

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**IN THE MATTER OF:**

**NOTICE OF ADJUSTMENT OF THE RATES OF  
KENTUCKY-AMERICAN WATER COMPANY  
EFFECTIVE ON AND AFTER MAY 30, 2007**

)  
)  
)  
)  
)

**CASE NO. 2007-00143**

---

**DIRECT TESTIMONY OF PAUL R. HERBERT**

**April 30, 2007**

---

1 QUALIFICATIONS

2 1. Q. Please state your name and address.

3 A. My name is Paul R. Herbert. My business address is 207 Senate Avenue, Camp Hill,  
4 Pennsylvania.

5 2. Q. By whom are you employed?

6 A. I am employed by Gannett Fleming, Inc.

7 3. Q. What is your position with Gannett Fleming, Inc., and briefly state your general duties  
8 and responsibilities.

9 A. I am Senior Vice President of the Valuation and Rate Division. My duties and respon-  
10 sibilities include the preparation of accounting and financial data for revenue  
11 requirement and cash working capital claims, the allocation of cost of service to  
12 customer classifications, and the design of customer rates in support of public utility rate  
13 filings.

14 4. Q. Have you presented testimony in rate proceedings before a regulatory agency?

15 A. Yes. I have testified before the Pennsylvania Public Utility Commission, the New Jersey  
16 Board of Public Utilities, the Public Utilities Commission of Ohio, the Public Service  
17 Commission of West Virginia, the Kentucky Public Service Commission, the Iowa State  
18 Utilities Board, the Virginia State Corporation Commission, the Tennessee Regulatory  
19 Authority, The California Public Utilities Commission, New Mexico Public Regulation  
20 Commission and the Missouri Public Service Commission concerning revenue  
21 requirements, cost of service allocation, rate design and cash working capital claims.

22 A list of the cases in which I have testified is provided at the end of my direct  
23 testimony.

24 5. Q. What is your educational background?

25 A. I have a Bachelor of Science Degree in Finance from the Pennsylvania State University,  
26 University Park, Pennsylvania.

1 6. Q. Would you please describe your professional affiliations?

2 A. I am a member of the American Water Works Association and serve as a member of the  
3 Management Committee for the Pennsylvania Section. I am also a member of the  
4 Pennsylvania Municipal Authorities Association. In 1998, I became a member of the  
5 National Association of Water Companies as well as a member of its Rates and Revenue  
6 Committee.

7 7. Q. Briefly describe your work experience.

8 A. I joined the Valuation Division of Gannett Fleming Corddry and Carpenter, Inc.,  
9 predecessor to Gannett Fleming Valuation and Rate Consultants, Inc., in September  
10 1977, as a Junior Rate Analyst. Since then, I advanced through several positions and  
11 was assigned the position of Manager of Rate Studies on July 1, 1990. On June 1, 1994,  
12 I was promoted to Vice President and on November 1, 2003, I was promoted to my  
13 current position as Senior Vice President.

14 While attending Penn State, I was employed during the summers of 1972, 1973  
15 and 1974 by the United Telephone System - Eastern Group in its accounting department.  
16 Upon graduation from college in 1975, I was employed by Herbert Associates, Inc.,  
17 Consulting Engineers (now Herbert Rowland and Grubic, Inc.), as a field office manager  
18 until September 1977.

19 COST OF SERVICE ALLOCATION

20 8. Q. What is the purpose of your testimony in this proceeding?

21 A. My testimony is in support of the cost of service allocation and rate design study  
22 conducted under my direction and supervision for the Kentucky-American Water  
23 Company, (the "Company").

24 9. Q. Have you prepared an exhibit presenting the results of your study?

1 A. Yes. Exhibit No. 36 presents the results of the allocation of the pro forma cost of  
2 service to the several customer classifications as of November 30, 2008, and the  
3 proposed rate design.

4 10. Q. Briefly describe the purpose of your cost allocation study.

