

BEFORE THE
PHILADELPHIA WATER COMMISSIONER

FY 2009-2012 Philadelphia Water Department :
Water and Wastewater Rate Proceeding :

DIRECT TESTIMONY OF DEBRA McCARTY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.

A. My name is Debra McCarty. My business address is 1101 Market Street, Fifth Floor, Philadelphia, Pennsylvania.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by the Philadelphia Water Department (“Department”) as its Deputy Commissioner in charge of operations.

Q. WHAT ARE YOUR JOB RESPONSIBILITIES?

A. My responsibilities include oversight of operation and maintenance of the water and wastewater utilities including three water plants, three wastewater plants and a biosolids recycling facility. Also included in my responsibilities is the operation and maintenance of water mains, sewers, stormwater inlets, water and wastewater pumping stations and fire hydrants throughout the City. I also oversee the supply of water and wastewater services to suburban contract customers.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I have a Bachelor of Engineering Sciences Degree with a major in Environmental Engineering from Johns Hopkins University. See attached resume (Exhibit DM-1) for a more detailed description of my educational background and work experience.

Q. PLEASE DESCRIBE YOUR RELEVANT WORK EXPERIENCE WITH THE DEPARTMENT.

A. I started with the Department in August 1982 as a Sanitary Engineer (Treatment Headquarters Group) at the Northeast Water Pollution Control Plant (Northeast WPCP). In that position, I was responsible for various plant related projects and outside pumping stations. In May 1984, I transferred to the Plant Operations Group at the Northeast WPCP where I assumed responsibilities for the coordination of eight construction projects and related activities.

In July 1989, I was promoted to Process Manager at the Northeast WPCP where I had direct control of plant processes at that 210 million gallons/day facility. My responsibilities included assuring compliance with NPDES permit requirements, minimizing malodor emissions, implementing operational changes and special projects.

In July 1993, I assumed the post of Plant Manager at the Southwest WPCP. In this position, I had overall responsibility for the operation of a 200 million gallons/day plant; managed a staff of 135 employees; and directed and provided technical assistance to process engineers and operations staff to assure compliance with NPDES permit and Clean Water Act amendment requirements, among other responsibilities.

In October 1999, I was promoted to the position of Chief of Wastewater Treatment. In that capacity, I was responsible for the operation of three wastewater treatment plants with a combined average treatment capacity of 522 million gallons/day; a combined annual operating budget of \$34.7 million and approximately 330 employees. This job represented an expansion of duties covering the overall wastewater treatment system including, environmental compliance, capital budgeting and a roster of other duties.

In April 2004, I was appointed to my current position as Deputy Water Commissioner in charge of overall operations for the Department.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

- A. The purpose of my testimony is to describe the water, wastewater and stormwater functions of the Department and outline present achievements and prospective initiatives to be undertaken to improve water quality in the local area. My testimony is supplemented by that of Ms. Joanne Dahme regarding the Department's stormwater system and proposed changes for reallocation of costs associated with that system.

Q. PLEASE DESCRIBE THE PHILADELPIA WATER DEPARTMENT AND THE SERVICES PROVIDED TO ITS CUSTOMERS.

- A. The Department is comprised of approximately 1965 employees who operate and support capital work for (a) three water treatment plants treating an average of approximately 261 million gallons of water from the Delaware and Schuylkill Rivers each day to produce safe and high quality drinking water; (b) three wastewater treatment plants cleaning 474 millions gallons per day of sewage; and (c) a biosolids recycling center that annually treats and disposes of 227,000 tons of biosolids captured during the wastewater treatment process. The Department also maintains approximately 3,133 miles of water mains; 3,516 miles of sewers; 79,159 stormwater inlets; 25,195 fire hydrants; multiple finished water storage

facilities; and over 30 water wastewater and stormwater pumping stations. In support of these operations, the Department also operates a sophisticated testing laboratory and a range of technical and administrative support services.

In addition to retail services in Philadelphia, the utility also provides wholesale drinking water and wastewater treatment services to more than 50 neighboring communities. Currently, the Department provides drinking water to more than 150,000 residents of Lower Bucks County and treats wastewater from approximately 700,000 residents of Bucks, Delaware and Montgomery counties. The Department's services to customers outside the City are addressed in the testimony of Mr. James Palladino.

