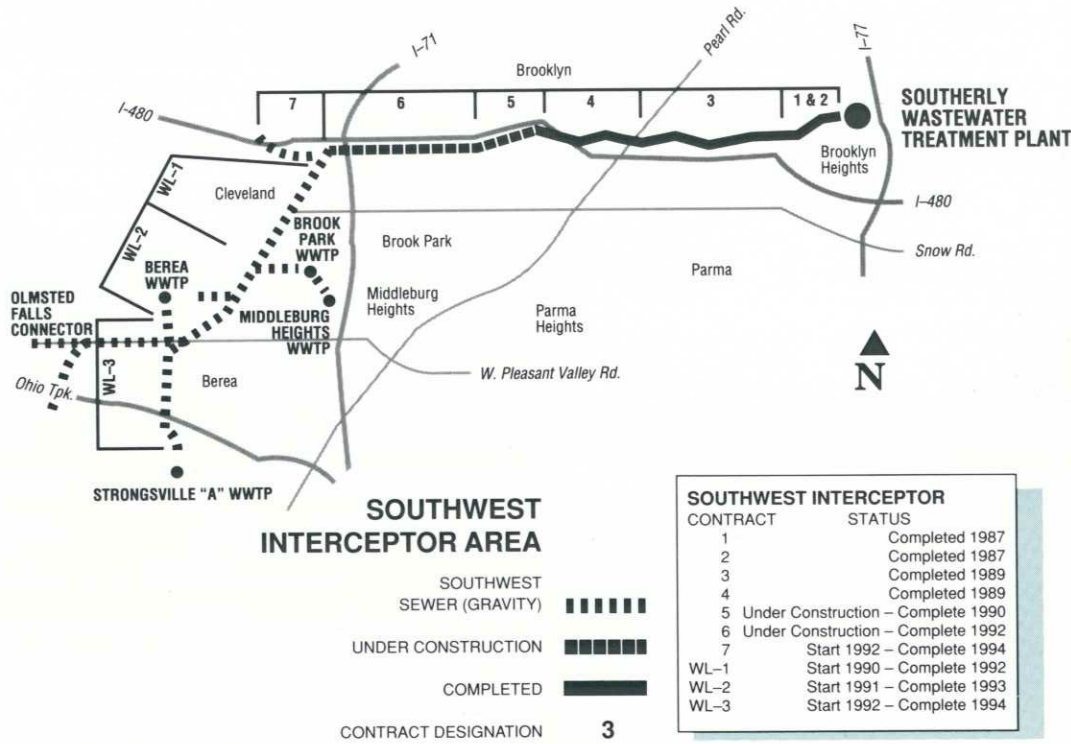
Westerly is our only treatment plant that is not fully operational. Its design uses a unique treatment technology that has not yet been proven..

The OEPA gives the District standards to meet in treating wastewater. Westerly has not met its effluent discharge limits for biochemical oxygen demand due to the treatment process technology and equipment which has been experiencing mechanical difficulty. Due to the costliness of repairing the system which is estimated between \$6 and 10 million, the District chose to examine its options.

