
**NORTHEAST OHIO REGIONAL SEWER DISTRICT
1984 ANNUAL REPORT**



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About the Cover

From a vantage point at Edgewater Park, the sand-colored buildings of the new Westerly Wastewater Treatment Plant — the largest physical/chemical plant in the country — appear against the backdrop of the Cleveland skyline. This view is particularly appropriate. An integral part of the skyline, as viewed from Lake Erie, Westerly symbolizes the significant role of the Northeast Ohio Regional Sewer District in ensuring the protection of this area's greatest natural resource — its water.

*Lois M. Epstein, Editor
1984 Annual Report
Northeast Ohio Regional Sewer District*

1984 BOARD OF TRUSTEES



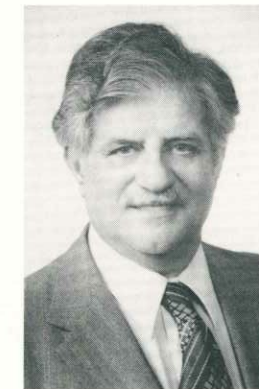
John Petruska
President

Mayor John Petruska was appointed to the Board by the Suburban Council of Governments in March 1975 and re-appointed in March 1980. He is mayor of the City of Parma, the ninth largest city in the State of Ohio. He was a practicing attorney until becoming Parma's mayor in 1967, having served as a councilman from 1961 to 1966.



Edward J. Rawlins
Vice President

Edward J. Rawlins was appointed to the Board in March 1983 by the Board of County Commissioners of Cuyahoga County. He retired in January 1983 after 32 years with the City of Cleveland Fire Department. His last position was that of assistant fire chief.



Anthony C. Amato
Secretary

Appointed to the Board by the mayor of Cleveland in 1980, Mr. Amato is risk manager of the City of Cleveland and has served in that capacity since 1981. Prior to becoming risk manager, he was assistant director of public utilities of the City of Cleveland. From 1973 to 1980, Mr. Amato served as comptroller of the Northeast Ohio Regional Sewer District.



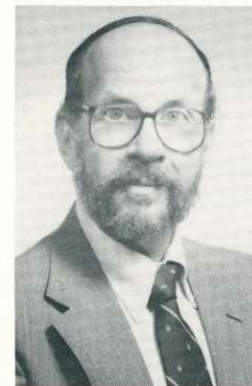
William J. Reidy

Mr. Reidy was appointed to the Board by the mayor of Cleveland in 1983. He is a general practice partner in the Cleveland office of the certified public accounting firm of Coopers & Lybrand. He served as director of finance of the City of Cleveland from January 1980 to December 1981.



Lester C. Ehrhardt

Appointed to the Board by the Suburban Council of Governments in February 1984, Mr. Ehrhardt served as mayor of Lyndhurst, Ohio from 1964 until 1980. He was a councilman of that city from 1962 until his election as mayor. He was also a councilman in South Euclid, Ohio from 1948 through 1954.



Edward H. Richard

Mr. Richard was appointed to the Board in March 1984 by the mayor of the City of Cleveland. In his capacity as chief administrative officer of the City of Cleveland, he directs eight major departments. In addition to his other duties, Mr. Richard also serves as director of public utilities.



Louis J. Bacci

A member of the original Board, Mr. Bacci was appointed by the Suburban Council of Governments in 1972, and reappointed to successive five-year terms in March of 1974, 1979 and 1984. He was mayor of the Village of Cuyahoga Heights for twelve years. Mr. Bacci resigned from the Board on December 10, 1984.



Jack Schulman

Mr. Schulman was appointed to the Board by the mayor of Cleveland in 1979. He was formerly law director of the City of Cleveland and is presently a practicing attorney. He holds a juris doctor degree from Harvard University. Mr. Schulman resigned from the Board on February 29, 1984.



Mary J. Coleman

Mrs. Coleman was an original appointee of the mayor of Cleveland when the District was formed in 1972. Mrs. Coleman served as secretary of the Board for eight years. Her fellow Board members then elected her president, a post she held from 1980 to the time of her resignation on February 15, 1984.

PRESIDENT'S MESSAGE



Mayor John Petruska
President

It's hard to believe that ten years have passed since I was first named to the Board of Trustees of the Cleveland Regional Sewer District — as it was called then. The passing years have brought tremendous changes to our facilities.

In 1972, when the District was created, the three major wastewater treatment plants were in a state of disrepair. There was no institutional structure which could respond to the needs of the residents of the region or raise the funds for the necessary rehabilitation of the treatment facilities.

Over a relatively short period of time, I have seen the Northeast Ohio Regional Sewer District grow from childhood, into adolescence and enter maturity. That growth has been accelerated by the millions of dollars that have been funneled into a massive capital construction program at our wastewater treatment plants and into building the Cuyahoga Valley and Northwest Interceptors.

Since the District was created there have also been many changes on the Board — terms have expired and members have resigned. But one factor has remained the same. Even though we came from vastly different backgrounds and experience, we all have had one goal in common — to serve the best interests of the residents of our service area. This involves being sensitive to the immediate concerns of our customers, and, at the same time, planning for the best long-term interests of the community. It involves tough decisions in committing to expensive improvement projects which must be financed through our user charges. It also involves constant vigilance to ensure that our customers are receiving the best possible value for each dollar expended.

Now our plant construction programs are winding down and entering their final phases. However, significant sewer projects remain to be constructed — particularly the Heights/Hilltop and the Southwest Interceptors. The federal funding for the first segments of these interceptors was approved this year. Construction is scheduled to begin in 1985. We will work hard to maintain the highest possible level of federal funding throughout the course of construction.

As federal funds become increasingly scarce, the challenges will be even greater in the future than they were in the past. But we look forward to meeting those challenges and continuing to represent the best environmental and economic interests of the residents of this region.

HISTORICAL PERSPECTIVE

"The establishment of a metropolitan sewer district under the provisions of Chapter 6119 of the Ohio Revised Code is necessary, and said District will be conducive to the public health, safety, convenience and welfare.

The purpose and ultimate goal of the District shall be the establishment of a total wastewater control system for the collection, treatment and disposal of wastewater within and without the District."

George J. McMonagle, Judge,
Cuyahoga County Court of Common Pleas
4 April 1972

With these words, Judge George J. McMonagle created the organization known today as the Northeast Ohio Regional Sewer District. The District now serves nearly 1.2 million residents within the City of Cleveland, Ohio and surrounding municipalities.

In the short period of time since the District was created, massive improvements in the treatment and disposal of wastewater have resulted in the protection of this area's greatest natural resource — its water.

In order to fully appreciate the extent of these improvements, it is necessary to look at the events that led to the creation of the District.

In the late 1960's and early 1970's, Lake Erie was said to be dying. Desirable species of fish, once abundant, became rare. Many lake-shore beaches were closed and swimming at others was periodically prohibited because of high levels of potentially harmful bacteria and

masses of algae. Drinking water often had an unpleasant odor and taste.

The ninety-mile-long, Cuyahoga River (an Indian word meaning crooked), which snakes its way through Cuyahoga County, was a major source of Lake Erie's pollution. The river was a receptacle for industrial waste, trash, logs and untreated sewage. Fertilizer, salt, pesticides and other assorted materials were washed by the rain and melting snow into the river. Oil slicks and floating debris were common sights.

On September 30, 1970, the Ohio Water Pollution Control Board (the predecessor of the Ohio Environmental Protection Agency) filed a court action against the City of Cleveland claiming inadequate and improper disposal of wastewater. The action also charged that Cleveland had refused to comply with a ban on new sewer connections imposed as a result of

the area's serious water pollution problems.

In March of 1971, the suburban municipalities also brought suit against the City of Cleveland contesting increases in sewer rates.

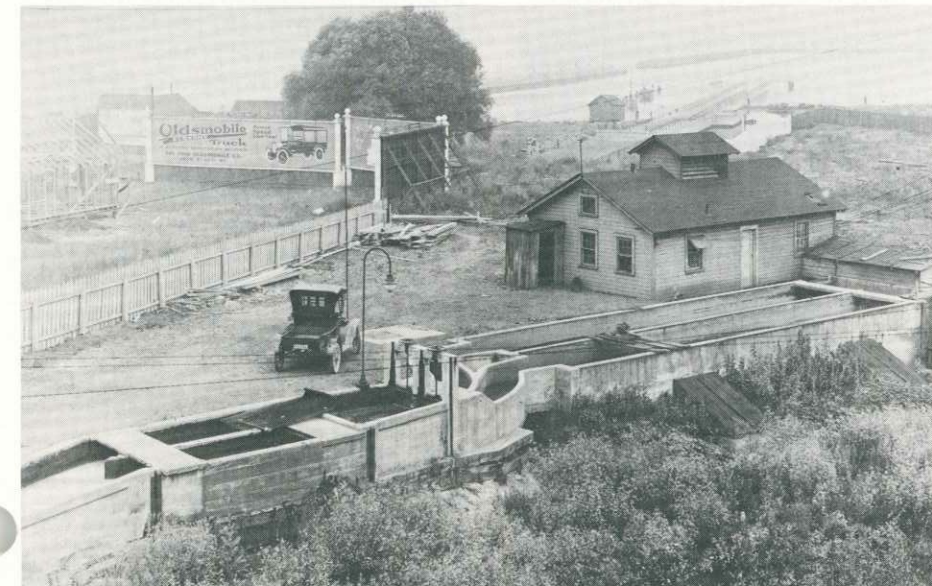
The Cuyahoga County Court of Common Pleas consolidated the two cases, held hearings, and finally ruled that the area's water pollution problems could best be solved by formation of a new entity — a regional sewer district. The court's ruling transferred all wastewater treatment facilities and interceptor sewers, owned by the City of Cleveland, to the new regional sewer district.

According to the court order, the District was to be established as a political subdivision of the State of Ohio and governed by a seven-member Board of Trustees.

Since the first meeting of the newly-appointed Board on July 18, 1972, nearly \$700 million dollars has been invested in reconstructing the wastewater treatment facilities that serve this area. The program is now nearing completion and the results are readily apparent.

Today, the foul smells and oil slicks are gone from the Cuyahoga River. Pleasure boats vie for space on the river with huge ore boats. Hundreds of patrons of restaurants and night clubs sit on riverfront patios and enjoy the sights.

And what about Lake Erie? Just ask a fisherman, swimmer or boater. Over 70,000 boaters use Lake Erie, and an abundant fish population attracts about one million Ohio-licensed sport fishermen annually. In 1984, more than two million visitors enjoyed Edgewater Park, now part of the Cleveland Lakefront State Park, and 750,000 of them swam in water that met the standards of the American Public Health Association.