Q. IS THE PROPOSED RATE INCREASE NECESSARY TO FUND THE DEPARTMENT'S EFFORTS TO PROVIDE HIGH QUALITY DRINKING WATER TO ITS CUSTOMERS?

- A.** Yes. The Department is committed to producing and delivering high quality drinking water to its customers. In fulfilling this commitment, the Department has, in many instances, adopted internal water quality goals that are more stringent than the applicable state and federal regulations. The Department is equally committed to delivering its treated water and maintaining its distribution system with adequate pressure and supply to reliably meet all system needs, including fire protection.

The key objectives and strategies for accomplishing the Department's water quality and supply goals include (a) compliance with all drinking water standards in the reauthorized Safe Drinking Water Act and achieve the Department's more rigorous performance standards; (b) strengthen the Department's role in protecting the region's source water; (c) optimize quality and reliability of treatment procedures; (d) implement best management practices in the distribution system to assure water quality and reliability of supply; and (e) employ advanced monitoring and analysis capabilities to support the Department's water quality objectives.

Q. WHAT INITIATIVES HAS THE DEPARTMENT ALREADY UNDERTAKEN TO IMPROVE WATER QUALITY IN THE LOCAL AREA?

- A.** Since voluntarily joining the US Environmental Protection Agency's (EPA) Partnership for Safe Water (PFSW) (a joint program of the EPA and the water industry), the Department has committed itself to reduced "turbidity," an industry standard measure of water purity. In FY 2006, the turbidity of Philadelphia's water (.05 ntu) was 83 percent lower than the amount required by state and federal regulations and 50 percent lower than the Partnership's turbidity goal of 0.1 ntu. Nationally, the Department is among an elite group of 56 water utilities that have received a Directors Award from the PFSW for meeting the partnership's goals for five consecutive years.

In this fiscal year and during the Rate Period, the Department is also focused upon documenting compliance with the newest EPA water quality requirements, the Long-Term 2 Enhanced Surface Water Treatment Rule that was published in the Federal Register in January 2006. The Department's water quality program, instituted to achieve the PfSW goals is now well positioned to achieve compliance with the requirements of the new rule.

The Department has been able to stay one step ahead of drinking water regulations through the operation of a pilot plant research program initiated many years ago. The pilot plants are essentially miniature water treatment plants that allow the Department to study and test the impact of modifications to water treatment procedures prior to moving forward with plant-wide changes. The most recent pilot plant studies focused on the effectiveness of coagulants other than ferric chloride, which the Department has used as a coagulant in the water treatment process. Coagulants are used to treat the water to make it more filterable by binding to organic particles in the source water and causing these particles to fall out of the water treatment process by virtue of the combined weight of the coagulant and the particle. Changes in regulatory requirements and increasing coagulant costs have driven the Department's need to evaluate alternative coagulants.

In this fiscal year, the Department is also experimenting with a pre-treatment process called MIEX (Magnetically Induced Ion-Exchange). This process removes a significant portion of the dissolved organic component of water prior to coagulation. This technology may offer the Department the freedom to use non-iron based coagulants. The Department proposes the continuation of this research and other efforts during the Rate Period so as to facilitate the Department's ability to meet regulatory mandates more cost-effectively and to ensure that it continues to provide high quality drinking water for its customers.

Q. HOW MUCH DOES THE DEPARTMENT SPEND EACH YEAR TO PRESERVE AND IMPROVE LOCAL WATER QUALITY?

- A.** Overall, the Department invests roughly a quarter of a billion dollars every year through our combined operating and capital budgets in protecting the region's watersheds. Most of the dollars are expended in the operation and maintenance of the wastewater treatment plants and related infrastructure. Expenditures are also made in support of innovative planning efforts such as bio-monitoring of fish and insects in the region's waterways and the use of geographic information system technology for watershed management. Prospectively, the Department is committed to continuing investment in protecting the region's water environment, including cost-effective operation of our wastewater system at levels in full compliance with regulatory permits.