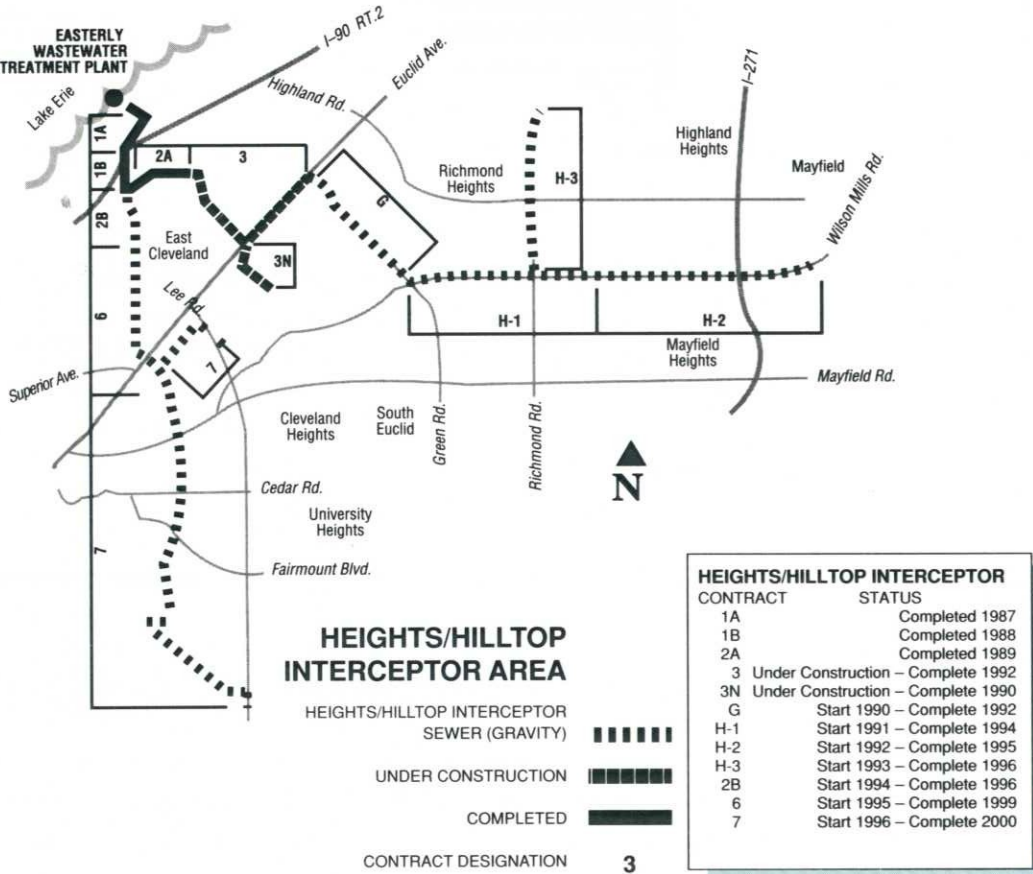
A workshop was held in July for Operations and Engineering staff, plus Westerly's design consultant and process technology experts from throughout the country to identify problems and determine the action needed to operate West-erly at the level required by the OEPA. The workshop recommended a process option analysis be done to determine Westerly's future operation. A report on the analysis is due in 1990.

Major Investment Made in Southerly Odor Control

In an effort to control odors at Southerly, and in response to community concern, we invested almost \$3 million, to date, in new odor control technology. The existing odor control systems at Southerly have been in service for almost nine years and some units are nearing the end of their useful service life. As a result, a contract was awarded to optimize, modernize and expand the odor control systems. We identified the source of odors, then designed and installed equip-ment to control them. When finished, the entire project will cost over \$4 million.



ALLAN PIIPARINEN
PAUL PITINO
CAROL PLA
THOMAS PLANK
GERALD PODRACKY
LARRY POOLE
JOSEPH POSANTE
ALVIN PREISENDORF
WILLIE PRESLEY
THEODORE PREZTAK
JOSEPH PRIAH
ARRIE PRITCHARD
GREG PROSSER
CALVIN QUARTERMAN
VICTOR QUINONES
THOMAS RAFFAY
DAWN REED
DONNA REID
WILLIAM REIDY
ROBERT REPPENHAGEN
SHARON REYNOLDS
ROBERT RHOME
EDWARD RICHARD
ROBERT RISHAW
WILLIAM RITZ
WILSON RIVERA
FRANK RIZZO
DEBORAH ROBINSON
GEORGE ROBINSON
THOMAS ROCK
JAMES ROSACCO
JOHNNY ROSCOE
PAUL ROSENFELD
SCOTT ROSS
MARGARET ROWE
ABRAHAM ROWSER
RANDY RUSSELL
RUSSELL RYS
ERNEST RZESZOTARSKI
ANTHONY SABOLIK
OTTO SACHS
MARIAN SACK
MOHAMMED SALEEM
CHARLES SAMMONS
NELLIE SAMMONS
SCOTT SANDER
JOSEPH SANDLY
JAMES SANTIAGO
ISTVAN SARAI
ROBERT SARGENT
LOUIS SCARPITTI
STANLEY SCHAB
WILLIAM SCHATZ
TIMOTHY SCHEALL
ROBERT SCHERMA
PHILLIP SCHERVISH
WARREN SCHINDLER
JOHN SCHRADER
SCOTT SCHRADER
GEORGE SCHUR
FRANK SCHUSCHU
THOMAS SCHUSTER
DAVID SCHWARK
TROY SCOTT
USHER SCOTT
PAUL SEKERAK
KENNETH SELBY



Construction Projects Move Forward

We continued two of our long term projects-the Heights/Hilltop Interceptor (H/HI) and Southwest Interceptor (SWI). We awarded contracts for the next two segments of these projects which were started in 1985, as a long term solution to increased flow from growing communities.

