

BEFORE THE  
PHILADELPHIA WATER COMMISSIONER

IN RE: PHILADELPHIA WATER )  
DEPARTMENT WATER AND ) FY 2009-2012 RATES  
WASTEWATER RATE PROCEEDING )

DIRECT TESTIMONY

OF

JEROME D. MIERZWA

ON BEHALF OF THE PUBLIC ADVOCATE

JULY 30, 2008

---

**EXETER**

ASSOCIATES, INC.  
5565 Sterrett Place  
Suite 310  
Columbia, Maryland 21044

BEFORE THE  
PHILADELPHIA WATER COMMISSIONER

IN RE: PHILADELPHIA WATER )  
DEPARTMENT WATER AND ) FY 2009-2012 RATES  
WASTEWATER RATE PROCEEDING )

Direct Testimony of Jerome D. Mierzwa

1

**I. INTRODUCTION**

2 Q.

WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS  
ADDRESS?

3

4 A.

My name is Jerome D. Mierzwa. I am a principal and a Vice President of Exeter Associates, Inc. My business address is 5565 Sterrett Place, Suite 310, Columbia, Maryland 21044. Exeter specializes in providing public utility-related consulting services.

5

6

7 Q.

PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND  
EXPERIENCE.

8

9 A.

I graduated from Canisius College in Buffalo, New York, in 1981 with a Bachelor of Science Degree in Marketing. In 1985, I received a Masters Degree in Business Administration with a concentration in finance, also from Canisius College. In July 1986, I joined National Fuel Gas Distribution Corporation ("NFG Distribution") as a Management Trainee in the Research and Statistical Services Department ("RSS"). I was promoted to Supervisor RSS in January 1987. While employed with NFG Distribution, I conducted various financial and statistical analyses related to the company's market research activity and state regulatory affairs. In April 1987, as part of a corporate reorganization, I was transferred to National Fuel Gas Supply Corporation's ("NFG Supply") rate department where my responsibilities included

10

11

12

13

14

15

16

17

18

1 utility cost of service and rate design analysis, expense and revenue requirement  
2 forecasting and activities related to federal regulation. I was also responsible for  
3 preparing NFG Supply's Purchase Gas Adjustment ("PGA") filings and developing  
4 interstate pipeline and spot market supply gas price projections. These forecasts were  
5 utilized for internal planning purposes as well as in NFG Distribution's purchased gas  
6 cost proceedings.

7 In April 1990, I accepted a position as a Utility Analyst with Exeter  
8 Associates, Inc. In December 1992, I was promoted to Senior Regulatory Analyst.  
9 Effective April 1, 1996, I became a principal of Exeter Associates. Since joining  
10 Exeter Associates, my assignments have included evaluating the gas purchasing  
11 practices and policies of natural gas utilities, water utility class cost of service and  
12 rate design analysis, sales and rate forecasting, performance-based incentive  
13 regulation, revenue requirement analysis, the unbundling of utility services and the  
14 evaluation of customer choice natural gas transportation programs.

15 Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY  
16 PROCEEDINGS ON UTILITY RATES?

17 A. Yes. I have provided testimony on more than 100 occasions in proceedings before  
18 the Federal Energy Regulatory Commission ("FERC"), utility regulatory  
19 commissions in Delaware, Georgia, Illinois, Indiana, Louisiana, Maine, Montana,  
20 Nevada, New Jersey, Ohio, Pennsylvania, Rhode Island, Texas and Virginia.

21 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

22 A. Exeter Associates was retained by Community Legal Services serving as the Public  
23 Advocate to assist it in the evaluation of the class cost of service study and rate design  
24 recommendations submitted by the Philadelphia Water Department ("PWD" or "the  
25 Water Department") for water and wastewater service. My testimony presents my

1 findings and recommendations with regard to cost allocation and the design of rates  
2 for water and wastewater service.

3 Q. HAVE YOU PREPARED SCHEDULES TO ACCOMPANY YOUR  
4 TESTIMONY?

5 A. Yes. I have prepared Schedules JDM-1 and JDM-2. Schedule JDM-1 summarizes  
6 the Water Department's proposed water rate charges for fiscal year (FY) 2009  
7 through FY 2012. Schedule JDM-2 summarizes the proposed rates for wastewater  
8 service.