Many Philadelphians are unaware of the connection between the work of the Water Department and the quality of their local “watershed”— the creeks, streams, rivers, and surrounding land that provide fresh water both for recreational enjoyment and for drinking water supply. After the tremendous investment and progress in wastewater treatment sparked by the federal Clean Water Act over 30 years ago, the City now enjoys watersheds that are cleaner and healthier than they have been in well over a century. Once plagued by federal consent decrees for the failure to operate our wastewater treatment facilities in compliance with environmental regulations, these same plants are now winning national industry awards.

Q. WILL THE DEPARTMENT HAVE INCREASED OPERATING COSTS BECAUSE OF INCREASING REGULATORY REQUIREMENTS?

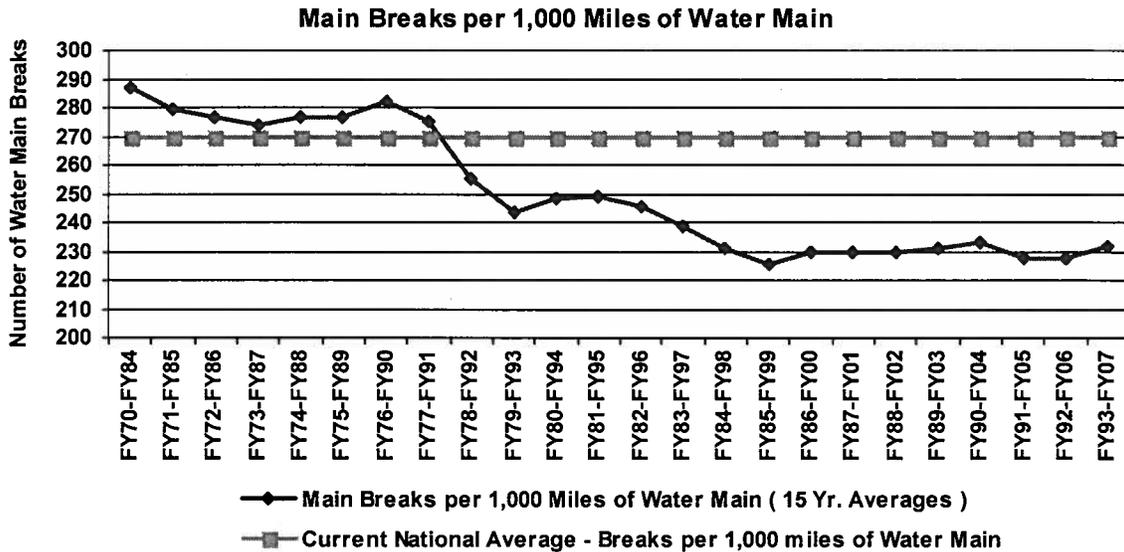
A. Yes. The latest NPDES permits for the three wastewater treatment plants (incorporating total chlorine residual limits for effluent) will increase annual operating costs for the Department. In addition, Title V permits (requiring no odors beyond the fence at wastewater treatment facilities) have increased costs for odor control by some \$2.8 million at the Northeast WPCP in FY 2008 and additional costs may follow for odor abatement. The conversion of Department disinfection facilities from liquid chlorine to sodium hypochlorite has also resulted in increases in operating costs for both water and wastewater plants. Clean Water Act compliance may also produce additional costs for the Department tied to the clean up of polychlorinated biphenyls (PCBs) in the Delaware River, as is being evaluated by the Delaware River Basin Commission. The financial impact of all of the foregoing requirements is addressed in the testimony of Deputy Commissioner Joseph Clare.

Q. DOES THE DEPARTMENT ALSO HAVE ASSET MANAGEMENT RESPONSIBILITIES?

A. Yes. The Department maintains and operates six large water and wastewater treatment facilities and a biosolids facility. These systems are highly complex to operate and require a large portion of the Department's operating and capital resources to maintain. Integrated with these plants is an extensive network of underground infrastructure that delivers water to a population of over 1.7 million and carries sewage for treatment from a population of more than 2.2 million through retail service in Philadelphia and wholesale water and wastewater contracts in the suburbs. Investing in the maintenance of this infrastructure is a major priority for the Department. Investments in infrastructure not only maintain these assets for future generations, they also help to cut down on costly emergency repairs.