In May, we awarded a \$12,475,522 contract for the SWI Contract 6. It is the sixth of seven contracts necessary to construct the main leg of the Southwest Interceptor. This contract has 14,000 feet of 96-inch tunnel, extending along I-480 from West 130th Street to State Route 237.

We awarded a \$1,846,243 contract in February for the H/HI Contract G. The contract is part of the system which will transport separate sanitary sewage from the Hilltop service area to Easterly. It has 3,700 feet of open cut sewer running from the intersection of Euclid Avenue and Ivanhoe Road to the intersection of Noble Road and Ravine Drive. This contract is the fifth construction contract for the project.

We are almost finished with our new Environmental and Maintenance Services Center. The two buildings, totaling over 114,000 square feet, will be opening in Spring 1990. The building will house over 125 employees from the Laboratory, Industrial Waste Section, Sewer Control Systems and Vehicle Maintenance. This building overlooks our Southerly treatment plant.

GINA SENES
 ANDREW SENTO
 FRED SEVER
 PRABHAT SHARMA
 MATTHEW SHARP
 DONALD J. SHAVER
 DONALD L. SHAVER
 ROBERT SHEETS
 GARY SHERANKO
 LARRY SHIMERKA
 LINDA SHOMON
 DAVID SHORR
 DAVID SHUBERT
 BIAGIO SIDOTI
 ANTHONY SIGGIA
 MARTHA SILVERA
 CHARLIE SIMMONS
 WILLIE SIMS
 EDDIE SKINNER
 STEVEN SLECHTA
 JAMES SLEDZ
 TERENCE SLOCUM
 THOMAS SMEAL
 AILYNE SMITH
 DANIEL SMITH
 JANE SMITH
 MARTIN SMITH
 RAYMOND SMITH
 ROSE SMITH
 TARNIA SMITH
 CHRIS SMOSARSKI
 ROBERT SOBCZAK
 DONALD SOBOCINSKI
 KEVIN SONODA
 CHESTER SOSKA
 ARTHUR SPEIGHTS
 JAMES SPENCER
 WALTER SPRUELL
 DAVID STANISLAW
 CASSANDRA STANLEY
 BRIAN STAPLETON
 DAVID STARYNCHAK
 GREGORY STAWICKI
 EDWARD STAWICKI
 PAUL STEFANSKI
 CHARLES STERNER
 THEODORE STOLL
 KEVIN STRONG
 LARRY STRUMP
 LESTER STUMPE
 RONALD SULIK
 MICHAEL SULLIVAN
 DAVID SVEJKOVSKY
 MARK SWIGER
 RICHARD SWITALSKI
 JIMMIE SWOOPE
 DANIEL SYROWSKI
 MICHAEL SZABO
 PAUL SZABO
 GENE TAKACS
 CARLA TATE
 ERIC TAYLOR
 MICHAEL TAYLOR
 ROBERT TAYLOR
 PAUL TEAGLE
 ALEX TENCH
 DAVID TERKEN

Cuyahoga River Water Quality Study Affects Discharge Standards

In response to OEPA's stricter wastewater discharge standards, we began analyzing the water quality of the Cuyahoga River. The water is analyzed by taking biological samples as well as physical and chemical measurements. The goal of the study is to determine proper water quality standards which take the conditions of the Cuyahoga River into account.

Nearly every industry and municipality that discharges wastewater has an EPA permit. A permit holder is subject to specific standards, but the standards can change when permits are renewed. The District is leading the way since Southerly's permit was the first of all sewage dischargers along the Cuyahoga River to expire after the OEPA established new, stricter wastewater discharge standards.

