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P HILADELPHIA WATER DEPARTMENT

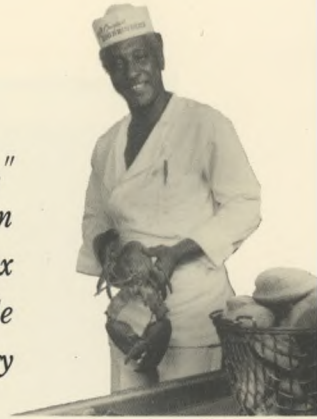
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Our Customers



The water utility industry used to be called the "silent service," delivering lifegiving water without the customers ever seeing an employee and without the local water utility telling its story of the complex network of treatment, pumping, and distribution systems needed to provide these services. The industry has learned that it must vigorously tell its story and this annual report is part of that effort.



But today, as a result of heightened public awareness concerning our natural resources and environment, the demand for information describing utilities and their operations is a sign of the public's desire to share in the decision-making processes that affect their health, lifestyle and pocketbooks. The Philadelphia Water Department, like other industries, welcomes the opportunity to describe its services and goals.



Our customers are a big part of this story. From small residential to large industrial corporations. How we meet their water and wastewater needs is perhaps the best reflection of our own day-to-day operations and goals.

The photographs within this report show the diversity of Philadelphia Water Department (PWD) customers, from a typical Philadelphia home to a busy urban restaurant to a huge multi-national corporation. They represent our one-half million customers using our services to meet their water and wastewater requirements in many different ways.



Also highlighted are the Department's divisions which design, maintain and deliver these services to our customers who may never see them—or know how essential their tasks are. But these employees are part of the skilled teams that work to insure that the Department is responsive to its customers.





Water touches peoples' lives in a variety of ways, especially in the food services industry. Water is a basic and essential ingredient for such confectionery delights as those prepared by Rillings Bakery, located in Northeast Philadelphia.

The average day total water consumption for Fiscal Year 1988 increased significantly to 353.8 million gallons (MG). This represents a 4.9 percent increase in daily usage compared to last year and is the highest yearly average since 1978. The maximum day's usage (462.5 MG) and peak rate (656 MGD) however were slightly less than the same figures from Fiscal Year 1987. Increased usage occurred in all of the summer months of the year, as well as the months of September through February. The summer usage increase can be directly attributed to warmer weather. The number of daily high temperatures above 90°F rose to 34 in Fiscal Year 1988 from 28 in Fiscal Year 1987. The notable increase in consumption from September through February, roughly 28 MGD or 8.6 percent from the previous year, can be partially attributed to cold weather leakage during the winter months.

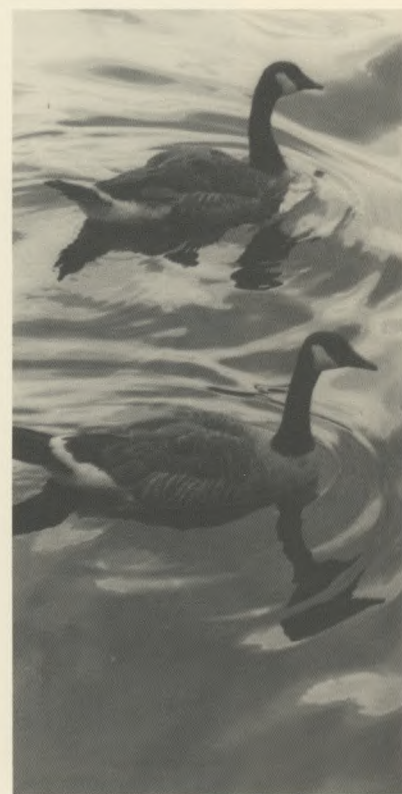
Bucks County Water and Sewer Authority increased use of the City's water for the third consecutive year. Consumption averaged a record high 16.1 MGD or an increase of 3.9 percent over Fiscal Year 1987. The peak rate of 28.4 MGD is again in excess of the 25.0 MGD level established in the City's agreement with Bucks County.

One of the most important supply system improvements was the replacement of the defective 48-inch Ludlow effluent valve on the Monument Road Storage Basin at the Belmont Water Treatment Plant. This project required re-routing of the entire 50 MGD Belmont Gravity District supply for the period of May 18 to May 23, 1988. This unprecedented operation allowed perhaps the first inspection of this basin since it was commissioned into service in the early 1900s. The inspection revealed the strong need for structural repair work in the very near future.

Meeting Water Quality Standards

The Safe Drinking Water Act (SDWA) was passed by Congress in 1974 to set uniform national standards for drinking water quality. The Pennsylvania Department of Environmental Resources (DER) has been granted primacy to enforce the SDWA in the state. In 1986, dissatisfied with slow progress by the U.S. Environmental Protection Agency (EPA) in setting standards for drinking water contaminants, Congress re-authorized and strengthened the SDWA. These amendments are the most significant changes in the history of the public water supply field. They require that the EPA establish Maximum Contaminant Levels (MCLs) for 83 additional substances found in ground and surface waters by 1989 and at least 25 additional

contaminants in each subsequent three-year period. Compliance with the new regulations as they are issued will remain a top priority of the Philadelphia Water Department for some years to come.



*SCHUYLKILL RIVER
Wild geese enjoy swimming in the water of the Schuylkill River and have made a permanent residence in Philadelphia.*



Replacing old water mains, valves, keeping pumps in good condition and responding quickly to emergencies helped the Department meet its long-term objective of maintaining above-average quality and service. The Philadelphia Fire Department, one of our more critical users, illustrates the necessity of water availability on demand.