The Department closely monitors water main conditions to ensure that adequate capital investment is made, the integrity of the water supply system is sustained,

and the occurrence of disruptive and costly water main breaks is reduced. Over the past 10 years, the Department has accelerated the replacement of water mains, with the goal of replacing 0.8 percent of the distribution system, or 22 miles each year. As shown in the chart below, the Department's experience with main breaks is documented for the period FY 1984 – FY 2007. The level of main breaks for the period 1998 to date (approximately 230 or fewer breaks per 1,000 miles) is well below the national average of 270 breaks per 1,000 miles and is near the lowest level in more than twenty years. During the Rate Period, the Department plans to annually replace 22 miles of water main.



Maintaining the sewer system infrastructure is equally important, even though the failure of these systems may be less apparent than a water main break. With over 3,500 miles of sewers collecting nearly 500 million gallons of sewage per day, assessing the condition of the sewer system is a major part of the Department's operations and maintenance program. Completed in FY 2005, a \$6 million pilot sewer assessment program evaluated the condition of the sewer system infrastructure using video technology to inspect over 215 miles of sewers, and used this information to build a database and ranking system to prioritize needed improvements. In this and future years Department personnel will continue the sewer assessment surveys, and use the data to prioritize needed sewer reconstruction and repair, and schedule this work in the capital and operating budgets. This project has already helped to identify sewers that were in immediate need of repair, and it is anticipated that over time this project will result in a reduction of costly and disruptive emergency sewer repairs, such as those that occur when a sewer collapses.

Q. DOES THE DEPARTMENT'S CAPITAL IMPROVEMENT PROGRAM FUND ASSET MANAGEMENT ACTIVITIES?

A. Yes. The following table sets forth major elements of the Department's Capital Improvement Program for the period FY 2009-2013, as approved by Philadelphia City Council.

Capital Improvement Program
(Thousand of Dollars)

Engineering & Administration	\$ 147,802
Improvements to Treatment Plants	252,000
Conveyance System (new and reconstruction)	131,880
Collector System (new and reconstruction)	141,110
Storm Flood Relief	295,000
Vehicles	<u>18,000</u>
Total	\$ 985,782

Approximately 76% of the costs of the Capital Improvement Program are expected to be funded with the proceeds of debt to be incurred over the above period. The City expects most of such debt to be in the form of Water and Wastewater Bonds issued under the First Class City Revenue Bond Act and the General Ordinance. A portion of the debt may be evidenced by loans to the City of Philadelphia from Pennvest (an agency of the Commonwealth of Pennsylvania established to provide low interest financing for water and wastewater projects).

While the vast majority of the Capital Budget and Program is scheduled for the renewal and replacement of existing infrastructure, significant funds must be budgeted to meet the requirements of ever-expanding regulations promulgated by the US EPA, PA DEP, and the regional DRBC. Regulatory requirements associated with biosolids treatment and utilization, watershed protection, combined sewer overflow and stormwater management also carry with them substantial attendant costs

Q. DOES THIS CONCLUDE YOUR PREPARED TESTIMONY?

A. Yes, it does.

Debra Anita McCarty

ARAMARK Tower
1101 Market Street- 5th Floor
Philadelphia, Pennsylvania 19107
Office Phone: 215-685-6102

Education:

The Johns Hopkins University, Baltimore, Maryland. Received Bachelor of Engineering Sciences in May, 1979 with a major in Environmental Engineering

Experience:

April 2004 to Present

Philadelphia Water Department, Deputy Commissioner, Director of Operations. Responsibilities include oversight of the operation and maintenance of the water and wastewater utilities including three water plants, three wastewater plants and a biosolids recycling facility. Also included in my responsibilities is the operation and maintenance of 3,100 miles of water mains, 3,500 sewers, 79,000 stormwater inlets, 25,000 fire hydrants and water and wastewater pumping stations, throughout the City. I also oversee the supply of water and wastewater services to suburban contract customers.