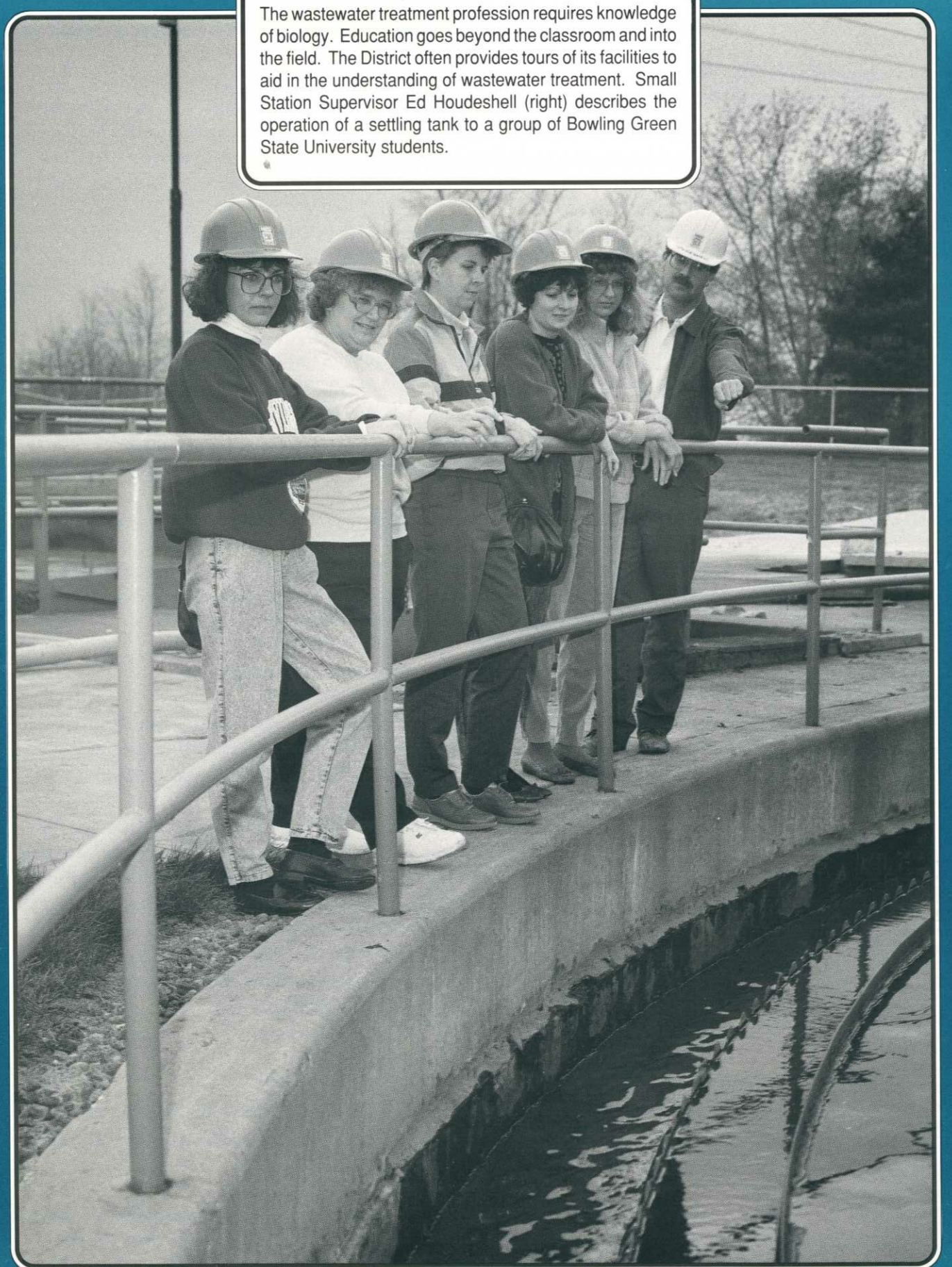
The District believes that the low river flow levels set by the OEPA are too low. These flow levels are used to calculate the water quality limits for discharged wastewater.

The OEPA gave us a schedule for compliance with the new standards which need to be implemented by 1991. We are conducting the study of Southerly's effluent metals toxicity to support revising the standards. We are also studying the toxicity of the river and treatment plant effluent. Samples of the river and effluent are taken and lab technicians add fathead minnows and other water species to observe how well they survive and reproduce.

We are also determining toxic limits for various metals the OEPA monitors. Unlike the "artificial" environment created in the OEPA laboratory, the study uses actual effluent, "spiked" with one of the metals. The minnows and water species are added and observed. In this way, we plan to determine at what level metals become harmful.