In 1919, this was the Westerly Wastewater Treatment Plant. The channel, in the foreground, provided coarse screening and removal of grit and large materials, such as rags and cans, before the wastewater was discharged to Lake Erie.



Dale F. Patrick
Chief of Operations

"Our job is to administer the operations and maintenance of the District's wastewater treatment plants, pump stations, laboratory and other maintenance facilities."

OPERATIONS DEPARTMENT

Operations Administration

The Operations Administration staff consists of the chief of operations, two assistant chiefs of operations, two engineering aides, a secretary and a clerk.

The chief of operations has the overall responsibility for administering, operating and maintaining the District's wastewater treatment facilities. One assistant chief is responsible for coordinating the administration of the Southerly Plant, District Vehicle Maintenance Shop, the Laboratory, Strongsville "A" Plant and pump stations. The other assistant chief has been serving, on an interim basis, as the acting superintendent at the Westerly Plant, and also has responsibilities for coordinating the administration of the Easterly Plant and Building Maintenance.

The engineering aides write the final specifications for bidding of equipment, chemicals and other products needed by the plants and

associated facilities. They also prepare the forms and reports required by the Ohio Environmental Protection Agency.

Southerly Wastewater Treatment Plant

The Southerly Wastewater Treatment Plant, largest of the District's three major plants, serves more than 600,000 residents. It is located on a 217-acre site in the Village of Cuyahoga Heights. When originally built in 1927, this plant was capable of only removing grit, rags and other debris from the wastewater before discharging it into the Cuyahoga River. Over the years, the plant was periodically expanded and improved so that it could handle increased flow and more stringent regulatory agency requirements.

In 1975, the District began a reconstruction and rehabilitation program of Southerly's 115 million gallon per day (mgd) secondary treatment facilities. When construction is completed, design capacity will be increased to 200 mgd average flow with 400 mgd peak flow receiving complete two-stage biological treatment and filtration. During wet weather periods, an additional 335 mgd receives primary treatment only.

Currently, Southerly operates as a secondary treatment plant with effluent filtration.

Contract 16-1 covers a project now under construction, to rehabilitate the old primary, aeration and settling tanks. Chemical conditioning facilities will also be included for phosphorus removal. These improvements will allow two-stage biological treatment by providing 175 mgd of first-stage secondary treatment. The second-

stage aeration facilities will then receive flow to provide biological treatment to remove ammonia and organic nitrogen. The effluent filters will provide the final stage of advanced waste treatment.

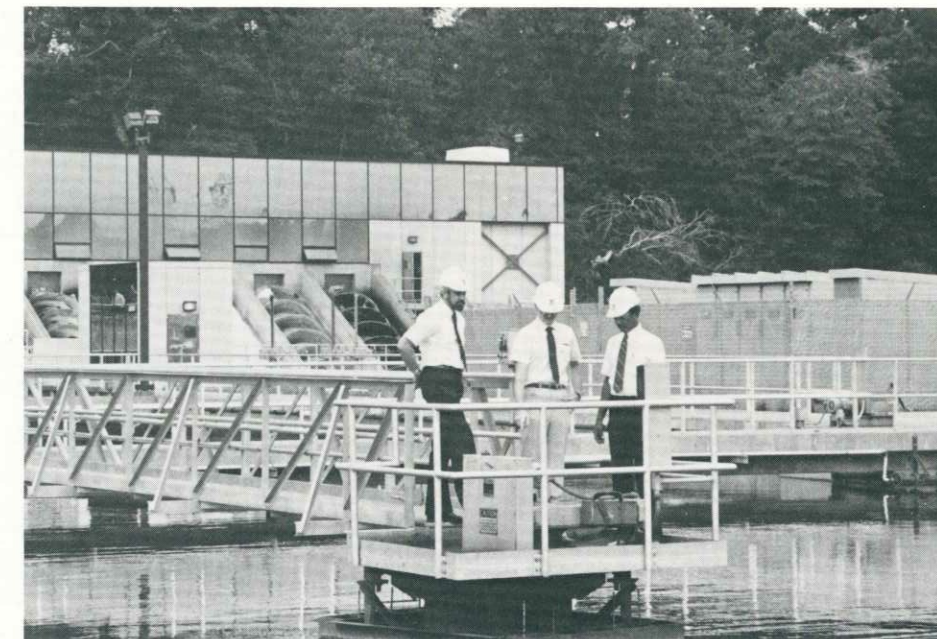
Upon completion of this project, Southerly will be one of the largest advanced waste treatment plants in the country. It will have the capacity to treat wastewater from most of the southern half of Cuyahoga County and parts of northern Summit County.

(Additional capital construction information is in the chapter entitled Engineering Department.)

FATE Study Completed

In order to satisfy Ohio Environmental Protection Agency requirements, Southerly personnel performed a Flow and Treatment Efficiency (FATE) study. Its purpose was to determine the operating capabilities of the existing facilities under varying flow conditions and develop operating procedures that would result in the best possible plant performance until completion of Contract 16-1.

The study began on January 31, 1984 and continued through October 31, when formal testing was completed. The data was then compiled and analyzed so that the



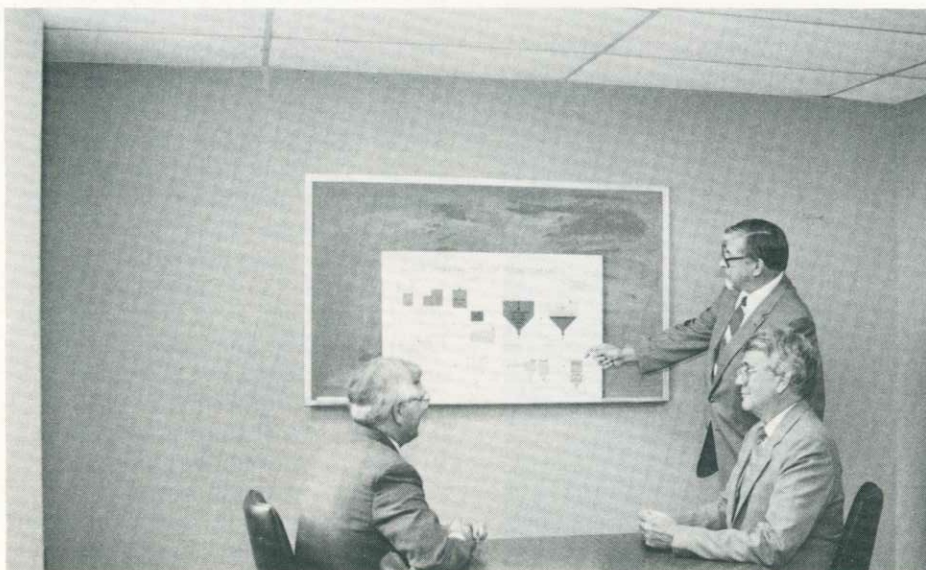
Will Baylis (right) superintendent of the Southerly Wastewater Treatment Plant, examines the drive mechanism on a final clarifier with Charles Johnson, assistant superintendent of operations (left), and Scott Royer, assistant superintendent of maintenance.

report could be submitted to Ohio EPA by January 31, 1985.

Energy Conservation Continues

Energy conservation is a major element in the design of Southerly with the heat pumps using plant effluent as the major source of heat for the entire 13-building complex. An additional energy-saving

technique uses the waste heat boilers to produce steam for processing as well as some building heat. During 1984, the steam generation facilities produced a total of 187.4 million pounds of steam. Of this total, 97.5 million pounds was produced with fuel and 89.9 million pounds was produced by the waste heat boilers which accounted for 48 percent of the total steam produced.

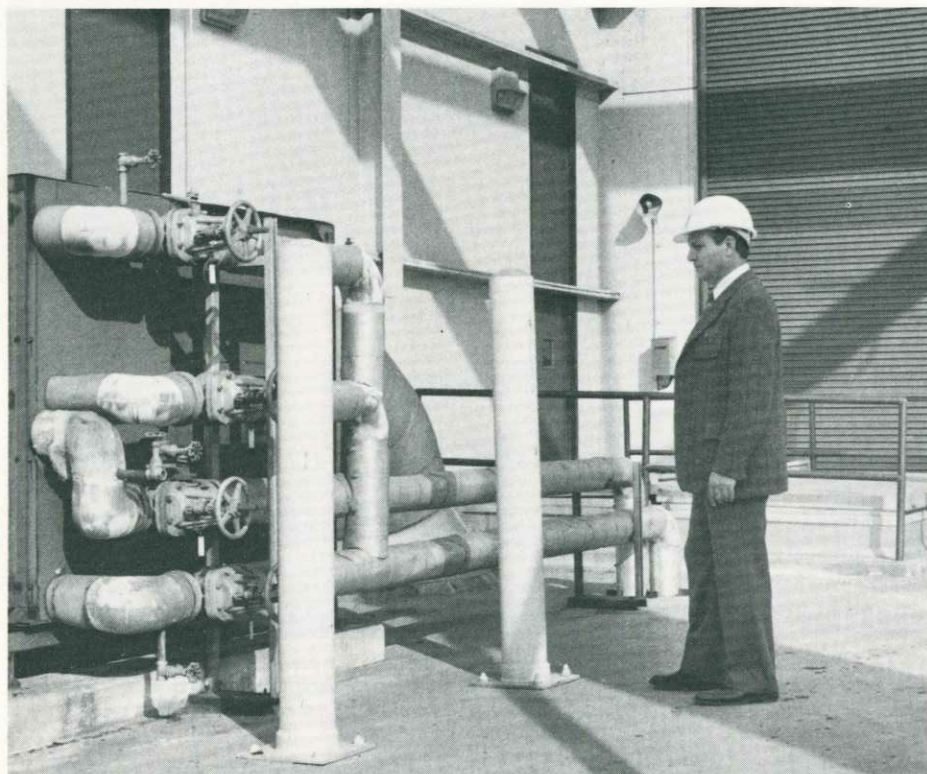


Chief of Operations Dale F. Patrick (standing) discusses the schematic drawing of the sludge handling process at the Westerly Plant with Assistant Chiefs of Operations Lewis Debevec (left) and M. Brandt Tennant (right).