Lead and Your Drinking Water

Recently, the EPA determined that lead in drinking water is a health concern at certain levels of exposure. There is currently a standard of 0.50 parts per million (ppm). Based on new health information, the EPA is likely to lower this standard significantly.

The EPA public notice requirements compelled all drinking water supply operators to notify their customers of potential sources and adverse health effects of lead in drinking water. By June of 1988, the Department had mailed an informational brochure, "Lead, Your Drinking Water and You" with water and sewer bills to its 500,000 customers.

The most common cause of lead entering drinking water is a reaction between the water and lead pipes or lead-based solder. This reaction is called corrosion and when it takes place, lead dissolves (leaches) into the water. If there is no lead source, there is no potential of leaching.

The Water Department has taken steps to reduce the corrosivity of the water by adding corrosion control chemicals that neutralize the acidity

of the water. Also, the water in Philadelphia helps condition your pipes against leaching because of the natural minerals it contains.

River Water Quality

River water quality problems generally arise as a result of low river flows during drought periods and as a result of accidents such as oil spills. Low flows spur the proliferation of algae, which can cause taste and odor problems.

Water quality was generally good in the Delaware watershed with only two spills that required investigation but did not affect water quality. A "cucumber" type taste did occur in the spring necessitating the use of powdered carbon at the Samuel S. Baxter Water Treatment plant.

A type of algae called geosmin caused taste and odor problems on the Schuylkill River in April and May of 1988. Carbon was used at the Belmont and Queen Lane Water Treatment plants to alleviate the problem, but abatement did not occur until river flows exceeded 20,000 cubic feet per second.

The Department has reduced the level of trihalomethanes (THMs) in the finished water by changing the chlorination points in all three treatment plants. Trihalomethanes are formed when natural and man-made organic materials in water combine with the chlorine used to disinfect drinking water. Chloroform, the major component of THMs, is a probable human carcinogen based on animal studies. For this reason, in 1979, the EPA set the Maximum Contaminant Level (MCL) at 100 parts per billion (ppb) for total THM in drinking water. The running annual THM values according to EPA reporting requirements were 66 ppb for Baxter, 53 ppb at Belmont and 56 ppb for the Queen Lane Water Treatment Plant during Fiscal Year 1988.



*HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA
A reliable supply of water is essential for the approximately 47 hospitals throughout Philadelphia. At the Hospital of the University of Pennsylvania, a patient undergoes treatment in HUP's hyperbaric chamber.*



*ROHM & HAAS
The Philadelphia Water Department works with Rohm & Haas by providing guidelines for the pretreatment of its chemical wastes.*

Under the Department's Preventative Maintenance Program, a total of 40 pumps were completely dismantled, inspected, cleaned and repaired in Fiscal Year 1988. This included five units in the Treatment Section and nine auxiliary units in the Pumping Division. Highlights of the program include the retrofitting of the Roxborough Pumping Station with new 60 cell battery banks, and replacing the 20-year-old lead calcium units. The large valve inspection and overhaul program has also been a success. All four large hydraulically operated cone valves, vintage 1940, have

remains in Fiscal Year 1988 and renewed and/or installed 341 valves. As part of an ongoing program, crews from the Department's consultant, Pitometer, performed district measurements in areas believed to be lower leakage areas. In the study, parts of the City are divided into temporary districts of workable size and the flow in each district is measured for 24 hours. Those districts with unexplained increases in consumption or where the night rate of flow appears to be inexplicably excessive, are to be surveyed in the coming fiscal year for leaks. During Fiscal Year 1988, the Leak Detection crews surveyed the Kensington area, North Philadelphia east of Broad Street, Frankford area, parts of the near Northeast, the Manayunk/Roxborough area and the Germantown area. The crews' surveys resulted in the repair of 250 leaks or breaks, estimated to be wasting 4.4 million gallons of water per day. This reduction corresponds to a savings in pumping and chemical costs of \$158,592 per year. Pitometer's surveys resulted in the repair of 212 leaks or breaks, estimated to be wasting 6.2 million gallons of water per day. This reduction corresponds to a savings in pumping and chemical costs of \$223,489 per year.

As part of the Department's 10-year program to replace old mechanical meters, 30,432 new 5/8 inch magnetic meters were installed during Fiscal Year 1988. In order to alleviate the age-old problem of "no one home" when the date to replace a meter actually arrived, the Meter Shop devised two ways to handle the problem. Post cards are sent to the customer reminding them of the appointment date. If the service worker receives no answer at the door on the scheduled date, they radio the dispatcher in the Meter Shop, who then calls the customer, informing them that the service person is at their door. By utilizing these new procedures, "no responses" for Fiscal Year 1988 were reduced by 79 percent.



UNIVERSITY OF PENNSYLVANIA
The Philadelphia Water Department serves approximately 15 colleges and universities, such as the renowned University of Pennsylvania.

been completely overhauled and rebuilt by the Pumping Division's mechanical forces.

During Fiscal Year 1988, Emergency and Support Services installed approximately 4,700 ferrules throughout the city. A new 48 hour request for drills has enabled the unit to schedule drills more effectively and has created a better rapport with plumbers. Over 2,100 valves were inspected and nearly 8,000 fire hydrants were repaired. To prevent the unauthorized openings of fire hydrants during the summer, crews installed over 500 locking devices.

After the especially bitter winter of 1988, Distribution crews repaired 919 broken water



Lobsters, such as these being prepared at the Old Original Bookbinders at 125 Walnut Street, and other crustaceans, often serve as an indicator of our nation's wastewater treatment quality and its effect upon the delicate ecosystem balance of estuaries. The Philadelphia Water Department has invested over \$900 million for improvements in its wastewater treatment facilities, and is striving to maintain consistent, high quality operation of its three wastewater treatment plants.