5 A. The purpose of the study was to allocate the total cost of service, which is the total  
6 revenue requirement, to the several customer classifications. The cost of service  
7 includes operation and maintenance expenses, depreciation expense and amortizations,  
8 taxes other than income, income taxes and income available for return. In the study, the  
9 total costs were allocated to the residential, commercial, industrial, public authority,  
10 other water utilities, private fire protection and public fire protection classifications in  
11 accordance with generally-accepted principles and procedures. The cost of service  
12 allocation results in indications of the relative cost responsibilities of each class of  
13 customers. The allocated cost of service is one of several criteria appropriate for  
14 consideration in designing customer rates to produce the required revenues.

15 11. Q. Please describe the method of cost allocation that was used in your study.

16 A. The base-extra capacity method, as described in the 2000 and prior Water Rates  
17 Manuals (M1) published by the American Water Works Association (AWWA), was  
18 used to allocate the pro forma costs. The method is a recognized method for allocating  
19 the cost of providing water service to customer classifications in proportion to the  
20 classifications' use of the commodity, facilities and services. It is generally accepted as  
21 a sound method for allocating the cost of water service and has been used by the  
22 Company in previous rate cases.

23 12. Q. Is the method described in Exhibit No. 36?

24 A. Yes. It is described on pages 3 and 4 of the exhibit.

25 13. Q. Please describe the procedure followed in the cost allocation study.

1 A. Each element of cost in the pro forma cost of service was allocated to cost functions  
2 through the use of appropriate allocation factors. This allocation is presented in  
3 Schedule D on pages 15 through 21 of Exhibit No. 36. The items of cost, which include  
4 operation and maintenance expenses, depreciation and amortization expenses, taxes and  
5 income available for return, are identified in column 1 of Schedule D. The cost of each  
6 item, shown in column 3, is allocated to the several cost functions based on allocation  
7 factors referenced in column 2. The development of the allocation factors is presented  
8 in Schedule E of the exhibit.

9 The four basic cost functions are base, extra capacity, customer and fire  
10 protection costs. Base Costs are costs that tend to vary with the quantity of water used,  
11 plus costs associated with supplying, treating, pumping and distributing water to  
12 customers under average load conditions, without the elements necessary to meet peak  
13 demands. Extra Capacity Costs are costs associated with meeting usage requirements in  
14 excess of average. They include the operating and capital costs for additional plant and  
15 system capacity beyond that required for average use. Extra capacity costs were  
16 subdivided into costs to meet maximum day extra capacity and maximum hour extra  
17 capacity requirements.

18 Customer Costs are costs associated with serving customers regardless of their  
19 usage or demand characteristics. Customer costs are subdivided into customer facilities  
20 costs, which include meters and services, and customer accounting costs, which include  
21 billing and meter reading functions. Fire Protection Costs are costs associated with  
22 providing the facilities to meet the potential peak demand of fire protection service as  
23 well as direct costs such as the cost for fire hydrants. The demand costs for fire  
24 protection are subdivided into costs for Private Fire Protection and Public Fire  
25 Protection on the basis of relative potential demands.

1 14. Q. Please provide examples of the cost allocation process.

2 A. I will use some of the larger cost items to illustrate the principles and considerations  
3 used in the cost allocation methodology. Water purchased for resale, purchased electric  
4 power, treatment chemicals and sludge handling costs are examples of costs that tend to  
5 vary with the amount of water consumed and are considered base costs. Thus, Factor 1  
6 assigns these costs directly to the base cost function.

7 Other source of supply, pumping, purification and transmission costs are  
8 associated with meeting usage requirements in excess of the average, generally to meet  
9 maximum day requirements. Costs of this nature were allocated partially as base costs,  
10 proportional to average daily consumption, partially as maximum day extra capacity  
11 costs, in proportion to maximum day extra capacity, and, in the case of certain pumping  
12 stations and transmission mains, partially as fire protection costs, through the use of  
13 Factors 2 and 3. The development of the allocation factors, referenced as Factors 2 and  
14 3 shown in Schedule E, pages 22 and 23, is based on the system peak day ratio and the  
15 potential demand of fire protection.