1984 Southerly WWTP Performance Data

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Biochemical Oxygen Demand	10	10	9	7	9	3	3	3	5	5	7	9
Suspended Solids	6	5	5	4	7	3	2	3	3	3	4	4
Phosphorus	1.1	.72	.66	.68	.69	1.08	.94	1.0	1.0	1.3	1.23	.92

(NPDES Limitations: BOD - 20 mg/liter, Suspended Solids - 12 mg/liter, Phosphorus - 1.0 mg/liter)



Frank Cuffaro, assistant superintendent of operations at Southerly, looks over the ventilation system for the Cuyahoga Valley Interceptor pump station.

Plant Information Computerized

A microcomputer was installed in the plant's administrative and operations offices to increase the accessibility of plant performance information.

The computer is used to calculate such plant data as percentage removal of Biochemical Oxygen Demand (BOD), tank loadings and efficiencies, and suspended solids. It also provides storage and retrieval of past operating information for comparison purposes. It produces monthly performance reports for each unit process in the plant and also daily operating records. This enables the unit process managers to observe data trends and foresee

and respond to potential problems.

Another microcomputer has been installed in the maintenance building offices to store equipment records, schedule work, and generate reports on manhours expended and equipment repair history.

CVI Pump Station Begins Operation

The Cuyahoga Valley Interceptor (CVI) was constructed to transport wastewater from the communities within the Cuyahoga River Valley directly to the Southerly Wastewater Treatment Plant for treatment. Due to the considerable depth of the interceptor when it reaches Southerly (57 feet below grade), a

pump station is used to lift the wastewater flow up to the plant headworks where the treatment process begins.

The pump station was designed to handle 67 mgd of wastewater with provisions for doubling its pumping capacity in the future, if needed.

During 1984 the CVI was essentially completed and the pump station saw its initial operation. However, since all the connections from the individual communities had not yet been made, the average daily flow during 1984 was minimal.

Easterly Wastewater Treatment Plant

The Easterly Wastewater Treatment Plant, which serves approximately 540,000 residents of the eastern suburbs and east side of Cleveland, is located at East 140th Street and Lakeshore Boulevard. The entrance level of the 110-acre plant is situated on a bluff overlooking the lakefront and treatment units below.

Wastewater proceeds through the plant by gravity. After the treatment process is completed, the flow is lifted by effluent screw pumps so that it can be discharged into Lake Erie, which is at a higher level than the treatment units.

Easterly began operations in 1922 as a primary treatment plant. In 1938, the plant was upgraded to a 123 mgd conventional activated sludge secondary treatment plant, the state-of-the-art in wastewater treatment at that time. An expansion and upgrading of the plant, which began in 1968, represents an investment, to date, of nearly \$47 million. The improvements have increased Easterly's average dry weather flow capacity to 155 mgd, with a wet weather flow capacity of 330 mgd.



Herman Bishop, assistant superintendent of operations at Easterly, checks the mechanism for the control gate at the plant's screw pump installation with Alex Balazs, superintendent, (center) and Ronald McCune (right), assistant superintendent of maintenance.

Easterly Operates Under Final Permit

On April 1, 1984, the Easterly Wastewater Treatment Plant became the first of the District's facilities to be operated under its final National Pollution Discharge Elimination System (NPDES) permit. Prior to that date, the plant had operated under a less stringent interim permit.

In Ohio, NPDES permits are

granted to wastewater treatment plant operators by the Ohio Environmental Protection Agency (EPA) under an agreement with U.S. EPA. These permits set specific standards to which the wastewater must be treated.

Under its final permit, Easterly is not permitted to discharge effluent that exceeds 20 milligrams per liter of BOD; 20 milligrams per liter of suspended solids; or 1 milligram per liter of phosphorus.

The final limitations were imposed after Ohio EPA analyzed the results of a one-year performance evaluation which took place following completion of the plant improvements. The evaluation indicated that not only was the plant capable of meeting the final effluent limits, but it had actually been doing so for the previous year.

However, the plant has not met its limitations for some heavy metals (copper, nickel and zinc) due to what the District believes are unrealistically stringent limitations. The District has requested that Ohio EPA modify the permit to reflect both the practical limits of present technology and the dilution factor of Lake Erie.

Balazs Named Superintendent

Alex Balazs, manager of the District's Laboratory for 16 years, was promoted to superintendent of the Easterly Wastewater Treatment Plant in June of 1984. He replaced Lewis Debevec, assistant chief of operations, who had been serving as acting superintendent. Balazs has a bachelor's degree in chemistry from Debrecen Institute of Technology in Hungary, and holds an Ohio Environmental Protection Agency Class III Wastewater Operator Certificate.

1984 Easterly WWTP Performance Data

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Biochemical Oxygen Demand	14	11	18	13	16	21	9	16	16	16	18	16
Suspended Solids	6	9	6	5	5	5	3	3	3.5	5	5	6
Phosphorus	.38	.31	.29	.23	.32	.34	.33	.33	.3	.41	.35	.37

(NPDES Limitations: 1/84 - 3/84 — BOD - 30 mg/liter, Suspended Solids - 30 mg/liter, Phosphorous - 1.0 mg/liter
4/84 - 12/84 — BOD - 20 mg/liter, Suspended Solids - 20 mg/liter, Phosphorous - 1.0 mg/liter)

Westerly Wastewater Treatment Plant

Westerly is the smallest of the District's three major wastewater treatment plants. Located on a 14-acre lakefront site adjacent to Edgewater Park, now part of the Cleveland Lakefront State Park, Westerly serves approximately 160,000 residents. It receives and treats a flow of approximately 35 mgd of which 12.8 percent represents industrial waste from 194 manufacturing companies.

The original facility, built in 1922, was Cleveland's first wastewater treatment plant. It was designed to provide primary treatment for a maximum of 25 mgd.

The District has built a totally new facility to replace the outdated and inadequate plant. The new plant, constructed in several multi-level buildings, will use a combined physical/chemical process which is more suited to the limited site. The plant's state-of-the-art processes will be monitored by a central computer and localized control panels.

While the final stages of construction are being completed, the plant operates as a primary facility. Treatment processes in operation during 1984 included the following: screening, comminution, aerated grit removal, chemical addition, mixing, flocculation, clarification



Observing the flow through one of Westerly's flocculator clarifiers are: (left to right) Lewis Debevec, acting superintendent; Kevin Dougherty, assistant superintendent of operations; and Steve Crea, assistant superintendent of maintenance.

and chlorination. The sludge disposal processes in use were gravity thickeners, centrifuges and incinerators.

When completed in 1985, the plant will provide advanced treatment to an average flow of 50 mgd and a peak flow of 100 mgd. Additionally, a combined sewer

overflow treatment facility will handle wet weather flows of up to 30 mgd (*See Engineering Department section for more information about this facility*).

Upon its completion, Westerly will be the largest physical/chemical wastewater treatment plant in the country.

1984 Westerly WWTP Performance Data

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Biochemical Oxygen Demand	96	73	82	70	53	44	49	53	70	83	75	68
Suspended Solids	49	32	24	22	24	26	28	24	23	30	23	38
Phosphorus	1.82	0.93	0.85	0.69	1.01	0.82	0.92	0.90	0.90	0.80	0.55	0.98

(NPDES Limitations: BOD - 40 mg/liter, Suspended Solids - 30 mg/liter, Phosphorus - 1.0 mg/liter)

Strongsville "A" Wastewater Treatment Plant

The Strongsville "A" Wastewater Treatment Plant is located on Sprague Road in Strongsville. In 1977, the District took over, from the City of Strongsville, the operation, management and maintenance of this facility. This action was taken in anticipation of decommissioning the plant when the Southwest Interceptor is constructed.

At the time the District assumed operation of Strongsville "A", the plant was functioning as an extended aeration process plant with a capacity of 1.0 mgd. It was overloaded both hydraulically and organically and did not have adequate facilities for the processing or removal of sludge.

Two expansion and upgrading phases were completed by the District in 1981 and 1982. The first phase included construction of sludge storage, installation of return sludge pumps, two new final clarifiers, one new blower, chlorine contact tanks, and phosphorus removal and sludge thickener facilities. This work represented an investment of one million dollars. The second phase of construction included a belt filter press and sludge chemical conditioning facilities. Today, the plant uses a



Small Stations Manager Michael DaDante checks the status of the aeration tanks at the Strongsville "A" Plant.

conventional activated sludge process and is capable of treating 2.6 mgd dry weather flow and 7.2 mgd wet weather flow.

Activities during 1984 centered primarily on maintenance and repair, however, a second comminutor was placed into service as was a new polymer feed system. Several of the plant's processes were automated to improve operations.

1984 Strongsville "A" WWTP Performance Data

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Biochemical Oxygen Demand	27	18	25	19	11	11	16	15	11	10	15	13
Suspended Solids	15	19	20	22	10	8	17	18	14	14	14	13
Phosphorus	.86	.74	.82	.77	.54	.65	.67	.97	.64	.59	.65	.51

(NPDES Limitations: BOD - 30 mg/liter, Suspended Solids - 30 mg/liter, Phosphorus - 1.0 mg/liter)

Pump Stations

In addition to the wastewater treatment plants, the District is also responsible for the operation of the Beech Hill/Wilson Mills/Bonnieview Pump Station complex.

Facilities in this complex serve to lift wastewater from parts of the Hilltop communities of Mayfield Village, Mayfield Heights, Highland Heights and Richmond Heights to enable it to flow by gravity to the Easterly Wastewater Treatment Plant.

The Bonnieview Pump Station, located in Mayfield Village, consists of grit removal facilities; two 25-inch comminutors that shred large solid materials in the wastewater; a 900,000 gallon stormwater retention basin; and chlorination equipment used for disinfection and odor control. Wastewater from this location flows to the Beech Hill Pump Station.

The Beech Hill Pump Station, also in Mayfield Village, is equipped with bar screens that remove large solid materials, four centrifugal pumps, and ancillary equipment. This pump station lifts wastewater up over a hill where it can then proceed by gravity, merging with wastewater from other Hilltop areas before entering the Wilson Mills Pump Station.

The Wilson Mills Pump Station, located in Highland Heights, also has bar screens and four pumps similar to those at Beech Hill. This pump station lifts the wastewater up and over another hill where it can then flow by gravity to the Easterly Plant.

Future planning calls for decommissioning these facilities when the Heights/Hilltop Interceptor is completed.

Two smaller pump stations, the Euclid Creek and the Northwood, located in the City of Cleveland, also pump wastewater to the Easterly Plant.

A major project of 1984 was the replacement of the dome over the Bonnieview stormwater holding tank. Construction of a new aluminum dome, 144 feet in diameter, was completed in October. (See Engineering Department for additional information on new dome.)



From the exterior, the District's Beech Hill Pump Station blends in with the residential neighborhood in which it is located.