Too few of us have the luxury or time for bubble-filled baths, yet all of us can appreciate the fresh, renewed feeling we get after a brisk shower. Water satisfies a variety of our personal and family needs. The average Philadelphian uses approximately 94 gallons of water a day. Therefore, a basic service provided by the Philadelphia Water Department includes dealing personally with customers' concerns and questions about their water usage and providing tips on how to use water wisely.

During Fiscal Year 1988, 481.88 million gallons per day (MGD) received treatment by the three water pollution control plants. The average influent concentrations of 187 milligrams per liter (mg/l) suspended solids and 132 mg/l BOD 5 were reduced to 33 and 22 mg/l of SS and BOD 5 in the effluent. This is the second year that the wastewater treatment plant effluent quality for BOD 5 was consistent with the definition of secondary treatment, that is below 30 mg/l.

Wastewater Operation highlights include: the participation in the seasonal chlorination study with the Delaware River Basin Commission (DRBC); intense odor-related activities at the Northeast Plant as a result of a survey by the wastewater specialist firm of Malcolm-Pirnie Inc., and continuing odor-alleviating studies with present consultant A.D. Little; negotiations with the Justice Department, EPA and DER on consent decree amendments concerning the Northeast Plant, the Sludge Processing and Distribution Center and the Southwest Plant; the receipt of the Silver Award by the Southeast Plant from the Association of Metropolitan Sewerage Agencies in 1987 for successfully operating with five or less National Pollutant Discharge Elimination System (NPDES) permit violations; and the hosting of the Water Pollution Control Federation Conference in Philadelphia in October 1987. Over 12,000 visitors enjoyed their stay in Philadelphia and took part in Water Department sponsored events and tours.

Industrial Waste Control

In Fiscal Year 1988, inspectors collected 769 composite or grab samples that were used as the basis to levy surcharge bills for industries discharging conventional pollutants with strength above the specified limits. The industrial surcharge is authorized under a 1977 ordinance, which also imposes strict limits on the discharge

of heavy metals, oils, greases and other substances by Philadelphia industries. The restrictions are applied to help the City meet federal standards for waste plant effluents, improve sludge quality for land application and protect the wastewater plants from treatment upsets. As a means of assuring that the regulations are being met, inspectors also collected 1,909 samples requiring heavy metals and samples requiring organics analyses.

In addition to residential, commercial and industrial customers within the City, there are 11 townships bordering the City of Philadelphia that enter the City's sewer system and treatment plants through 35 connections. Bills, amounting to \$15 million during Fiscal Year 1988, are based on both the flow and strength of the sewage in accordance with contracts that have been negotiated with each township.

Sludge Composting

The Sludge Management Unit (SMU) began operation of the new Sludge Processing and Distribution Center (SPDC) during Fiscal Year 1988. The facility consists of an Operations and Maintenance Center, a sludge dewatering facility, a sludge and woodchip receiving and mixing system, a static aerated pile composting area, a finished compost curing area, a compost drying structure and a woodchip recovery system. All systems except for the dewatering facility are expected to be ready for testing in early 1989.

The SMU distributed 180,000 tons of sludge products in Fiscal Year 1988 to a large variety of customers for beneficial use of this recycled material. Three stripmines in Pennsylvania were reclaimed as productive lands in Fiscal Year 1988. Over 50,000 tons of specially prepared product called "Mine-Mix" was spread and incorporated into 340 acres of completed stripmined lands.

The SMU also provides a valuable fertilizer and soil conditioning service to farmers in the metropolitan area. Twenty-six farms, with over 2,400 acres of suitable lands, are permitted in southeastern Pennsylvania to receive sludge products. In Fiscal Year 1988, 33,000 tons of sludge were applied to about 1,200 of these acres to support field corn, small grain and hay crops. In a similar program in New Jersey, nine farms, comprising 1,650 acres, are approved for receipt of coarse sludge compost.

Local use of sludge products remains an important component of the utilization program. The Department rejuvenated six playfields for the Fairmount Park Commission and the Recreation Department. The Courtesy Bin for the giveaway of coarse compost called Phillymulch

renovation, flower gardens, mulching and woody plant establishment. This component of the sludge utilization program is expanding as the new compost facility nears completion. During the 1989 fiscal year, compost marketing should increase three fold.

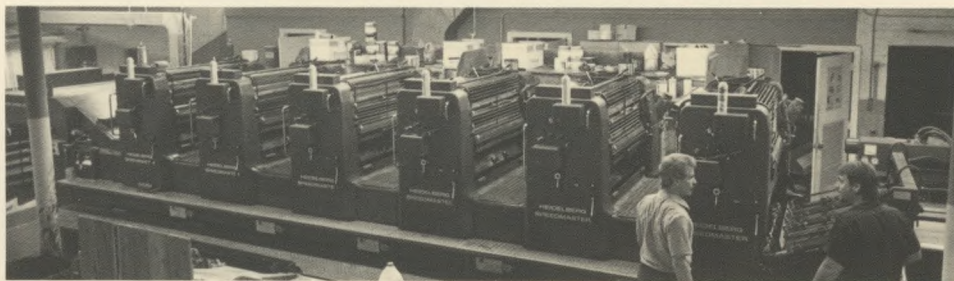
Sewer System Maintenance

The Sewer Maintenance Unit performed 29,111 jobs during Fiscal Year 1988 to keep the 2,949 miles of sewers clear of debris. Crews walked or crawled through 109.8 miles of main and branch sewers to examine or recommend for reconstruction. Another six miles of smaller diameter sewers were examined with a television camera.