9 Q. WHAT MATERIAL DID YOU REVIEW IN PREPARATION OF YOUR  
10 TESTIMONY?

11 A. In preparation of my testimony I reviewed the cost of service studies prepared by  
12 PWD witness Jennings Rowe McKinley of the engineering firm of Black & Veatch  
13 Corporation. Black & Veatch is among the largest, oldest and experienced  
14 engineering firms in the United States. In addition to reviewing PWD's cost of  
15 service studies, I also reviewed PWD's responses to the Standard Interrogatories and  
16 PWD's responses to discovery requests submitted by the parties to this proceeding. I  
17 would note that Exeter Associates was engaged by Community Legal Services to  
18 review the cost of service studies presented in the PWD's 2001 and 2004 rate  
19 proceedings and, therefore, our firm is familiar with the cost of service methodologies  
20 used by PWD.

21 Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

A. Following this introductory section, my testimony is divided into two additional  
sections. The first section addresses the PWD's water cost of service study and rate  
design proposals. In the next section, I address the PWD's wastewater cost of service  
study and rate design proposals.

1                   **II. WATER COST OF SERVICE AND RATE DESIGN**

2    Q.               WHAT IS THE OBJECTIVE OF A COST OF SERVICE STUDY?

3    A.               A cost of service study is conducted to assist a utility and/or a public utility  
4                   commission in determining the level of costs properly recoverable from each of the  
5                   various classes of customers to which the utility provides service. Allocation of  
6                   recoverable costs to each customer class is generally based on cost causation  
7                   principles. The customer classes which consume service and may be included in a  
8                   cost of service study include the residential, commercial and industrial customer  
9                   classes.

10   Q.              WHAT ARE THE PRIMARY COST OF SERVICE STUDY  
11                   METHODOLOGIES UTILIZED FOR WATER UTILITIES?

12   A.              The two most commonly used and widely recognized methods of allocating costs to  
13                   customer classes for water utilities are the base-extra capacity method and the  
14                   commodity-demand method. Both of these methods are set forth in the American  
15                   Water Works Association's (AWWA's) Manual M1. The fifth edition of AWWA  
16                   Manual M1 was published in 2000 and is entitled "Principles of Water Rates, Fees  
17                   and Charges." This AWWA Manual M1 was historically titled and is commonly  
18                   referred to as the "Water Rates Manual."

19   Q.              WHAT METHODOLOGY HAS PWD UTILIZED FOR ITS CLASS COST  
20                   OF SERVICE STUDY?

21   A.              PWD has utilized the base-extra capacity method in preparing its class cost of service  
22                   study. Under the base-extra capacity method, investment and costs are first classified  
23                   into four primary functional cost categories: base or average capacity, extra capacity,  
24                   customer, and direct fire protection. Customer costs are commonly further divided  
25                   between meter and service line (the pipe from the water main to the individual

1 property) related and account or bill related costs. As has been done in PWD's cost  
2 study, extra capacity costs may also be divided between maximum day and maximum  
3 hour costs. Once investment and costs are classified to these functional categories,  
4 they are then allocated to customer classes. Base costs are allocated to customer  
5 classes according to the average water use of each class and extra capacity costs are  
6 allocated to class on the basis of water use in excess of the average. Meter and  
7 service pipe related customer costs are allocated on the basis of relative meter and  
8 service pipe investment or a proxy thereof. Account related customer costs are  
9 allocated in proportion to the number of customers or the number of bills.

10 Q. WHAT CUSTOMER CLASSES HAS PWD IDENTIFIED IN ITS STUDY?

11 A. The Water Department has separately identified the cost of serving nine primary retail  
12 customer classes: residential, senior citizens, commercial, industrial, housing  
13 authority, charities and schools, municipal, private fire protection and public fire  
14 protection. The costs of serving PWD's two wholesale customers, Bucks County and  
15 the Aqua Pennsylvania have also been separately identified.

16 Q. WHAT ARE YOUR FINDINGS AND RECOMMENDATIONS  
17 CONCERNING PWD'S COST OF SERVICE STUDY?

18 A. The cost of service study submitted by PWD is based on the "base-extra capacity"  
19 methodology, which is one of the two most commonly accepted water cost of service  
20 methodologies. I have made a detailed review of the cost study and had  
21 conversations with Black & Veatch , the engineering firm which performed the cost  
22 study and developed PWD's proposed rates. I agree with the Water Department's  
23 application of this methodology and have accepted the results for purposes of this  
24 proceeding.

1 Q. WOULD YOU PLEASE SUMMARIZE THE MANNER IN WHICH PWD  
2 HAS DEVELOPED ITS PROPOSED WATER RATES IN THIS  
3 PROCEEDING?