Laboratory Manager Jerome Tomasheski and Assistant Laboratory Manager Mary Drake (right) discuss with Chemist Eva Hatvani the industrial waste sample that is being run through the auto-analyzer.

Laboratory

Under the original management concept of the City of Cleveland, a laboratory was located at each of the wastewater treatment plants.

In 1969, the City consolidated the laboratories at one location — 2785 Broadway. Two years later, the Laboratory had outgrown those quarters and was moved to 3090 Broadway, where it is today.

When the wastewater treatment plants were transferred to the District, the Laboratory remained the property of Cleveland and work was performed on a contractual basis to the District. However, in 1976, the District took over that function, purchased the equipment and hired some of the personnel.

The Laboratory's principal function is to provide analytical services to the District by analyzing samples of wastewater, sludge and industrial waste.

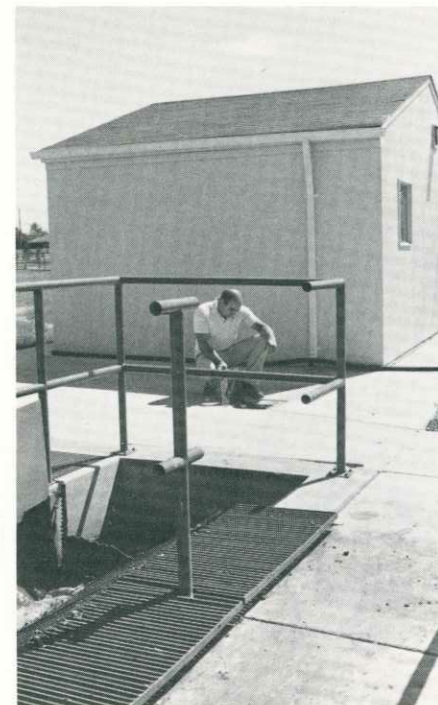
These analyses are performed to

provide the necessary data to the wastewater treatment plants for efficient operation and to ensure that each treatment plant is fulfilling its NPDES permit requirements.

The Laboratory also analyzes samples for the District's Industrial Waste section and periodically samples the area's streams, rivers and Lake Erie.

Each year since 1976, the Laboratory's activities have increased in quantity and quality. In response to increasingly stringent regulatory agency requirements, the Laboratory has experienced steady growth in both the variety and number of analyses performed. The number of individual analyses has increased from 74,844 in 1977, to 132,754 in 1984.

In the summer of 1984, the Laboratory began to generate its monthly reports by computer. All daily reports were also computer generated so that performance information could be sent to each of the treatment plants.



Robert Scherma, the District's building maintenance manager, inspects a railing and drain repair project in progress at the Strongsville "A" Plant.

Building Maintenance

The Building Maintenance staff maintains the District's buildings and grounds. During 1984, this group completed a variety of projects.

At Easterly, hand rails were installed around holding tanks, and a concrete floor was replaced around the pickle liquor pumps.

At Southerly, a basement floor was painted, shower and locker rooms were rehabilitated in the waste pickle liquor building, and a gravel road was repaired.

At the Strongsville "A" Plant, concrete walks surrounding the aeration tanks were rehabilitated, pine trees were planted and road lights were upgraded.

At Westerly, a water leak was repaired, floor drains were replaced in the screen building, and insulation was installed in the ceiling and walls of the lunchroom and maintenance office.

In the Vehicle Maintenance building, an emergency eye wash machine was installed, overhead doors were repaired as was a drainage system in the garage area.

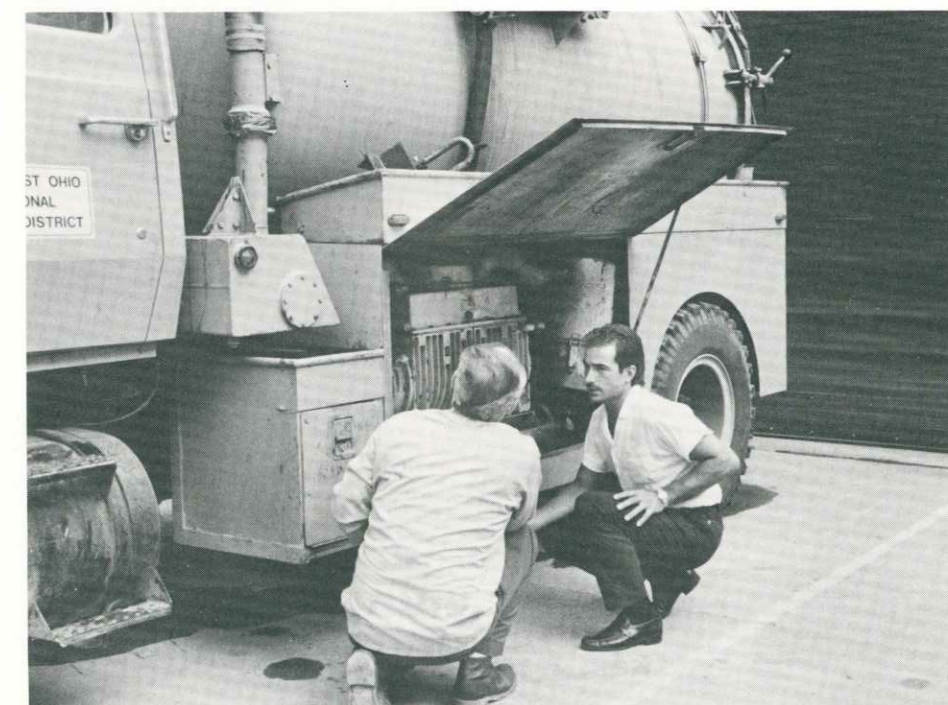
And at the pump stations, a number of maintenance and repair projects were completed.

Vehicle Maintenance

With a District-wide inventory of 86 vehicles and 175 units of motorized equipment, the Vehicle

Maintenance staff performs a key role in ensuring that all vehicles and equipment are in good working order.

In addition to repair and maintenance work, a major project during 1984 was a survey of all of the District's stand-by generating and pump-drive equipment at the treatment plants and pump stations. Following completion of the survey, the information gathered was used to implement a preventive maintenance program.



Ernest Bertok, automotive service manager, and John Wegas, automotive mechanic, discuss a problem affecting the pump on the District's jet-vac truck. This vehicle is used by Control Systems to spray water through and vacuum debris from the interceptor sewers.

SUPPORT SERVICES DEPARTMENT



Kenneth A. Pew
Chief of Support Services

"This department has supervisory responsibilities for the sections of Sewer Control Systems; Industrial Waste; Planning, Training and Public Information; Personnel; Safety and Security; and Inventory Control."

Sewer Control Systems

Sewer Control Systems is composed of: Sewer Maintenance and Repair, Systems Maintenance and Repair, and Survey and Design

Sewer Maintenance and Repair

Sewer Maintenance and Repair is responsible for maintaining and repairing the interceptor sewers and the combined sewer overflows. During 1984, daily maintenance was performed on the interceptors, combined sewer overflow regulators, and at Lakeview Dam. The staff also assisted with repairing the sludge line that transports solids from the Easterly Wastewater Treatment Plant to the Southerly Wastewater Treatment Plant. When the Cuyahoga Valley Interceptor was placed into service during 1984, 19 concrete bulkheads were removed to allow the wastewater flow to enter the interceptor. The staff also videotaped 2,000 feet of



Chief of Support Services Kenneth Pew, Personnel Manager Maura Lambert, and Manager of Industrial Waste James Weber discuss Industrial Waste staffing needs.



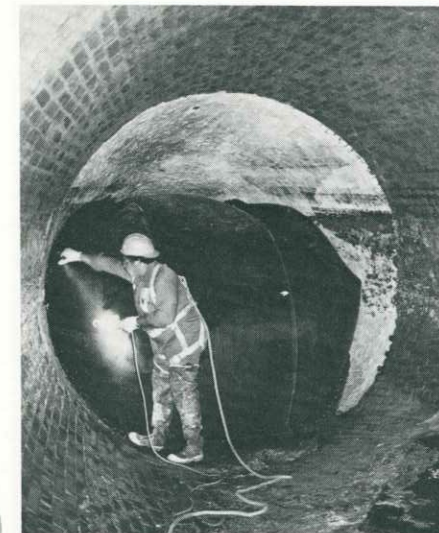
Field Technician Matthew Hill directs traffic while Field Technicians Phillip Caruso (center) and Michael Pelly operate a bucket machine as it cleans a manhole leading to an interceptor sewer.

sewers to verify the locations of home service connections.

Systems Operation and Maintenance

Systems Operation and Maintenance is responsible for controlling combined sewer overflows through its Combined Sewer Overflow Control (CSOC) Program.

During 1984, the District installed an additional seven automated regulators to control sewer overflows from Cleveland's combined sewers in the area of the Westerly Plant. The Systems Operation and Maintenance staff also successfully operated and maintained the other devices that are part of the CSOC program: 28 automated regulators, 25 rain gauges, 22 level monitors and the controlling computer. (See Westerly CSOC Project in the Engineering Department section for more information.)



Leonard Jenkins Jr., maintenance mechanic in Systems Operation and Maintenance section, checks the condition of an inflatable fabridam used to hold back wastewater during a heavy rain.

Survey and Design

During 1984, the Survey and Design section continued its development of a sewer mapping data base. This program began in 1982 as a cooperative mapping project participated in by the District and the Cuyahoga County offices of the Sanitary Engineer, Auditor, Engineer and Regional Planning Commission.

Purpose of the program is to develop detailed maps of the sewer systems within Cuyahoga County. These maps indicate the location of manholes, sewer lines, regulators and pump stations and include such specific information as composition, diameter, length, slope and capacity of the pipes. This information will be invaluable for pinpointing locations for sewer repair, maintenance, and construction purposes and will result in greater efficiency and substantial cost

savings to the District.

In 1984 the District purchased its own digitized mapping workstation and located it at the Sewer Control offices. The workstation is connected to the Cuyahoga County computer through telephone lines. This arrangement increases the District's capabilities by providing faster access to needed information.



Using the District's new digitized mapping workstation, Sewer Control Systems Superintendent Tony Jordon (standing) and Engineering Aide Jeffrey Pokorny locate the interceptor sewers for input into the computer.

Industrial Waste

The Industrial Waste section is responsible for monitoring the discharges of industries, ensuring compliance with the District's Industrial Sewer Use Code, and ensuring that industries pay their share of the cost of wastewater treatment.