Crews also cleaned 59.7 miles of sewers by high pressure flusher and 300 feet by the mechanical bucket machine. The bucket machine is used for cleaning the older brick sewers. Over 6,350 sewer and lateral examinations were made and 64 acres of ground near drainage right-of-ways at 237 locations were investigated. At 224 locations, crews cleaned 88 acres of ground and streams.

The Inlet Cleaning section is responsible for the inspection and cleaning of 75,000 stormwater inlets within the City. This work includes retrieving and installing inlet covers, installing locking covers, unclogging choked inlet traps and outlet piping so that inlets can take water, alleviating flooded streets and intersections when hydrants are illegally opened and when heavy rains occur.

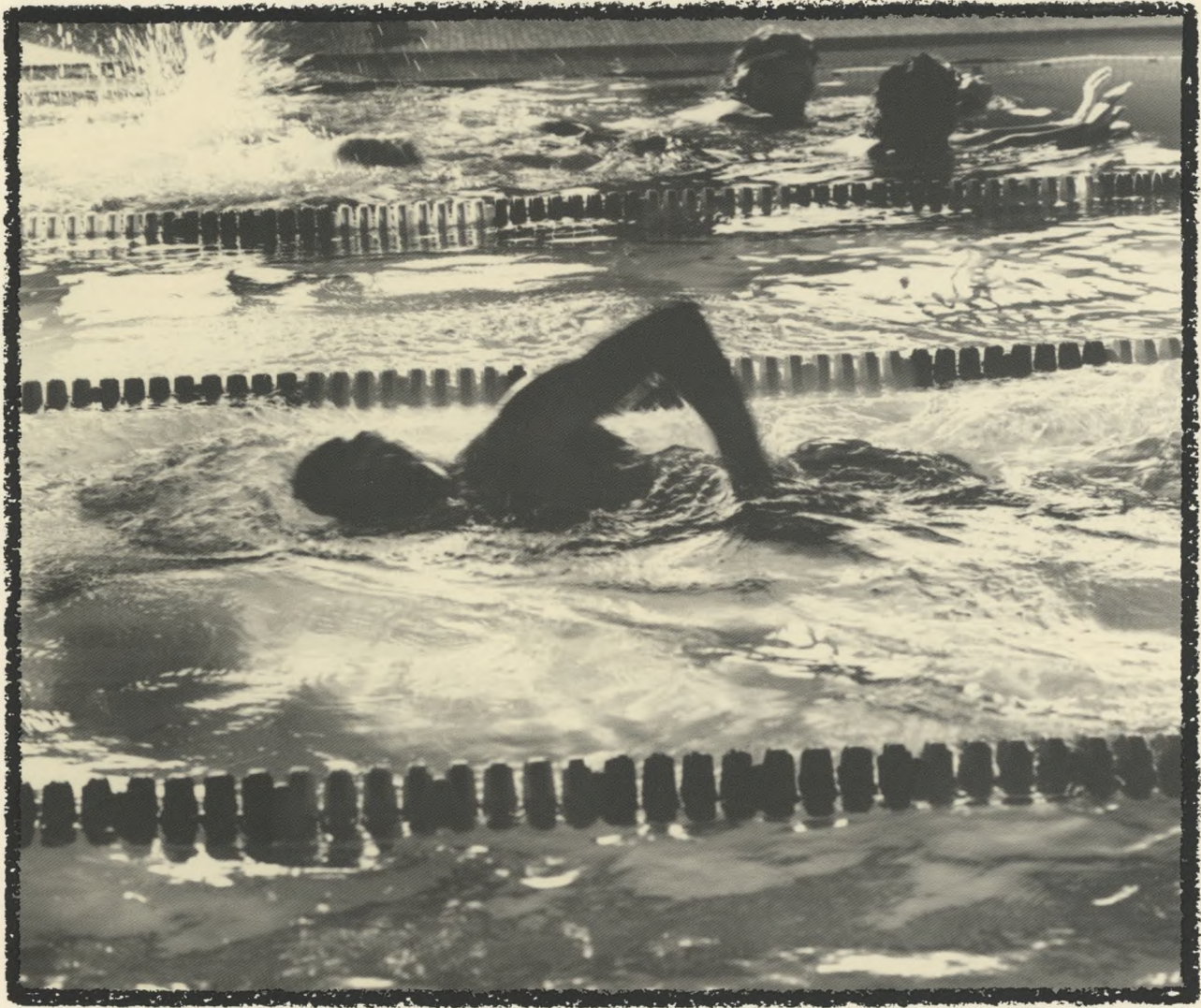
Cleaning 59,628 stormwater inlets on City streets in Fiscal Year 1988, crews removed 1.7 million cubic feet of debris. They also replaced 3,733 missing inlet covers which presented hazardous situations to pedestrians.



INNOVATION PRINTING & LITHOGRAPHY, INC.
Water facilitates technology for such businesses as Innovation Printing & Lithography, Inc. The company's pride is this featured state-of-the-art eight color press.

was opened in September 1987, and about 1,000 cubic yards of material has been taken by gardeners and residential landscapers.

The SMU produced over 20,000 tons of its finest screened compost product for its marketing program. Distributed under the trade name "EarthLife Compost," screened compost produced at the new Sludge Processing and Distribution Center is sold in bulk quantities to landscape contractors, greenhouse producers, nurseries, country clubs and homeowners. This product improves soil moisture retention and provides slow release nutrients. It is used in turf



A body at rest tends to float. A body that kicks, paddles, strokes or dives tends to swim, often with exhilarating results. Water provides an excellent workout medium for the toning of the entire body, as illustrated by the swimmers cutting the waters at the Roxborough YMCA.