4 A. Generally, for FY 2009, PWD has proposed rates based on its cost of service study  
5 results. For FY 2010 through FY 2012, the cost of service rates have generally been  
6 increased by 9.6 percent annually, which is projected annual revenue requirement  
7 increase. I do not take any position regarding whether the projections of future  
8 increases are reasonable. That is beyond the scope of my testimony.

9 Q. WHAT ARE YOUR RECOMMENDATIONS WITH REGARD TO RATE  
10 DESIGN?

11 A. With one exception, it is my recommendation that any reductions to the rate increases  
12 sought by PWD for FY 2009 through FY 2012 that are approved in this proceeding  
13 be achieved by adjusting rates on a basis consistent with that followed by the Water  
14 Department in developing its rate proposals. That is, if at all possible, the rates  
15 should be developed by rerunning the Water Department's cost allocation model and  
16 cost projections with costs adjusted to reflect the approved amounts. If rerunning the  
17 cost of service model is not possible, and I know of no reason why it would not be  
18 possible, the proposed rate relationships should be maintained by scaling back the  
19 Water Department's proposed rates proportionately. That is, for example, in FY  
20 2009, the rates proposed by PWD are designed to collect projected costs of  
21 \$189,218,000 (Exhibit JRM-1, Table 14). If the level of costs approved for recovery  
22 in this proceeding are reduced to, say, \$179,757,100, or 95 percent of the projected  
23 amount, each rate proposed by PWD should be multiplied by 95 percent  
24 ( $\$179,757,100/\$189,218,000$ ).

1 Q. WHAT IS THE ONE EXCEPTION TO THE DESIGN OF RATES YOU  
2 ARE PROPOSING?

3 A. The one exception I am proposing is for public and private fire service protection  
4 rates. Public fire protection rates are applicable to fire hydrants in the City of  
5 Philadelphia. Private fire protection rates are applicable, for example, to owners of  
6 buildings with automatic sprinkler systems. The PWD is proposing to reduce the FY  
7 2009 rates for public and private fire protection services by 14.1 percent and 18.61  
8 percent, respectively. Thereafter, rates are increased so that by either FY 2011 or FY  
9 2012, fire service rates will exceed the current rates.

10 It is my recommendation that the existing rates for public and private fire  
11 service protection be maintained, until such time the rates proposed by PWD exceed  
12 the current rates. It is unreasonable to reduce rates when PWD's cost of providing  
13 service is increasing only to later increase those rates above current rates.

14 I recommend that the additional fire protection service revenues proportionately  
15 reduce the rates of all other customer classes. That is, for example, if an additional  
16 \$1,500,000 in fire protection service revenues are generated under my proposal and  
17 the revenues to be recovered from all non-fire protection service customers total  
18 \$178,257,100, each rate proposed by PWD should be multiplied by 99.16 percent (1-  
19  $(\$1,500,000/\$178,257,100)$ ).

20

21 **III. WASTEWATER COST OF SERVICE AND RATE DESIGN**

22 Q. PLEASE SUMMARIZE THE WASTE WATER COST OF SERVICE  
23 STUDY AND RATE DESIGN PROPOSAL FILED BY PWD IN THIS  
24 PROCEEDING.

1 A. PWD performed and submitted an average, embedded, class cost of service study.  
2 The study is an average study because it first determined the average unit cost of  
3 providing each of the functional components of service. The functions include the  
4 provision of annual volumetric service; the provision of capacity sufficient to meet  
5 not only average flows, but peak flows, as well; the costs of treating varying strengths  
6 of wastewater; and customer related costs. The PWD study is an embedded cost  
7 study because it allocates actual or anticipated total costs of service, rather than the  
8 marginal costs associated with providing an additional increment of service. Finally,  
9 the study is a class cost of service study because it allocates the unitized functional  
10 costs of service to each class in proportion to each class' ratio of its units of service  
11 by function to the sum of the units of service by function for all customer classes.  
12 Utilizing updated cost projections, the PWD study in this case follows the same cost  
13 study methodology utilized by PWD in its 2001 and 2004 rate proceedings.

14 PWD's proposed general service wastewater rate design consists of a series of  
15 flat monthly charges that increase as a function of meter size, and a uniform, non-  
16 varying quantity charge. Surcharges apply for high strength wastewater that requires  
17 additional treatment costs to be incurred. The proposed rates for wastewater service  
18 reflect the cost of service study results.