Through federal and state pretreatment requirements, the District is mandated to regulate the types of discharges from local industries which can enter local sewers and

the wastewater treatment plants. This is accomplished by placing sampling devices at industrial plant sites. The samples are later analyzed by the District's Laboratory. The discharges of approximately 1,100 industries are periodically monitored to determine their acceptability. Of these companies, 400 are sampled on a regular basis.

According to the District's Sewer Use Code, unacceptable discharges may include any substances determined to be toxic or damaging to the environment, sewers, or to the equipment or personnel of the wastewater treatment plants.

While the rates charged all users of the District's facilities are basically the same, a given company could be charged at a higher rate if its discharges are more concentrated, in terms of pollution, than normal wastewater. This ensures that industries pay their fair and proportionate share of the cost of



As part of the District's industrial pretreatment program, Frank Schuschu, investigator for the Industrial Waste section, adjusts a device placed at an electroplating company to sample the discharges from that facility.

wastewater treatment. Presently, more than 100 companies are charged at a higher rate.

Working in conjunction with other agencies such as the U.S. Coast Guard, the Ohio EPA, and municipal fire departments, Industrial Waste personnel respond to hazardous waste spills. They also investigate reports of oil, chemical or other spills to the sewers as well as complaints of sewer odors. During 1984, the staff responded to 221 emergency calls, 77 concerning odors, the remainder concerning spills.

In 1984, the District submitted its draft of the Industrial Pretreatment Program to Ohio EPA. This document was the result of two years of intensive work. EPA approval is expected during 1985.

With the Cuyahoga Valley Interceptor nearing completion, Industrial Waste personnel needed to determine who the new customers would be when the CVI was completed. During 1984, the staff surveyed approximately 29,000 homes, businesses and industries to collect information for billing purposes.

Planning, Training and Public Information

Planning

For years, the eastern and southwestern suburbs have been plagued by increasing incidences of sewage backing up into basements and overflowing into streams and rivers.

These occurrences were the result of overloaded sanitary sewer systems and inadequate community wastewater treatment systems.

During 1984, Planning and Public Information staff work centered on



Explaining the ramifications of the Heights/Hilltop Interceptor at a public hearing are: (left to right) William Schatz, chief counsel; Lester Stumpe, planning manager; and James Swartz, consultant from URS Dalton.

helping to secure federal funding for the Heights/Hilltop and Southwest Interceptors, two large regional sewers which will help to provide the solution for these suburban water pollution problems.

The Heights/Hilltop Interceptor will serve the eastern suburbs and part of Cleveland; the Southwest Interceptor will serve the southwestern suburbs and part of Cleveland. Construction of the interceptors will permit the decommissioning of inadequate wastewater treatment facilities by providing the additional capacity needed to convey large quantities of wastewater.

U.S. EPA's approval, in 1984, of the Environmental Impact Statement (EIS) for the Southwest Interceptor project helped to bring this project closer to reality. The EIS was based, in large part, on the District's Facilities Plan developed for the areas to be served by the interceptor.

The EIS also incorporated

information and comments received from the Public Advisory Group which was composed of representatives from the public and private sectors. This group, established by the District, met regularly over a three-year period and provided an on-going public review as the Facilities Plan was developed.

Three major factors were of concern to the District during 1984. First and foremost was the necessity for raising the status of the interceptors on Ohio EPA's project priority list so that they would be in the fundable range. Second, was the need to ensure that the projects would be approved for funding before September 30, 1984 (the deadline to receive 75% federal funding rather than 55%).

Third, it was necessary to gain support for the District's recommendation that the Hilltop area of the eastern suburbs should be served by the interceptor, rather than by the existing pump station complex, which had been subject to

mechanical failures.

Working with the Community Capital Investment Strategy Group of the Growth Association as well as local, state and federal officials, the case was made that the area needed and wanted the interceptors. On March 2, 1984, Governor Richard



At his March 2, 1984 press conference in the Palace Theater of Playhouse Square, Governor Richard Celeste announces the granting of funds to begin construction of the District's Heights/Hilltop and Southwest Interceptors.

Celeste announced that the District would receive \$22 million in federal construction grant funds to begin building the Southwest and the Heights/Hilltop Interceptors, and, at 75% federal funding.

The Planning staff also worked on an associated project during 1984. A condition of accepting the grants for the interceptors was that the District formulate and implement a plan by which the suburban municipalities would agree to rehabilitate and repair their old and deteriorating sewers and build new ones for underserved areas. During the year, staff members began to develop recommendations for a

community sewer rehabilitation program.

Training

The Training staff develops, coordinates and implements a variety of employee training programs.

One major program, was designed to improve management skills. Through a contract with a management consulting firm specializing in problems encountered at wastewater treatment facilities, 40 supervisors each received training in worker motivation, leadership, supervisory responsibilities, decision-making and effective communication. Due to the success of this program, the decision was made to extend the training to all supervisors.

A video training program for plant personnel was also developed. The staff produced video tapes covering the maintenance and repair of equipment based upon presentations given by manufacturers and consultants.

Training staff also continued its

coordination with the Cuyahoga County Job Training Partnership Act which helps employees prepare for the Ohio EPA Wastewater Class I certification examination.

Public Information

The Public Information Office, initiated in 1983, continued its program to increase the awareness, understanding and support for the District's responsibilities and functions. Media relations was a significant part of this program. A major project during 1984 was the development of information and materials to be presented by key District staff to the area's legislators during Congressional briefings on Capitol Hill.

Special materials developed during 1984 included a general brochure describing the District's responsibilities and facilities, and also fact sheets and bill stuffers for new customers. A slide presentation was also completed as was a display to be used at public exhibitions.



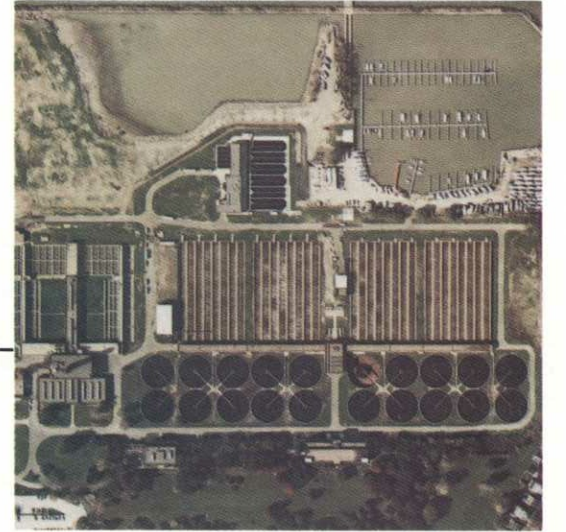
Russell Rys, training specialist (left) and Scot Allyn, training and communications assistant, work on production of a training videotape.



Westerly Wastewater Treatment Plant



Northeast Ohio Regional Sewer District Service Area and Facilities

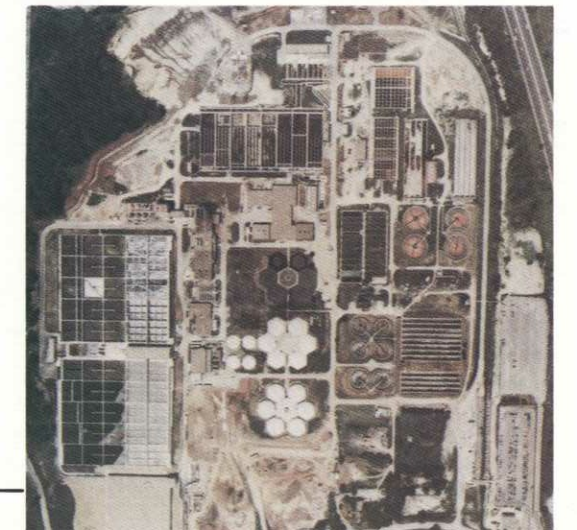
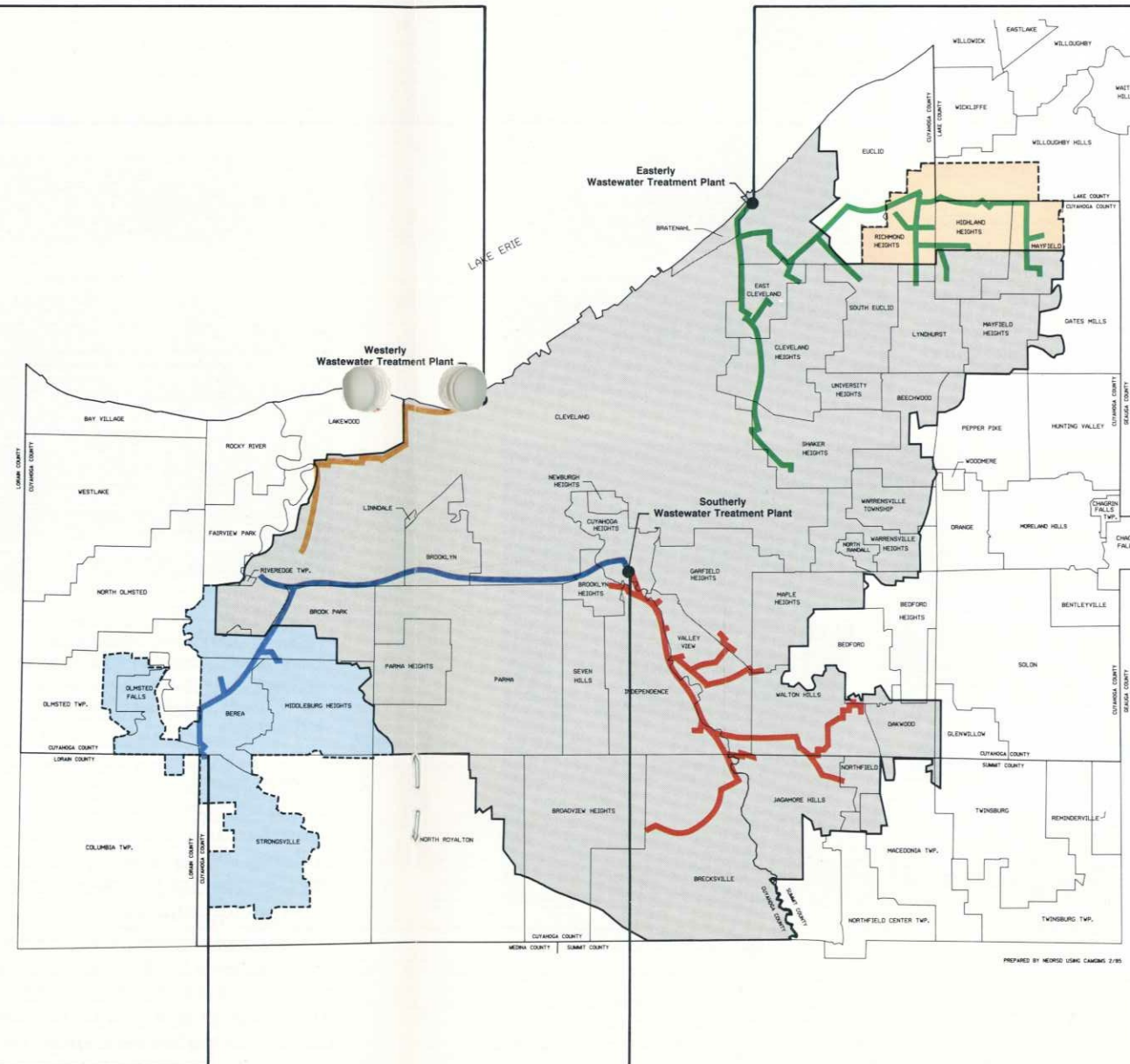
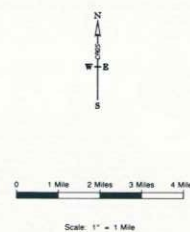