Part of the ongoing Water Main and Sewer Rehabilitation Program includes the monitoring of the conveyance and collector systems' physical and hydraulic conditions by the Water and Sewer Systems Planning Unit. From this surveillance, deteriorated pipeline segments are programmed for replacement. During Fiscal Year 1988, 60 locations for water main relay were scheduled, of which 16 locations are leadite joint mains. An additional 19 locations with combined water main relay and sewer reconstruction were scheduled. These water main relay projects have a total estimated cost of \$5.74 million.

The sewer reconstruction program, which includes performing hydraulic studies and reviewing sewer examinations recommendations, resulted in the scheduling of 31 sewer segments. The total estimated cost for reconstruction of these sewers is \$3.67 million.

These water main relay and sewer reconstruction projects are encompassed in the proposed Capital Improvements Program. Currently this 5-year Program consists of 887 water and/or sewer locations with a preliminary cost estimate of \$119 million.

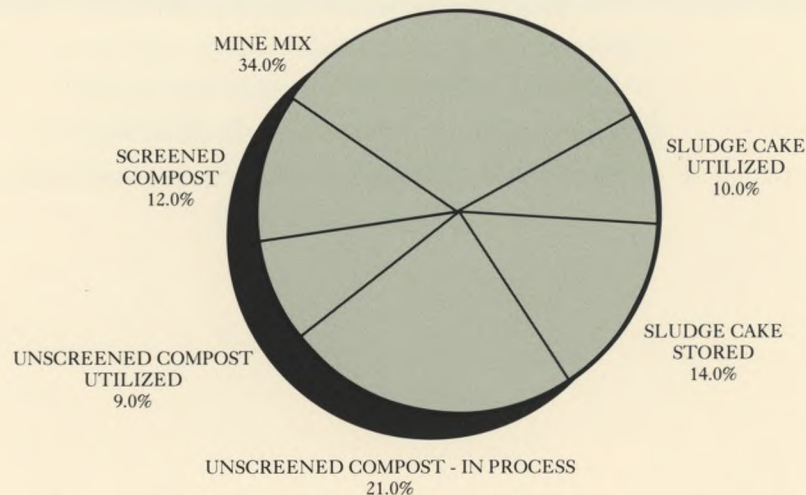
Construction

In Fiscal Year 1988, Construction Branch engineers supervised 228 contracts with a combined value of \$146 million. Of these, 121 projects totaling \$51 million were completed and 107 projects totaling \$95 million remain active. The projects included reconstruction of old sewers and relay of old water mains, new sewer and water mains, and improvements to treatment plants and reservoirs. The Construction Branch also inspected utility work on PennDOT projects, including the Vine Street Expressway. New sewer and water mains built privately were also inspected by the Construction Branch, as were numerous projects involving water and sewer utilities by other City departments.



*FISHERMEN AT WISSAHICKON
Improved river and stream quality has resulted in large fish populations.*

SLUDGE PRODUCT ALLOCATION, FY 1988



total sludge: 58,700 dt



Without an adequate water supply, our world would be virtually lifeless and colorless. Flowers and plants, such as these being watered at the Flower Basket in the Reading Terminal, renew our eternal love affair with the earth's natural beauty and delicate perfection.



Water provides us with the ability to keep our environment clean and comfortable. The Last Detail Car Wash uses water to provide their customers with squeaky-clean cars.

Planning & Research

The Planning and Research section provides technical services and management support in the areas of applied research, feasibility studies, strategic planning, capital programming and financial analysis, and conveyance planning and rehabilitation. With the Department's current management goal of reducing or minimizing cost of service, many of the current programs and activities are designed to investigate areas of the Department's operations which show potential for cost savings or reductions. By concentrating in these areas, the Water Department's rate payers will derive the benefit of reduced future rate increases. Planning and Research's notable projects included participating with the EPA in the completion of a \$1 million, four-year Integrated Environmental Management Program (IEMP) in the Philadelphia region. Planning and Research served on the Technical Steering Committee and contributed greatly to the analysis of EPA's methodology and conclusions. The IEMP approach attempts to identify and track environmental concerns in a multimedia geographic framework.

Planning and Research continues to operate the Department's Energy Information System (EIS) which reports monthly energy consumption and cost data to plant managers throughout the Water Department. The unit is also instrumental in developing projected future energy expenditures for budgeting purposes. During Fiscal Year 1987, the Department's electrical consumption (321 million kwh) increased by approximately 5.2 percent from the previous year, while its cost (\$18.26 million) decreased by about 1.0 percent. In Fiscal Year 1988 consumption (328 million kwh) increased 1.5 percent over Fiscal Year 1987 and costs (\$17.17 million) decreased 6.3 percent.

Plans have been developed for cogeneration facilities at the Northeast and Southwest Water Pollution Control Plants. The objective is to use over 90 percent of the methane produced by sludge digestion processes to generate electricity and thermal energy. The Department plans to seek private developers to finance, design, build, and operate these facilities.



GLOBE DYE WORKS
 One of the Water Department's older and more traditional businesses includes the Globe Dye Works Company. They have the capacity to dye up to 200,000 pounds of yarn a week.

Planning and Research, with assistance from Operations, Plant Expansion and Data Management personnel, is developing a long range renewal and replacement program for all of its water and wastewater plants, pumping stations and storage facilities. This program will enable the Department to prepare an estimate of its future capital expenditures, estimate optimum renewal and replacement funding levels over a 50-year period, and to plan the level of bond indebtedness that the Philadelphia Water Department will experience.