Part of the study involves a chemical analysis of the river using data from the State of Ohio to compare the river's current chemistry over time and at high and low water flows. This is just another way we work with the community to protect our environment and the water around us.

The wastewater treatment profession requires knowledge of biology. Education goes beyond the classroom and into the field. The District often provides tours of its facilities to aid in the understanding of wastewater treatment. Small Station Supervisor Ed Houdeshell (right) describes the operation of a settling tank to a group of Bowling Green State University students.



FRANCIS TESAR
 DEAN THURMAN
 ANTHONY TICCHIONE
 TIMOTHY TIGUE
 RUSSELL TISCHER
 MARK TOMARO
 JEROME TOMASHESKI
 JOHN TRAFFIS
 STEFAN TRIFU
 ERNEST TROY
 JAMES TUBERO
 ROBERT TUCKER
 TERRENCE TURK
 YVETTE TURNER
 DONALD TUTOLO
 DENNIS TYBURSKI
 GEORGE UHL
 THOMAS ULRICH
 BRIAN VACCHER
 OLIVER VACCHER
 DONALD VANDRASIK
 ALFRED VASIL
 CHARLES VASULKA
 DAVID VAUGHN
 PATRICK VELOTTA
 WILLIAM WAITE
 LLOYD WALDEN
 ROBBIN WALKER
 REGIS WALLACE
 WAYNE WALTERS
 JOHN WARD
 KENNETH WARD
 TOIVO WARGELIN
 JAMES WARGO
 ROSEMARY WASHINGTON
 JAMES WATKINS
 ANTHONY WATROBA
 DONALD WEBER
 JAMES WEBER
 THOMAS WEBSTER
 RAYMOND WEEDEN
 SANDRA WEEDEN
 REGINALD WEEMS
 JOHN WEGAS
 ROBERT WEIGAND
 RONALD WEIZER
 CHARLES WELLMAN
 PATRICK WESLEY
 JESSE WETULA
 TODD WHITE
 SVEN WIBERG
 PHILLIP WIENCLAW
 THOMAS WILD
 ALFRED WILLIAMS
 COLANDERS WILLIAMS
 CYNTHIA WILLIAMS
 JOSEPH WILLIAMS
 ROBERT WILLIAMS
 SEDALIA WILLIAMS
 SIDNEY WILLIAMS
 TRUZELLER WILLIS
 JAY WILSON
 MARY WILSON
 WILLIAM WILSON
 CHANDA WIMBS
 CHARLES WINEMILLER
 THOMAS WOHLFEIL

Operations

The operation of a wastewater treatment plant is an expensive endeavor. Operations is the largest department and has the largest budget. The personnel costs alone total 28 percent of the budget while 12 percent is used for utilities. One of the department's goals is to reduce operating costs. Each treatment plant was given the task of evaluating its operation and looking for ways to reduce costs.

Southerly Saves by Switching Solids Processing

One of our largest savings over the year resulted from the closing of the activated sludge thickening facility at Southerly. This facility is used to remove water from solids. It was possible to close this unit by diverting the sludge to the gravity thickeners. When the activated sludge thickening facility was installed, it was the latest in technology. However, it became inefficient due to the amount of energy and time needed to complete the process. By switching over to the gravity thickeners, we received similar results at lower maintenance and operation costs. We saved \$198,705 during 1989 and project a savings of over \$650,000 in 1990.

Southerly also started using ceramic coated rods for the thermal conditioning high pressure pumps instead of plain steel rods. The ceramic coated rods have double the life of the plain steel rods. By using the ceramic rods, our costs have decreased since the rods don't wear as quickly so we replace them less frequently. By using the ceramic rods we will save over \$25,000 annually.

Westerly Finds New Water Source for Savings

Westerly is currently in a transition period. Because of mechanical failure, Westerly has not been operating as designed. We are evaluating the process design. However, this has not stopped us from reducing operating costs.

There are three areas where cost savings were realized. Westerly changed from city water to process water in the incinerator scrubber system. We will save over \$390,000 by using process water. We have been incinerating solids instead of hauling to a landfill. Incineration is a more effective and economical method of sludge disposal. The estimated annual savings for this change is over \$350,000. We also reduced the rate of backwash water flow and the duration of filter backwash without affecting the filter operation. As a result, we saved over \$30,000 by reducing pump operation by 2.5 hours per day.