Easterly Wastewater Treatment Plant



Strongsville "A" Wastewater Treatment Plant

- Legend
- Wastewater Treatment Plant
 - Existing Northwest Interceptor
 - Existing Cuyahoga Valley Interceptor
 - Future Heights/Hilltop Interceptor
 - Future Southwest Interceptor
 - Present Service Area
 - Southwest Interceptor Additional Service Area
 - Heights/Hilltop Interceptor Additional Service Area



Southerly Wastewater Treatment Plant



Mary Anne Lyman, personnel assistant, explains District procedures to two newly-hired employees.

Personnel

New employee orientation, benefits administration, personnel control, and records management are some of the duties of the District's Personnel office. This office also assists in formulating personnel policies, developing job classifications, and in recruiting and selecting employees.

During 1984, Personnel processed 1,576 job applications and placed 105 new employees.

Safety and Security

The District maintains a 27-person safety and security force consisting of 2 supervisors and 25 security officers. These officers maintain around-the-clock security at Southerly, Westerly, and Easterly and frequently check all of the District's other facilities.

Chief of Security Frank Tesar discusses sign-in procedures with Security Officer Teresa Ferguson.

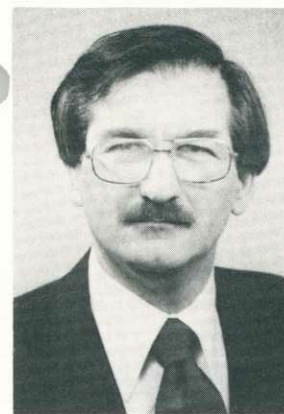


Kevin McCarthy, materials control manager, and Ed Fringer, storekeeper, (operating fork lift truck) check the stock of parts for the plants' sludge conveyor belts.

Inventory Control

The District's main storeroom is located at Southerly. The storeroom services the pump stations, Strongsville "A", Industrial Waste, and Control Systems as well as Southerly. Two smaller storerooms are located at Easterly and Westerly.

These facilities all stock the spare parts, supplies and tools needed for the daily operations of the wastewater treatment plants. The main storeroom also maintains computerized inventory records. In 1984, the main storeroom stocked a \$2.5 million inventory consisting of more than 19,000 items.



David A. DeMarco
Comptroller

"This department supervises Accounting, Data Processing, Payroll, Purchasing, Customer Service, and Office Services."

The comptroller and assistant comptroller supervise the District's Finance Department.

Major departmental accomplishments in 1984 included the successful refinancing of the District's Series 1978 Water Resource Revenue Bonds, and installation of new computerized accounting and budget systems. The refinancing resulted in generating more than \$7 million of additional funds for capital projects while reducing the outstanding debt to \$63.4 million from \$118.5 million. The new computerized systems have enhanced the District's capabilities and streamlined its budget preparation.

Data Processing

This department's primary responsibilities include processing payroll checks and data, accounting information and inventory status reports. In 1984, a new accounting system was implemented by Data Processing. Accounting and Purchasing data entry functions were decentralized by having these sections input most of their own data, thus providing better accountability.



Joel Kopen, programmer analyst, and Laurretta Nardolillo, data conversion operator, prepare to generate the District's payroll checks.



Mary Westrup, paymaster, (seated at terminal) and Janet Strunak, payroll clerk, scan an employee's file prior to updating information.

Payroll

The paymaster and clerk perform a number of functions, including: processing time and cost distribution cards, distributing employee paychecks, responding to employee requests for information, and coordinating payroll functions with Personnel and Data Processing. This section is responsible for the efficient and timely preparation of over 630 payroll checks every other week.



Reviewing budget figures are: (left to right) Joseph Novak, assistant comptroller; Frank Mancuso, accounting manager; and David DeMarco, comptroller.



Reviewing the District's grant request file are accounting staff members (left to right): Jean McGrath, Margery Bohne, Ilene Cornhoff and Raymond Hannikman.

Accounting

In addition to the normal accounting functions, this section is responsible for preparing the annual budget, reviewing appropriations to determine availability of funds for expenditures, processing vendor invoices for payment, monitoring expenditures for construction

contracts, obtaining federal cost reimbursements, and cash management.

Extensive assistance was provided in 1984 to implement the new accounting system, develop user manuals and conduct training sessions for staff.



Billie Carlin (standing) and Brenda Miller, accounting clerks, watch as Phyllis Williams, data conversion operator, enters accounts payable into the terminal.

Customer Service

Customer billing and collection are performed for the District through an agreement with the City of Cleveland Utilities Department. The District maintains a small supplementary Customer Service staff.

During 1984, the District's Customer Service staff worked closely with the Department of Public Utilities during its implementation of a new billing and accounting system. The new system will provide better and more timely information.



Jane Smith, customer service supervisor, explains to a customer how his sewer bill is computed.

A major project each year is the "certification" of seriously delinquent customer accounts. The account balances are sent to the Cuyahoga County Auditor's Special Assessment Department where they are added to property owners' tax bills. In 1984, 699 accounts were certified for a total of \$1,021,544.



Ed Guttman, purchasing manager, (standing left) and Jerry Humphrey, technical buyer, (standing right) review companies that could be prospective bidders as Jacqueline Coats, purchasing assistant, (seated foreground left) and Ken Young, technical buyer, prepare to make additions to their lists.

Purchasing

Purchasing's major objective is to buy necessary items for the District at the most favorable price available.

Purchases exceeding \$5,000 are made after first obtaining formal written bids based on specifications prepared by the District. This section is responsible for distributing specifications, conducting public bid openings, and tabulating bids. All other purchases are made based upon comparative quotes obtained by the buyers on the Purchasing staff.

In 1984, purchases totaled approximately \$6.5 million, \$5.5 million of which were contractually awarded through the competitive bidding process.



Ed Gaida, office manager, and Karen Wasniak, receptionist, check the list of visitors to the District's Administrative offices.

Office Services

Helping to keep the District's Administrative office running smoothly is the job of the office manager and his staff. They are responsible for the routing and delivery of internal and external mail among the Administrative offices and the four treatment plants and other facilities; performing special projects by the typing pool; dispensing office supplies; and overseeing the general condition of the office.



Preparing a mail delivery for one of the District's plants are Dave Starynchak and Tony Ross, supply messengers.

ENGINEERING DEPARTMENT



Charles J. Vasulka
Chief Engineer

"This department administers all design and construction work as it relates to the wastewater treatment plants and the interceptor sewers. Nearly \$640 million of construction projects has been successfully managed by this department since 1972."

Specific duties of the Engineering Department include overseeing the work of the District's consultants and contractors; reviewing designs, specifications and estimates; administering contracts; authorizing payments and inspecting materials to be used before and during construction.

Following are the major projects for which the Engineering Department had responsibilities during 1984.

Cuyahoga Valley Interceptor

Interceptors are large regional sewers which transport wastewater from outlying areas directly to wastewater treatment plants.

By the end of 1984, the Cuyahoga Valley Interceptor was nearly

completed. The project's only uncompleted segment was the Brecksville trunk. Construction began in 1977 on this 22-mile-long pipeline which will add approximately 29,000 connections in southern Cuyahoga County and northern Summit County.

These areas had previously been served by a combination of home septic tank systems and small wastewater treatment plants capable of treating wastewater only to a primary or less than secondary level.

The new interceptor transports flow to the Southerly Wastewater Treatment Plant, which provides the level of treatment necessary to protect the area's waterways and the public health.

Westerly Ozone and Disinfection Facilities

During 1984, Contract III-IV-L-E, the ozone and disinfection facilities at the Westerly Wastewater Treatment Plant, was completed. Construction on the \$19 million project began in 1981.

The contract included installation of six, 50-ton capacity carbon dioxide storage vessels; construction of a cryogenic oxygen generating plant, capable of producing 25 tons of gaseous oxygen and 0.2 tons of liquid oxygen per day; chlorination and dechlorination facilities for disinfecting the final effluent, and, associated electrical work.



Reviewing plans for the Southwest Interceptor are: (left to right) Arthur Paeth, chief construction engineer; Robert Gill, manager of engineering administration; and Charles Vasulka, chief engineer.



A view of the new aluminum dome covering the Bonnieview stormwater holding tank.

Bonnieview Dome

The original Bonnieview stormwater holding tank was covered by a latex-modified concrete dome, built in 1973 using a then newly-developed technology.

Soon after its completion, the dome began to chip and flake. In recent years, deterioration of the dome accelerated and the District's engineers became increasingly concerned. Upon investigation, the engineers found cases of similar domes cracking and ultimately collapsing. This information led to an Engineering Department recommendation that the concrete dome should be replaced by an aluminum one, such as used successfully at both the Westerly and Southerly Wastewater Treatment Plants.

Demolition of the existing dome began in August of 1984 and construction of the new dome was completed in November.

Southerly Rehabilitation

A federal grant of \$45.5 million was awarded to the District during 1983 for the purpose of rehabilitating and expanding the primary and secondary treatment facilities at Southerly.

The District advertised for bids in April of 1983, and Contract 16-1 was initiated in November. The contract consists of renovating some of the

existing primary, aeration, and settling tanks and also includes constructing four new settling tanks as well as facilities for phosphorus removal and bulk storage. There will also be modifications for odor control purposes.

Construction was on-going during 1984, with the project scheduled for completion in 1986.