Design

The Design Branch of the Water Department embraces a number of responsibilities, among which include the designing and evaluating of construction projects recommended for maintenance and/or reconstruction of new facilities.

Design also reviews and coordinates work contracted by the Department and provides information and assistance to public and private agencies in the areas of drainage and water supply. Design hails a number of projects as Fiscal Year 1988 highlights:

The Belmont Water Treatment Plant automation project design is completed, which will replace and upgrade the instrumentation and controls for the plant, utilizing a computer-based distribution control system. The project also includes the replacement or rehabilitation of chemical feed systems and process equipment, and two computer rooms which house the automatic control of the chemical system.



TASTYKAKE
The Philadelphia Water Department serves one of the city's most cherished and recognizable businesses, TastyKake, Inc. Their desserts are nationally recognized as a unique Philadelphia product.

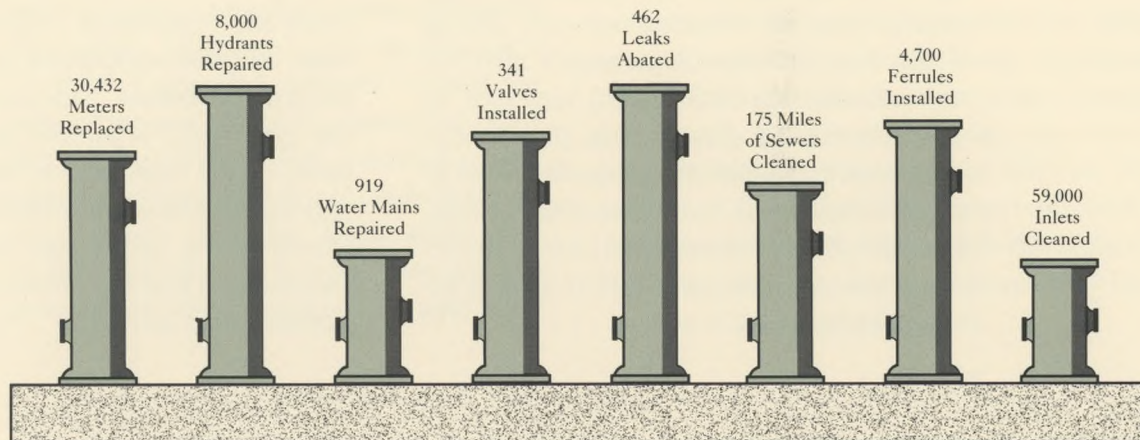
Design was completed and sent to Projects Control for the largest and most comprehensive concrete repair and rehabilitation project undertaken by the Water Department in recent history. The project, the Queen Lane North Basin Clear Well Repairs, involves 16 bid items, including intrusion grouting and repairs to beams, columns, supports, arches, walls and slabs. The structure itself is 364,320 square feet, two stories underground and contains finished water.

Design Branch is preparing contract documents to rehabilitate the Northeast and Northwest basins at our East Park Reservoir facility. The contract includes repairing the cover and lining which was damaged by the wind while the basins were out of service, repairing the soil embankment, replacing damaged curbing, repairing the roadway and sealing it where it meets the curb, replacing and modifying some pumps and controls, and installing the cover and lining.



NAVY YARD
The Philadelphia Naval Base is one of the Philadelphia Water Department's largest and more seaworthy customers.

**WATER DEPARTMENT
FISCAL YEAR 1988 SERVICE ACCOMPLISHMENTS**





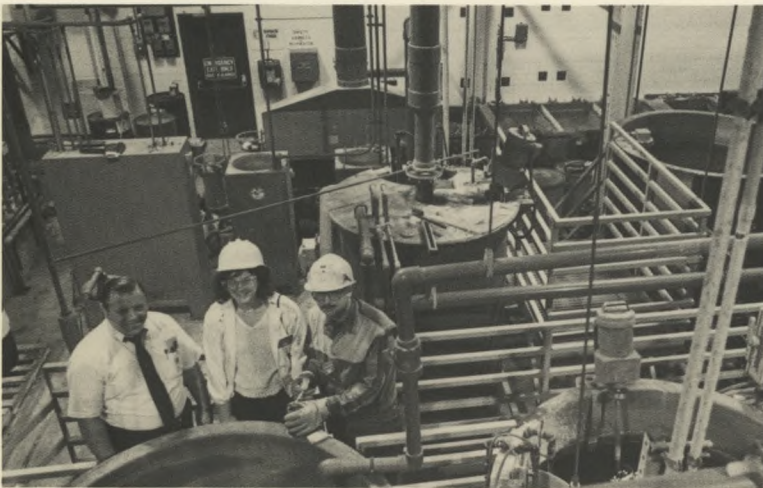
Even where water is plentiful, it is often polluted or threatened with pollution. Providing water that is clean and safe is a priority for the Philadelphia Water Department. Many of our customers' day-to-day tasks are closely enmeshed with a variety of water usages. The simple act of cleansing vegetables constitutes to the Water Department the serious responsibility of ensuring a safe and healthy water supply always at our customers' fingertips.



People have always been delighted with the playful sight of bubbling, tumbling water. Fountains adorned both the sprawling gardens of kings and formed the centerpiece of the peasant marketplace. The fabled fountain of youth promised eternity. Our fountains, such as the one in the Gallery, offer fresh, natural aesthetics to otherwise urban surroundings, and of course, the ever present temptation to dip your fingers into the cool, penny-filled waters.