Outlying Facilities Add to Cost Savings

We decided to use a process similar to Westerly's for potable water at Strongsville "A" and did the preliminary work for the project. Using this method would save Strongsville "A" over \$25,000 a year.

We also combined two plant supervisor positions, one for Strongsville "A" and one for Berea into a plant manager position. This will result in a savings of over \$40,000 a year.

MICHAEL WOLF
 ANTHONY WOOD
 JOHN WOOD
 SABRINA WOODSON
 LENARD WOOLSEY
 APRIL WRIGHT
 HARRY WRIGHT
 JOHN YENYO
 BERNARD YORKO
 KENNETH YOUNG
 JAMES YUSKO
 THOMAS ZABLOTNY
 MOHAMMED ZACHARIAH
 VICTOR ZADELL
 TIMOTHY ZAK
 CATHERINE ZAMBORSKY
 ROBERT ZAMISKA
 TALIVALDIS ZARINS
 GLENN ZAROBELL
 KURT ZEH
 APRIL ZELLNER
 DAVID ZIEMBICKI
 BETTY ZIGMUND
 ALFRED ZIMMIE
 STEPHEN ZYCH

Easterly Staff Reduction Nets Largest Savings

At Easterly we saved close to \$300,000 by reducing the staff. We did not fill positions in non-critical areas when a vacancy occurred. These areas did not need constant monitoring.

By changing the chemicals used for disinfection at Easterly, we plan to save close to \$50,000 annually. We switched from chlorine to sodium hypochlorite. Hypochlorite is a strong bleach and can be rinsed down if a spill would occur. Using hypochlorite for disinfection is more economical as well as safer.

Easterly became the District's central grease disposal facility. We will save over \$32,000 annually by hauling grease from Berea, Strongsville and Westerly to Easterly instead of to a landfill. We are now only paying for hauling the grease and not for the disposal in a landfill. In 1990, we plan to haul Southerly's grease to Easterly which will increase the savings.

Award Winning Plant Performance Due to Quality Employees

Though many cost saving changes were implemented during the year, they had no negative effect on the performance of the plants. Our Easterly plant was given the Gold Award by the Association of Metropolitan Sewerage Agencies. The award is given to plants having no permit violations. Three of our plants, Southerly, Strongsville "A" and Berea were given the Silver Award for five or less violations, none of which exceed permit limits by more than 15 percent.

Most of the savings accomplished are due to the caliber of employees who contribute to the plant performance. All our plant superintendents have their Class IV Ohio EPA Wastewater Operator Certification which is Ohio EPA's highest certification for wastewater treatment plant operators. Our plant employees are very knowledgeable in the work they do. This year eight employees on two teams won medals in the Ohio Water Pollution Control Federation Operations Challenge '89. The event involved a one-day competition which tested wastewater treatment knowledge in seven categories. One of the two teams later represented Ohio in National Challenge sponsored by the Water Pollution Control Federation.

At the beginning of the year our former Assistant Chief of Operations Will Baylis was named Chief of Operations replacing Dale Patrick who retired after 15 years of service. Baylis has received numerous promotions in the Operations department since he began his career as a wastewater operator in 1969.

Superintendent of Small Stations Charles Johnson was awarded the Dean Stewart Award during the Ohio Water Pollution Control Federation's Annual Meeting. This award is given annually for the most outstanding proficiency in wastewater treatment plant operation in Ohio.

1989 Wastewater Treatment Plant Operating Statistics

Location	14021 Lake Shore Boulevard, Cleveland
Type of Plant	Primary and Secondary Treatment (Activated Sludge, Step Aeration)
Number of Personnel	72
Plant Design Capacity	155 mgd dry weather
Total Wastewater Treated	51.1 billion gallons
Total Sludge Pumped to Southerly	656.8 million gallons
1989 Operating Cost	\$4,021,255
Effluent Discharge Point	Lake Erie