Checking construction progress of the secondary settling tanks at Southerly are: (left to right) Richard Elliott, construction supervisor; William Ritz, construction supervisor; Arthur Paeth, chief construction engineer; and Raymond Rusnak, operations-engineering coordinator.

Southwest Interceptor

The District's engineering staff is responsible for overseeing the work of a team of consulting engineers who are designing the Southwest Interceptor. The design work on the first two contracts was completed during 1984 and the designs were submitted to and approved by Ohio EPA.

In October of 1984, the District received notification that U.S. EPA

had granted \$15.4 million, representing 75% federal funding for Contracts 1 and 2 of the interceptor.

With groundbreaking in 1985, the first two contracts are expected to be completed in August 1987. (See Planning section for additional information on this project.)

Easterly Solids Handling

The Easterly Wastewater Treatment Plant has no sludge disposal facilities. Since 1938, a 12-inch diameter pipeline, called a force main, has been used to pump this solid material removed from wastewater to the Southerly Plant for disposal — a distance of 13.5 miles.

In recent years, the force main has experienced increasing problems including breaks and leaks in the line, which, in turn, have caused cleaning and maintenance difficulties. Since 1970, there have been approximately 60 different breaks in the line necessitating emergency repairs.

In an effort to develop a permanent solution to the problem, the District contracted for a Facilities Plan (an engineering study which evaluates alternative solutions) to analyze future options for the handling and disposal of Easterly's sludges. The completed plan was submitted for Ohio and U.S. EPA review in September of 1983. Ohio EPA returned its comments during 1984.

The Facilities Plan recommends a staged program for replacing the old pipeline with a new 16-inch force main, together with associated improvements. These would include a new pumping station and sludge storage facility at Easterly, and improvements to the terminal at Southerly.

The design for the new force main was approximately ninety percent complete by the end of 1984.

Westerly CSOC Project

Since the late 1800's, serious environmental and health problems

had been caused by overflows of raw sewage into Lake Erie, particularly in the vicinity of Edgewater Park, a popular swimming beach.

These overflows occurred nearly every time it rained because the combined sewers of the City of Cleveland were incapable of handling large amounts of combined storm and wastewater.

In 1978, the District completed construction of the \$24 million Northwest Interceptor which was designed to intercept wastewater from the northwest section of Cleveland and transport it directly to the Westerly Plant.

To ensure that combined sewer flows would not exceed the capacity of Westerly, and thus overflow, the District designed a system that would build storage capacity within the Northwest Interceptor.

The system was completed in the spring of 1984. It consists of a series of computer-controlled valves, gates and inflatable dams, designed to work together to store the

wastewater during a heavy rainfall, and then release it gradually after the storm ends and the plant can accept the flow.

Additional storage capacity was obtained by installing eight hydro-brakes in the interceptor upstream from the Westerly Plant. These devices also serve to store and then slowly release the wastewater when it can be handled by the treatment plant.

When the swimming season opened several months after the system was completed, the results were obvious and dramatic at Edgewater Park. According to the Ohio Department of Health, which tested the water of Lake Erie at 18 sampling locations, including Edgewater Park, the quality of the water had improved substantially. The fecal coliform count which previously had substantially and consistently exceeded the standard for bacteriological content, was well below 200 (the standard set by the American Public Health Association) on all but two occasions during the summer of 1984.



Dale Kramer, electronic maintenance person, makes certain that a storm gate moves freely.

Heights/Hilltop Interceptor

The District's engineering staff is responsible for overseeing the design of the \$187 million Heights/Hilltop Interceptor. Two members of the staff have also participated in value engineering with the outside consultants. This is a method by which the District reviews the design and makes cost, benefit and efficiency recommendations to the consulting team.

The completed design for the first contract was sent to Ohio EPA for review in March of 1984. In October 1984, the U.S. EPA announced the granting of \$7.1 million, representing 75% federal funding, to build the first contract of the project. (See Planning section for additional information on this project.)

Southerly Gas Well

Based on the knowledge that a number of producing gas wells had been drilled in the area near the Southerly Wastewater Treatment Plant, the Engineering Department recommended that a feasibility study be conducted to determine the likelihood of finding natural gas on the Southerly property.

The Board approved the exploration on the basis that if gas were found, in commercial amounts, the District could considerably reduce its large natural gas bill. (Gas is used at Southerly for heating, to fuel the incinerators, and for other plant processes.)

The Engineering Department designed and wrote the specifications for the project, and, in November, the drilling efforts were successful.

In addition to the drilling, the project includes associated facilities:



At the natural gas well site, located on the grounds of the Southerly Wastewater Treatment Plant, a technician monitors the fracturing process which cracks the sandstone into which the well is sunk.

oil and water storage tanks, a device to separate the gas from oil and water, and installation of a gas line connected to the existing Southerly natural gas distribution system. These components are scheduled for completion in 1985.

While the cost of the complete drilling project was \$230,000, the District engineers estimate savings of more than \$300,000 per year.

In-House Design Projects

A responsibility of the District's in-house design section is to design small-scale projects and equipment, usually totalling no more than \$300,000 in cost.

Following are three such projects completed by the department during 1984.

Centrifugal Boiler Feed Pumps

The boiler feedwater system in the steam generation building at the Southerly Plant pumps water to the boilers for steam generation.

The system, installed in 1979, proved to be subject to problems of wear and vibration and was inefficient and expensive to maintain.

The Operations Department requested the District's engineers to redesign the system.

Following investigation, the engineers recommended the installation of centrifugal pumps to replace the existing positive displacement pumps. The new pumps were designed by the Engineering Department and installed at the end of 1984.

It is expected that the pumps, which cost \$175,000 to construct and install, will pay for themselves in two to three years.

Natural Gas Conversion

The District continually reviews processes and procedures as the means for anticipating potential problems and seeking ways to cut operating costs.

One such case concerned the extremely large consumption, and correspondingly high cost of fuel oil, used by the boilers and vapor combustion units at the Southerly Plant.

The boilers provide steam both for heating the plant and for the thermal conditioning process. The vapor combustion units remove odors from that process by incinerating the gases at 1400 degrees F.

During 1983, the engineering staff reviewed fuel oil and equipment maintenance costs. After analyzing alternatives, it was determined that a cost-effective solution would be to convert the boilers and vapor combustion units so that they could operate on natural gas as well as fuel oil.

The conversion design was completed in-house in 1983 and construction took place during the spring of 1984. The entire project, which cost the District \$218,000, will save nearly \$500,000 in fuel costs every year.



Robert Dominak, project manager, inspects installation of the new lining system for the ductwork of one of Southerly's sludge burning incinerators.

Ductwork Lining Replacement

The insulating firebrick and castable refractory which line the exhaust gas ductwork of the four sludge burning incinerators at the Southerly Plant had been deteriorating over the years.

After determining that the linings were beyond repair, the in-house

engineering design staff designed a new lining system composed of fiber modules and stainless steel liner plates.

So that three incinerators would be available at all times, the work of replacing the old linings was done at the rate of one a year. The third relining was completed in 1984 and the last will be done in 1985.



William B. Schatz
General Counsel

"The Legal Department drafts and approves all contracts, represents the District in litigation and claims, and administers the EEO program."

The District's Legal Department performs a variety of duties. It is responsible for drafting and approving contracts with consultants, construction companies, engineering firms and vendors. It represents the District when litigation is required and administers the equal employment opportunity program. The department also prepares resolutions concerning the procurement of services and supplies, for action by the Board of Trustees.

During 1984, the Legal Department continued its involvement with the District's capital improvement program by negotiating claims and change orders with construction contractors.

The department handled easements and rights-of-way acquisitions for the Heights/Hilltop and Southwest Interceptor projects. Thus far, easements and rights-of-way for the Southwest Interceptor have totalled \$298,932 while Heights/Hilltop Interceptor property acquisitions have totalled \$95,930.