19 Q. PLEASE EXPLAIN HOW STORMWATER AND WASTEWATER COSTS  
20 ARE ALLOCATED.

21 A. The sewage collection system in the City of Philadelphia is comprised of both  
22 separate sanitary and storm sewers in some areas, as well as combined sanitary and  
23 storm sewers in other areas. Retail customer investment and operating expenses  
24 associated with the collection system have been separated between sanitary sewer-  
25 related costs and stormwater-related costs. Based on an analysis of its collection

1 system serving retail customers, PWD has allocated 30 percent of the costs associated  
2 with the collection system to sanitary wastewater and 70 percent to stormwater.

3 Q. PLEASE EXPLAIN HOW STORMWATER COSTS ARE RECOVERED  
4 FROM THE VARIOUS RETAIL CUSTOMER CLASSES.

5 A. In this proceeding, PWD is continuing the parcel based storm water cost allocation  
6 methodology recommended by the Stormwater Charge Allocation Community  
7 Advisory Committee ("CAC") in their 1996 report to the PWD. The CAC concluded  
8 that an appropriate cost responsibility for stormwater related costs would be to  
9 recover 80 percent of total stormwater related costs (excluding fixed costs such as  
10 customer billing) based on a customer's impervious area and 20 percent based on a  
11 customer's total gross property area. Parcel based rates were approved by the Water  
12 Commissioner in PWD's 2001 rate case for customers served from 5/8-inch meters  
13 based on the average gross and impervious area for the residential base in the City.  
14 The parcel based approach was phased in over the 2002-2004 period. Rates for the  
15 recovery stormwater costs from customers served from 5/8-inch service in this  
16 proceeding continue to be based on the average parcel based method.

17 Stormwater costs for customers served from larger meters are currently  
18 recovered on the basis of equivalent meter capabilities. PWD is proposing to phase-  
19 in parcel based billing for stormwater costs for customers served from meters sized  
20 greater than 5/8-inch. It is my understanding that parcel based billing for large  
21 customers will be addressed in the second part of this proceeding, and the billing of  
22 stormwater charges to non-residential customers will have no impact on residential  
23 customers.

24 Q. IS IT COMMON TO BASE WASTEWATER UTILITY RATES ON  
25 ALLOCATED COSTS OF SERVICE?

1 A. Yes. Allocated costs of service are of primary importance in the determination of  
2 class revenue responsibilities. The standard is based on the observation that it is  
3 utility service demands which are responsible for costs of service being incurred to  
4 meet those service demands. The principle of allocating costs on the basis of cost  
5 causality, and using the results in the determination of class revenue responsibilities is  
6 consistent with this important regulatory principle.

7 Under this approach, those who are demanding the utility services are  
8 allocated the costs of providing the various service components in proportion to the  
9 amount of services being demanded by those customers. When customers are  
10 classified into several customer classes, the aggregated costs associated with the  
11 customer class' utility service demands reflect the total allocated cost of providing  
12 service to each customer class. In this way, those customers who cause the costs by  
13 demanding and benefiting from the service provided are allocated the costs associated  
14 with the services they are provided. My analysis confirms that PWD's cost  
15 allocations are performed consistent with standard methods that incorporate the  
16 principle of cost-causality. The regulatory principle relating utility rates to costs of  
17 service is a widespread utility regulatory practice.

18 Q. WHAT DO YOU CONCLUDE?

19 A. The proposed rates for wastewater service are based on PWD's average, embedded,  
20 class cost of service study results. That cost of service study is based on standard cost  
21 allocation procedures. The parcel based method of allocating stormwater costs,  
22 introduced into PWD's rate setting procedures in its 2001 proceeding, continued in its  
23 2004 proceeding, is once again continued in this proceeding. Retail service  
24 wastewater rates consisting of a monthly charge, a flat quantity charge, and  
25 surcharges for high strength wastewater are easy to understand and administer, and

1 are consistent with past precedent. I conclude that PWD's proposed rate design,  
2 applicable to the existing set of various meter sizes, is consistent with generally  
3 accepted cost based ratemaking principles.

4 Should the Water Commissioner adjust PWD's proposed total cost of service,  
5 PWD should rerun its cost allocation model using the approved costs of service, and  
6 file compliance rates that retain the proposed relationship between allocated costs and  
7 rates. I believe that this is the best alternative and should be pursued. If this is not  
8 possible, the proposed rate relationships can be retained by reducing the proposed  
9 rates for each customers class by a uniform percentage required to achieve the  
10 approved revenue requirement, similar to the approach I described earlier in my  
11 testimony for reducing rates for water utility service.