EASTERLY WASTEWATER TREATMENT PLANT

Location	6000 Canal Road, Cuyahoga Heights
Type of Plant	Primary and Secondary Treatment (Two-stage Activated Sludge) with Effluent Filtration and Solids Handling
Number of Personnel	246
Plant Design Capacity	175 mgd dry weather
Total Wastewater Treated	47.0 billion gallons
Total Sludge Filter Cake Processed	115,998 wet tons*
Total Sludge Incinerated	102,493 wet tons
Total Sludge Hauled to Landfill	13,505 wet tons
1989 Operating Cost	\$16,716,292
Effluent Discharge Point	Cuyahoga River

SOUTHERLY WASTEWATER TREATMENT PLANT

Location	5800 West Memorial Shoreway, Cleveland
Type of Plant	Primary and Advanced Treatment (Physical-Chemical) and Solids Handling
Number of Personnel	105
Plant Design Capacity	50 mgd dry weather
Total Wastewater Treated	11.7 billion gallons
Total Sludge Centrifuge Cake Processed	25,401 wet tons
Total Sludge Incinerated	8,272 wet tons
Total Sludge Hauled to Landfill	17,129 wet tons
1989 Operating Cost	\$8,239,206
Effluent Discharge Point	Lake Erie

WESTERLY WASTEWATER TREATMENT PLANT

Location	22707 Sprague Road, Strongsville
Type of Plant	Conventional Activated Sludge and Solids Handling
Number of Personnel	6
Plant Design Capacity	2.6 mgd dry weather
Total Wastewater Treated	1.2 billion gallons
Total Sludge Filter Cake Processed and Hauled to Southerly	5,982 wet tons
1989 Operating Cost	\$621,919
Effluent Discharge Point	Blodgett Creek (tributary to West Branch of Rocky River)

STRONGSVILLE "A" WASTEWATER TREATMENT PLANT

Location	400 Barrett Road, Berea
Type of Plant	Primary and Secondary Treatment (Contact Stabilization)
Number of Personnel	7
Plant Design Capacity	3.0 mgd dry weather
Total Wastewater Treated	1.0 billion gallons
Total Sludge Hauled to Southerly for Further Processing	6.1 million gallons
1989 Operating Cost	\$594,456
Effluent Discharge Point	East Branch of Rocky River

BEREA WASTEWATER TREATMENT PLANT

* Includes sludge from Easterly, Strongsville "A" and Berea WWTP's

1989 Plant Performance Data (in milligrams per liter)

EASTERLY WASTEWATER TREATMENT PLANT

PARA-METERS	NPDES PERMIT LIMITS	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
CBOD	15	5	7	8	6	5	4	3	5	4	5	5	7
TSS	20	10	11	10	9	7	6	6	7	6	7	11	13
PHOS.	1.0	.66	.76	.82	.54	.49	.56	.74	.81	.54	.58	.44	.48

SOUTHERLY WASTEWATER TREATMENT PLANT

PARA-METERS	NPDES PERMIT LIMITS	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
CBOD	10 summer 16 winter	2	3	3	2	2	2	1	1	2	2	2	3
TSS	16	3	3	3	3	2	2	2	2	2	2	3	3
PHOS.	1.0	.65	.82	.83	.66	.60	.63	.82	.85	.86	.78	.44	.45

WESTERLY WASTEWATER TREATMENT PLANT

PARA-METERS	NPDES PERMIT LIMITS	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
BOD	20	16	22	39	28	28	30	31	45	49	54	57	45
TSS	20	11	13	18	16	12	12	12	12	8	9	18	17
PHOS.	1.0	.55	.67	.74	.71	.70	.63	.68	.53	.48	.60	.56	.54

STRONGSVILLE "A" WASTEWATER TREATMENT PLANT

PARA-METERS	NPDES PERMIT LIMITS	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
BOD	30	13	13	11	16	18	11	6	15	12	17	14	15
TSS	30	14	16	16	13	14	15	13	17	13	21	23	18
PHOS.	1.0	.71	.76	.60	.69	.75	.60	.56	.87	.62	.83	.68	.59

BEREA WASTEWATER TREATMENT PLANT

PARA-METERS	NPDES PERMIT LIMITS	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
BOD	21	15	17	18	15	12	10	6	11	8	11	13	15
TSS	24	10	10	9	10	7	10	8	6	5	4	10	9
PHOS.	1.0	.67	.68	.75	.74	.75	.69	.81	.82	.68	.66	.53	.59

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