Conservation Assistance Program

The Water Department successfully launched and completed its pilot Conservation Assistance Program (CAP) in Fiscal Year 1988 in three areas of the city. The pilot program laid the groundwork for a city-wide CAP in Fiscal Year 1989. The goals of the program are to reduce water waste; make minor plumbing repairs; provide water conservation education to each household; provide referral information to cash assistance programs; and to improve bill paying habits of customers. Low-cost water conserva-



SPD TECHNOLOGIES

Cooperation with the Philadelphia Water Department in the pretreatment of industrial wastes is essential for effective wastewater treatment. SPD Technologies has maintained a relationship with the Department in this endeavor.

tion devices consisting of a showerhead, toilet dams and faucet aerators are installed in each home. Visible minor water leaks and other small plumbing problems are corrected. Contract services provided by the non-profit community service organizations of St. Elizabeth Housing, Inc., United Communities and the Belmont Improvement Association in the north, west and south Philadelphia areas enabled the CAP to visit a total of 903 homes with an average cost per home of \$103. Total spent on the Fiscal Year 1988 CAP program was \$92,903.

Hydrant Abuse Program

The Department's Customer Affairs' Hydrant Abuse program leaped into its fifth year full-throttle with June 1988 temperatures already hovering around the 100° mark daily. By June 21, 1988, summer 1987 June's high-mark for water consumption was already surpassed by 33 million gallons, hitting a high of 457 million gallons for the day.



PENNS LANDING

The expansion and upgrading of the Philadelphia Water Department's three wastewater treatment plants have contributed to the revitalization of Penns Landing.

An approximate 1,000 of the Department's 26,000 fire hydrants are opened illegally on such scorching days. The Department's campaign strives to inform Philadelphia that "hydrants are for fires, not for fun" and that the summer heat is never an excuse to open fire hydrants illegally. Approximately three billion gallons of treated drinking water are wasted each summer at a cost of \$600 thousand. An open hydrant gushes water at a rate of 1,000 gallons per minute; in 75 minutes, that's more water wasted than an average household uses in a year. The Department's Hydrant Outreach Team (HOT) visits camps, playgrounds and recreation centers throughout the city distributing information to young children such as a coloring calendar, the "Stay Cool Guide to Summer Fun in Philadelphia," and a new oversized storybook starring the "Plug Uglies." The campaign also includes public service announcements, flyers, window posters and decals for block captains, truck and transit posters and updates with the media.

The Fairmount Water Works Restoration

The Fairmount Water Works, a treasured Philadelphia landmark, opened in 1815 and ceased operation in 1909. After its closing, the Water Works fell into disrepair. It wasn't until September 1979 that the City started seriously examining ways of restoring the Water Works. The Water Department took the leading role in this endeavor and contracted with an architectural and planning firm to do an Adaptive Reuse Feasibility Study, which was completed by September 1981. Since then, the Water Department, working with the Junior League of Philadelphia, the Fairmount Park Commission, and the Pennsylvania Coastal Zone Management Program, has explored the recommendations of the study and has embraced the concept of a Water Works Interpretive Center. The Interpretive Center will be designed as an educational facility which will inform visitors of all ages about the history of the Water Works and water supply in Philadelphia, current water quality and technology issues, as well as the ecologies of Fairmount Park and the coastal zone.

In Fiscal Year 1988, the contract for the Fairmount Water Works Interpretive Esplanade was awarded and an imaginative interpretive design was developed. The Philadelphia Water Department envisioned the Interpretive Esplanade as a source of information about the Water Works site that would respect the historic significance and aesthetic beauty of this 400 foot strip of land a few feet above the Schuylkill. In addition, the Department felt that an effective Inter-

pretive Esplanade should heighten public interest in the Water Works Restoration Project and in the plans of the Interpretive Center for which the Esplanade would eventually serve as an outdoor gallery.

The accepted design calls for a series of six wayside exhibition stations, each a visual puzzle with clues to a "secret truth" about the history



FAIRMOUNT WATER WORKS

The Fisherman sculpture at the Fairmount Water Works esplanade is one component of the restoration of the Water Works complex. It symbolizes the unique and ever-evolving relationship between Philadelphians and their rivers.

and significance of the Schuylkill River and the Water Works. Each station will comprise a cluster of three-dimensional objects cast in metal, accompanied by a brief text. These exhibit stations trace man's relation with the Schuylkill River over the years from before the time of the Lenape Indians through the construction of the Water Works and the explosive urban growth of 19th century Philadelphia—ultimately disastrous for both the Schuylkill and the Water Works—to today's renewed respect for the river's life-giving qualities.

During Fiscal Year 1988, the restoration of the Old Mill House deck was completed, and restoration of the Pavilion and the Italian Fountain in Aquarium Circle commenced.



Water covers approximately three-quarters of the earth, with immense quantities stored in our oceans, frozen in glaciers, and captured in underground rock formations. Water makes up two-thirds of our bodies, and it's the main substance found in all living things. One of the Philadelphia Water Department's more unique customers, a resident of the Philadelphia Zoo, is seen "testing" the water.

Employee Suggestion Program

The Water Department distributed 14 cash awards to employees for new and innovative ideas under the Employee Suggestion Program in Fiscal Year 1988. Awards ranged from \$50 to \$1,205. Since the Program's inception in 1986, it has reduced annual operating costs by \$40 thousand a year through reduced down-time of equipment, lower energy costs and efficient utilization of employees' time.

Training Office

The Training Office is in high gear designing and implementing training programs to aid Water Department employees in achieving professional goals. The office is actively encouraging and assisting employees in upward mobility through a cooperative arrangement with Community College of Philadelphia, in which employees receive an Associates Degree, and with Eastern College in St. Davids, Pennsylvania,

where employees can receive a Bachelors Degree at an accelerated pace through intensive study. The Training Office is also developing an in-house upward mobility training program to provide employees with an opportunity to become electricians.