12 Q. DOES THIS COMPLETE YOUR TESTIMONY?

13 A. Yes. It does.

W:\3334\jdm\dirtest\direct.doc

BEFORE THE  
PHILADELPHIA WATER COMMISSIONER

IN RE: PHILADELPHIA WATER )  
DEPARTMENT WATER AND ) FY 2009-2012 RATES  
WASTEWATER RATE PROCEEDING )

SCHEDULES ACCOMPANYING THE

DIRECT TESTIMONY

OF

JEROME D. MIERZWA

ON BEHALF OF THE PUBLIC ADVOCATE

JULY 30, 2008

---

**EXETER**

ASSOCIATES, INC.  
5565 Sterrett Place  
Suite 310  
Columbia, Maryland 21044

**PHILADELPHIA WATER DEPARTMENT**  
Summary of Current and Proposed Rates for Water Service

Meter Size	Current Rates	Proposed Rates			
		FY 2009	FY 2010	FY 2011	FY 2012
5/8	\$5.10	\$5.22	\$5.56	\$5.99	\$6.44
3/4	5.91	6.03	6.42	6.89	7.39
1	7.88	8.01	8.52	9.12	9.74
1 1/4	10.34	10.47	11.13	11.88	12.65
1 1/2	12.29	12.41	13.19	14.04	14.92
2	18.22	18.34	19.49	20.70	21.97
3	31.33	31.45	33.40	35.40	37.49
4	54.53	54.82	58.23	61.80	65.52
6	105.58	106.03	112.60	119.40	126.50
8	164.76	165.32	175.54	186.00	196.94
10	239.01	239.91	254.74	269.99	285.94
12	418.94	419.47	445.24	471.01	497.99
<b>CONSUMPTION CHARGES (per Mcf)</b>					
First 2 Mcf	\$21.80	\$24.77	\$27.33	\$30.12	\$33.20
Next 98 Mcf	17.27	19.97	22.03	24.33	26.86
Next 1,900 Mcf	15.36	18.38	20.25	22.42	24.77
Excess 2,000	11.50	13.97	15.40	17.06	18.87
<b>FIRE PROTECTION</b>					
Public Fire (paid by City)	\$6,986,000	\$5,688,000	\$6,121,000	\$6,566,000	\$7,022,000
Private Fire Connection Size					
4 or less	\$19.10	\$18.99	\$20.42	\$22.21	\$24.08
6	34.76	34.46	37.07	40.31	43.70
8	51.50	50.90	54.79	59.59	64.60
10	76.14	75.38	81.12	88.22	95.64
12	114.63	112.57	121.36	131.97	143.07

Source: Exhibit JRM-1, Tables 24 and 25.

**PHILADELPHIA WATER DEPARTMENT**  
 Summary of Current and Proposed Rates for Wastewater Service

MONTHLY SERVICE CHARGE	Current Rates	Proposed Rates			
		FY 2009	FY 2010	FY 2011	FY 2012
Meter Size					
5/8	\$16.59	\$16.78	\$17.35	\$17.94	\$18.48
3/4	86.24	78.59	84.47	88.78	92.15
1	140.01	127.94	137.74	144.81	150.25
1 1/2	273.41	250.48	270.12	284.03	294.59
2	434.70	398.51	429.94	452.11	468.88
3	809.69	742.81	801.79	843.17	874.37
4	1,353.88	1,241.62	1,339.88	1,409.01	1,461.20
6	2,701.17	2,477.84	2,674.40	2,812.43	2,916.51
8	4,313.96	3,958.06	4,272.62	4,493.18	4,659.36
10	6,205.43	5,693.08	6,145.24	6,462.44	6,701.50
12	11,548.42	10,600.18	11,445.83	12,037.04	12,481.52
<b>USAGE CHARGE</b>					
Billed Water Usage (per Mcf)	\$17.72	\$19.78	\$20.76	\$21.83	\$22.93
<b>Surcharge Rates</b>					
BOD (\$/lb in excess of 250 mg/l)	\$0.270	\$0.292	\$0.304	\$0.322	\$0.344
SS (\$/lb in excess of 350 mg/l)	\$0.247	\$0.308	\$0.313	\$0.328	\$0.344

Source: Exhibit JRM-1, Table 37.