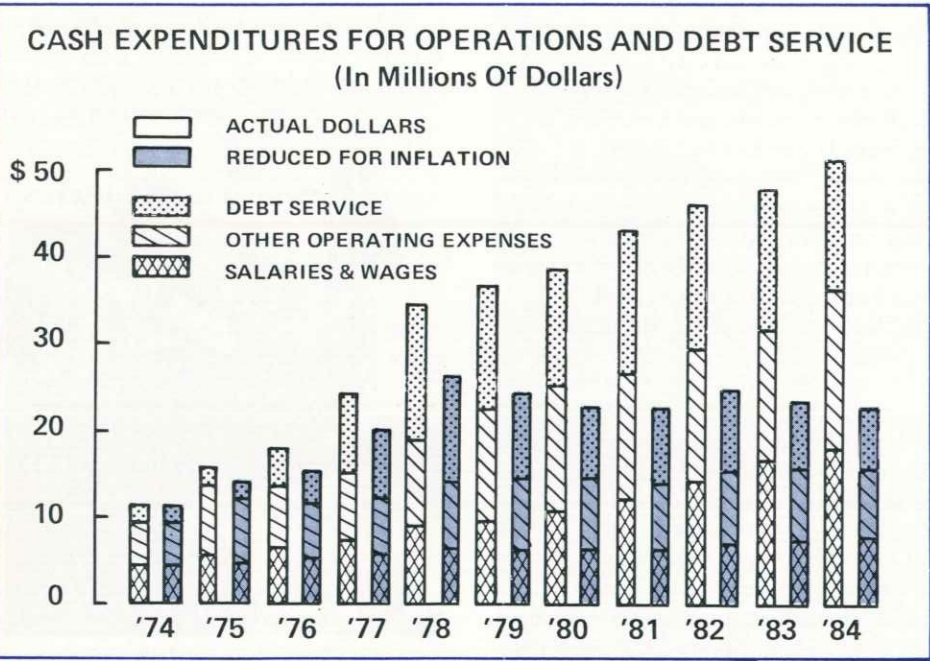


W. Gus Saines, legal intern, and Sara Caprino, law clerk, review details of a District contract.



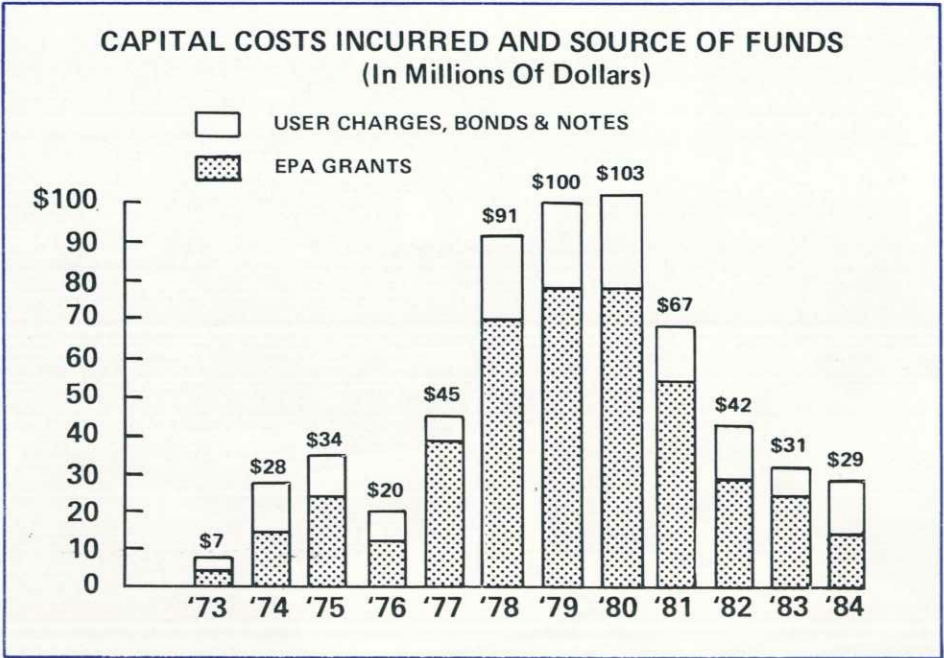
William Schatz, general counsel, reads a favorable decision to Legal Department staff members (left to right): Cathy Foster, assistant EEO administrator; Linda Cerny, assistant general counsel; David Shorr, assistant general counsel; and Paul Murphy, first assistant general counsel.

FINANCIAL HIGHLIGHTS



To meet its goal of improving the area's environment, the District has expanded its wastewater treatment facilities over the 11 years from 1974. This has required increases in operating expenditures as is evidenced by the chart titled *Cash Expenditures for Operations and Debt Service*. In current dollars, the District's personnel and other operating expenditures increased 289% from 1974 to 1984. However, when the effect of inflation is removed, the increase is only 72%. This indicates the actual amount of growth.

As a result of the District's extensive rehabilitation and expansion program, capital costs billed for wastewater treatment plants and interceptors have totalled \$597 million, of which \$419 million was funded by federal grants. The remainder of \$178 million came from operating funds and borrowed funds, primarily through public bond offerings.



BALANCE SHEETS

NORTHEAST OHIO REGIONAL SEWER DISTRICT
Balance Sheets
December 31, 1984 and 1983
(In thousands of dollars)

	1984	1983
ASSETS		
Property, Plant and Equipment:		
Sewage Treatment Plants	\$412,809	\$408,266
Interceptor Sewer Lines	109,552	67,814
	522,361	476,080
Less: Accumulated Depreciation	(72,710)	(53,599)
	449,651	422,461
Construction in Progress	107,634	125,244
Net Property, Plant & Equipment	557,285	547,725
Unamortized Bond Issue Costs & Discount	3,550	3,145
Construction Fund	92,489	73,695
Revenue Bond Debt Service and Sinking Funds	19,340	39,851
Current Assets:		
Cash & Short Term Investments	20,768	21,901
Billed & Unbilled Sewage Service Fees Receivable	25,140	26,184
Grants Receivable	10,963	11,731
Inventory and Other Assets	2,390	2,096
Total Current Assets	59,261	61,912
Total Assets	\$731,925	\$726,328

LIABILITIES, CONTRIBUTIONS AND RETAINED EARNINGS

Capitalization:		
Retained Earnings	\$225,012	\$162,156
Long-Term Debt	107,085	163,362
Total Capitalization	332,097	325,518
Contribution in Aid of Construction — Federal Grants	378,913	379,090
Current Liabilities:		
Accounts Payable	10,960	13,531
Accrued Liabilities	7,417	6,870
Long-Term Debt Due Within One Year	2,538	1,319
Total Current Liabilities	20,915	21,720
Total Liabilities, Contributions and Retained Earnings	\$731,925	\$726,328

A copy of the detailed financial statement may be obtained by writing to: Comptroller, Northeast Ohio Regional Sewer District, 1127 Euclid Avenue, Cleveland, Ohio 44115.



DIRECTOR'S MESSAGE

Erwin J. Odeal
Director

The Northeast Ohio Regional Sewer District has now completed one dozen years of steady improvements to our vast network of wastewater treatment plants, interceptor sewers and associated water pollution control facilities.

Our construction projects, for which contracts have been awarded, total nearly \$640 million, mostly to replace and upgrade the area's three major wastewater treatment plants. These projects are now winding down. The renovation and expansion of Southerly is projected for completion during 1986. Westerly is an entirely new plant, a state-of-the-art physical/chemical facility, the largest of its kind in the country. We project it will be in complete operation and meeting its effluent limits by the end of 1985. A small-scope expansion and improvement program at Easterly has been completed. As part of our long-range program, however, we will be making certain capital improvements to upgrade the original units and processes so that we can continue to meet our discharge limitations.

Construction of the Cuyahoga Valley Interceptor, which began in 1977, is in the last stages and the CVI will soon be accepting flow from the communities in southern Cuyahoga County and northern Summit County and transmitting it to the Southerly Wastewater Treatment Plant.

With the completion this year of the Westerly Combined Sewer Overflow Control System, we are already seeing dramatic improvements in the water quality at Edgewater Lakefront State Park.

It is also important to note that in recognition of the impact the District's programs and projects have on this metropolitan area, we have recently joined with several organizations dedicated to improving our quality of life. We have become members of the Community Capital Investment Strategy of the Greater Cleveland Growth Association. This group is seeking ways to prioritize, coordinate and fund the necessary improvements to our crumbling infrastructure — our roads, bridges, water system, transit and sewers. We have also recently become a member of the Board of the Northeast Ohio Areawide Coordinating Agency which has among its responsibilities, short- and long-range environmental planning. Through our participation in these organizations, we can sensitize a wider range of the community to the scope, needs and benefits of our projects and at the same time help work for the betterment of the entire area.

And now, looking toward 1985 and the next decade, our focus is beginning to change. We will, of course, continue to maintain our fine facilities so that they function at their most efficient and effective levels. But, at the same time, we must ensure the construction of two enormous interceptor sewer projects and the associated and EPA-mandated rehabilitation of the deteriorated municipal sewers throughout the area to be served by the interceptors.

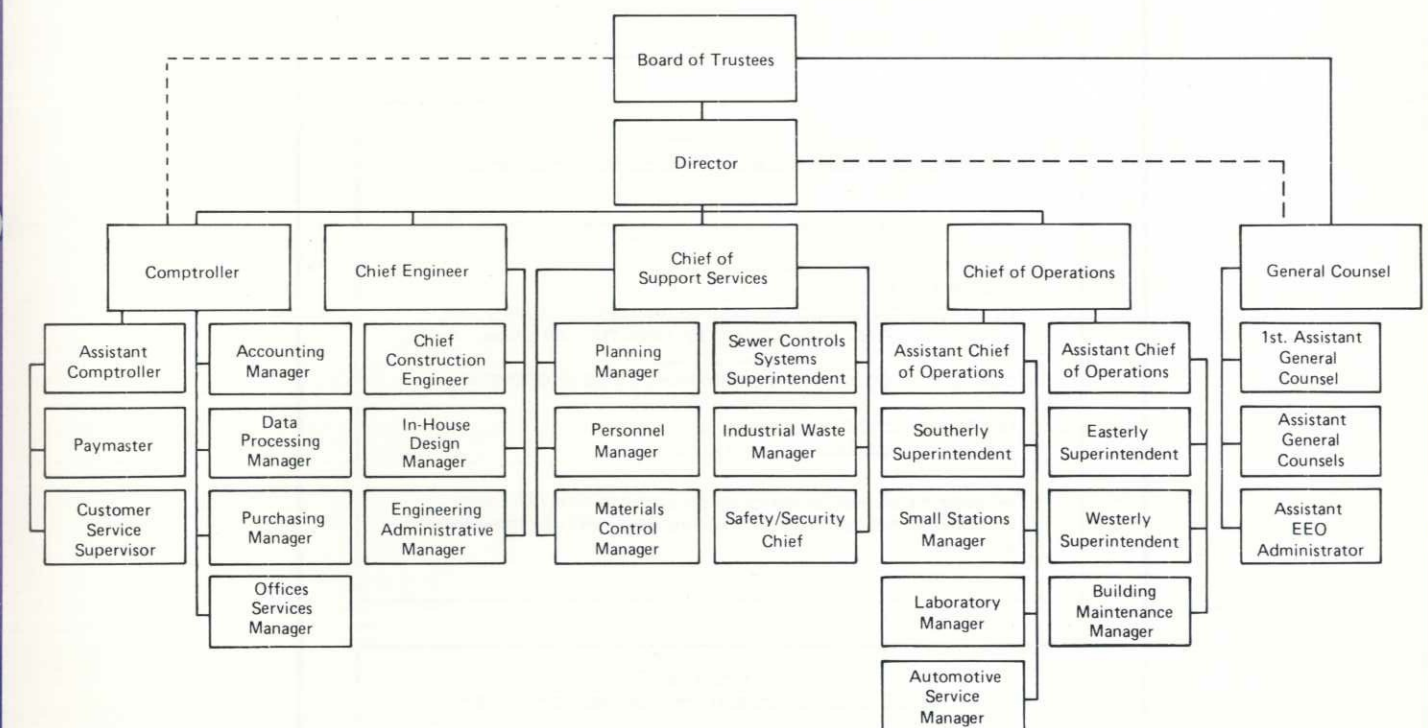
The first segments of the Heights/Hilltop and Southwest Interceptors have received approval for 75% federal funding. Construction will begin in 1985. However, with the announced cutback of federal funding levels to 55% for projects initiated after September 30, 1984, the community, both public and private sectors, must work together with our state and federal legislators to ensure that we continue to receive our fair share of the available funds.

We must bear in mind, however, that environmental programs are not receiving the same financial support from the federal government, as in the past. Although the federal government continues to mandate strict environmental standards, the burden for funding the necessary improvements is shifting to the local level.

But this we pledge to you who are served by the Northeast Ohio Regional Sewer District: In the future, as in the past, we will continue to seek new ways to improve efficiency, eliminate waste, conserve energy, and provide the highest possible level of wastewater treatment services to protect and enhance our precious water resources.

ORGANIZATION CHART

1984 Northeast Ohio Regional Sewer District Organization Chart





**NORTHEAST OHIO
REGIONAL SEWER DISTRICT
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