October 1999 to April 2004

Philadelphia Water Department, Chief of Wastewater Treatment. Responsible for Philadelphia's three wastewater treatment plants with a combined average daily treatment capacity of 522 million gallons/day, a combined operating budget of \$34.7 Million and approximately 330 employees. Set overall goals and objectives for facilities; insured compliance with NPDES permits under the Clean Water Act administered by Pa DEP; insured compliance with Title V and Synthetic Minor permits under the Clean Air Act Amendments administered by Air Management Services; oversaw capital and operating budgetary issues; coordinated efforts between plants and PWD units, other city agencies and regulators; various administrative tasks.

July 1993 to October 1999

Philadelphia Water Department, Southwest Water Pollution Control Plant, Plant Manager. Overall responsibility for this 200 million gallon/day wastewater treatment plant with a full staffing level of 135 employees. Responsibilities entailed directing and providing technical guidance to process engineers and operations staff to insure compliance with NPDES permit and Clean Air Act Amendment requirements; directed and provided technical guidance to maintenance staff to insure facility was properly maintained and in a cost effective manner (This included selecting and implementing a computerized maintenance management system and initiation of predictive maintenance practices to prolong equipment life and minimize downtime); directed an administrative staff whose responsibilities included payroll, procurement of parts and services, processing payments for purchase orders, developing annual budgets, tracking expenditures to remain within budget and coordination of training of plant staff; successfully led plant efforts to satisfy various obligations under an EPA Consent Decree; developed and implemented a facility budget which was competitive with contract operations and resulted in significant savings for the rate payers; worked with AFSCME

DC #33 to achieve many of these goals.

May 1989 to July 1993

Philadelphia Water Department, Northeast Water Pollution Control Plant, Process Manager. Had direct responsibility for control of plant processes at this 210 million gallon/day facility. This included insuring compliance with NPDES permit requirements, minimizing malodor emissions, implementing operational changes and special projects. Assisted in preparation of budget; recommended capital projects then assisted designers with preparation and review of plans and specifications; performed plant manager duties in his absence; supervised a staff of two sanitary engineers and two water quality technicians.

May 1984 to May 1989

Philadelphia Water Department, Northeast Water Pollution Control Plant, Sanitary Engineer for Plant Operations Group. Responsible for coordination of eight construction projects and related activities to minimize impact to plant processes; startup, operation and troubleshooting of facilities after construction completion; implementation of an odor control program to address court ordered mandates (this effort contributed to the successful settlement of the Federal lawsuit filed by the community).

August, 1982 – May 1984

Philadelphia Water Department, Northeast Water Pollution Control Plant, Sanitary Engineer in Treatment Headquarters Group. Responsible for various plant related projects and outside pumping stations. Responsibilities included interfacing with the Operations, Maintenance and Construction Groups to start-up and operate new facilities. (Primary and Final Sedimentation Tanks, Preliminary Treatment Building and Chlorination Facilities); writing and administration of several requirements contracts; providing assistance to Department's training consultant for training coordination and preparation of system operating manuals; administration of plant dust control program; primary community contact including responding to their problems and concerns; Plant Standby Engineer every six weeks.

November, 1979 to March, 1982

Huth Engineers, Inc., Lancaster, Pennsylvania, Project Engineer in the Environmental Group. Assisted in, and responsible for various water and wastewater related projects. Responsibilities included preparation of Operation and Maintenance manuals for sewer systems; evaluation of water storage alternatives; responsible for preliminary development of sludge composting facility for a major plant; participated in preparation of major components of several "201" Facilities Plans; dealt with federal, state and local agencies on behalf of various municipalities; Engineer for Jackson Township for various projects. Also attended conferences relative to sludge composting.

Activities and Interests:

Active in Powelton Village Civic Association. Organized annual 4 Block neighborhood Porch Sale for 16 years. On the board of the Neighborhood Gardens Association and currently serve as their Treasurer. Enjoy gardening (particularly native & wildlife friendly habitats), fishing, cooking, bicycling and competitive swimming.

**Professional
Affiliations:**

Water Environment Federation; Eastern Pennsylvania Water Pollution Control Operators Association, Inc.; and serve on the Board of Directors for the National Association of Clean Water Agencies, NACWA

Licenses:

Class A, Type 1 Sewage Treatment Plant Operators License

References:

Furnished Upon Request