One of the main objectives of the Training Office is to improve employees' work skills and on-the-job performance. This is being accomplished by offering such courses as: defensive driving training, career counseling, writing courses, brown-bag lunch seminars, and the establishment of an Audio/Video Cassette Lending Library.

Occupational Safety Health Office (OSH)

This office works in four major areas to reduce operational liabilities:

1. Industrial Safety
2. Occupational Health
3. Vehicle Accident Control
4. Injury Benefits Administration

During Fiscal Year 1988, the OSH office's efforts resulted in a 10 percent reduction in paid leave days used by injured employees. As compared to Fiscal Year 1987, this accomplishment was a result of a thorough review of case management studies and a coordinated effort with our medical providers to ensure goal-oriented treatment and rehabilitation for injured workers. The 13 percent reduction in worker vehicle accidents in Fiscal Year 1988 was attributed to the Department's defensive driving courses and the Safety Committees' efforts to increase driver awareness. It is the goal of the OSH office to maintain continued improvements in Fiscal Year 1989. To accomplish this, the office staff has been increased to five employees and is supplemented with contracted consultants when necessary.

Employment Assistance Program

The Personnel Unit implemented the Employee Assistance Program (EAP) as a support source for employees with personal problems. Confidential intake and referral services are provided through a contracted agency, for problems in such areas as: stress, family relations, finance and drug and alcohol addiction. The EAP also provides training to supervisors on the proper use of EAP services.



LIBERTY PLACE
The construction of One Liberty Place affirms that Philadelphia is a good place to do business. Economically, it is a strong city; its big-city cultural amenities are powerful incentives which draw business and tourism.



Water is multifaceted. In addition to satisfying our essential needs for life, water in its many forms, provides recreation and fun. At the Wissahickon Skating Club, ice enthusiasts enjoy their mastery over the element. In addition to the fun, many of us enjoy therapeutic benefits derived from all forms of exercise.

Supplemental Schedule of Rate Covenant Compliance for the Fiscal Year Ended June 30, 1988 (Amounts in Thousands of Dollars) (Legally Enacted Basis)

Pursuant to Section 4.03(b) of the General Water and Sewer Revenue Bond Ordinance of 1974 (Bill No. 1263), the City is required to impose, charge and collect in each Fiscal Year rates and charges at least sufficient, together with that portion of the unencumbered amount of the operating funds balances available and reserved for appropriation for the payment of Operating Expenses at the commencement of such Fiscal Year, which together with all other project revenues to be received in such Fiscal Year, shall equal not less than the greater of:

Coverage is computed as follows:

A. The sum of		Coverage A
(i) Net Operating Expenses payable during such Fiscal Year;	Line 4	142,934
(ii) 150% of the amount required to pay the principal of and interest on all Bonds issued and outstanding hereunder which will become due and payable during such Fiscal Year; and	+ Line 11	14,522
(iii) the amount, if any, required to be paid into the Sinking Fund Reserve during such Fiscal Year; or	+ Line 18	28,962
	/ Line 5	186,418
	= Coverage A	73,030
		2.55
B. The sum of:		Coverage B
(i) all Operating Expenses payable during such Fiscal Year; and	Line 4	142,934
(ii) all Sinking Fund deposits required during such Fiscal Year in respect of all outstanding Bonds and in respect of all outstanding general obligation bonds issued for improvements to the water or sewer systems and all amounts, if any, required during such Fiscal Year to be paid into the Sinking Fund Reserve.	+ Line 11	14,522
	- Line 12	(28,541)
	+ Line 18	28,962
	/ Line 7	157,877
	= Coverage B	88,836
		1.78

**Supplemental Schedule of Rate Covenant Compliance for the
Fiscal Year Ended June 30, 1988 (Amounts in Thousands of
Dollars) (Legally Enacted Basis)**

Line No.

1. Total Operating Revenue	\$267,797
2. Net Operating Expense	114,337
3. Bond Anticipation Notes	10,526
4. Net Operating Revenue after Notes	142,934

Debt Service:

5. Revenue Bonds Outstanding	73,030
6. General Obligation Bonds Outstanding	15,806
7. Total Debt Service on Bonds	88,836
8. Net Operating Revenue after Bonds	54,098

Nonoperating Income:

9. Interest Income	10,245
10. Grant Income	4,277
11. Total Nonoperating Income	14,522

Other Obligations:

12. Direct Interdepartmental Charges	28,541
13. Transfer of Interest Income to General Fund	4,137
14. Renewal and Replacement Fund Transfers	2,450
15. Renewal and Replacement Project Expenditures	14,376
16. Total Other Obligations	49,504
17. Net Operating Balance for Current Year	19,116
18. Net Balance at Beginning of Fiscal Year	28,962
19. Net Balance at End of Fiscal Year	\$ 48,078

Property, Plant and Equipment

Property, plant and equipment at June 30, 1988 and 1987 consisted of the following:

	Fiscal Years Ended	
	June 30, 1988	June 30, 1987
Land	\$ 5,919,160	\$ 5,919,160
Buildings and related improvements	886,369,158	827,003,232
Equipment	38,960,722	34,079,469
Transmission and distribution lines	981,750,241	941,333,611
Construction in progress	106,319,853	141,410,226
Total Less accumulated depreciation	(614,092,280)	(573,264,220)
Total	\$ 1,405,226,854	\$ 1,376,481,478

Philadelphia Water Department
ARA Tower At One Reading Center
1101 Market Street
Philadelphia, PA 19107