16 Costs associated with distribution mains and storage facilities were allocated  
17 partly on the basis of average consumption and partly on the basis of maximum hour  
18 extra demand, including the demand for fire protection service, because these facilities  
19 are designed to meet maximum hour and fire demand requirements. The development  
20 of the factors, referenced as Factors 4 and 5, used for these allocations is shown in  
21 Schedule E, on pages 23 through 25, of Exhibit No. 36. Fire demand costs were  
22 allocated to public and private fire protection service in proportion to the relative  
23 potential demands on the system by public fire hydrants as compared to the demands for  
24 private fire services and hydrants. The demand for private fire units were increased by a  
25 factor of 1.5 over the public fire units to recognize the greater flow rate required for a

1 fire at a private service than for a public hydrant. This adjustment was accepted by the  
2 Commission in a previous case.

3 Costs associated with pumping facilities were allocated on a combined bases of  
4 maximum day, maximum day including fire and maximum hour extra capacity because  
5 pumping facilities serve these functions. The relative weightings of Factor 2 (maximum  
6 day), Factor 3 (maximum day with fire) and Factor 4 (maximum hour) for pumping  
7 facilities were based on the horsepower of the pumps serving these functions. The  
8 development of these weighted factors, referenced as Factor 6, is presented on page 26  
9 of Exhibit No. 36.

10 Operation and maintenance costs for transmission and distribution mains were  
11 allocated on a combined bases of Factor 3 (maximum day with fire) for transmission  
12 mains and Factor 4 (maximum hour) for distribution mains. The weighting of the  
13 factors was based on the footage of mains and is referenced as Factor 7.

14 Costs associated with meters and services facilities were assigned directly to the  
15 meters and services cost functions using Factors 9 and 10. Billing and collecting costs  
16 and meter reading were assigned directly to the customer accounting cost functions  
17 using Factors 11 and 12. Operating and capital costs associated with public fire  
18 hydrants were assigned directly to the public fire protection function (Factor 13).

19 Administrative and general costs were allocated on the basis of allocated direct  
20 costs excluding those costs such as purchased water, power and chemicals, which  
21 require little administrative and general expense. The development of factors for this  
22 allocation, referenced as Factor 15, is presented on page 30 of Exhibit No. 36.

23 Annual depreciation accruals were allocated on the basis of the function of the  
24 facilities represented by the depreciation expense for each depreciable plant account.  
25 The original cost less depreciation of utility plant in service was similarly allocated for

1 the purpose of developing factors, referenced as Factor 18, for allocating items such as  
2 income taxes and return. The development of Factor 18 is presented on pages 31  
3 through 33 of Exhibit No. 36.

4 Factor 18, as well as Factor 15 discussed earlier, are composite allocation  
5 factors. Composite factors are generated internally in the cost allocation program based  
6 on the results of allocating other costs. Factors 8, 14, 16, 17 and 19 also are composite  
7 factors. Refer to Schedule E of Exhibit No. 36 for a description of the basis of each  
8 composite factor.

9 15. Q. What was the source of the total cost of service data set forth in column 3 of Schedule D  
10 of Exhibit No. 36?

11 A. The pro forma costs of service were furnished by the Company, and are set forth in  
12 Company Schedules B, D and E.

13 16. Q. What is the next step in the cost allocation process?

14 A. The next step is to allocate the results of the functional allocation to the several customer  
15 classifications, namely residential, commercial, industrial, public authority, other water  
16 utilities and private and public fire protection. The total cost of service by function  
17 shown on the last line of Schedule D on page 21, is carried forward to column 3 of  
18 Schedule B on page 8 of the exhibit. The cost of service by function is allocated to the  
19 several customer classifications by applying the allocation factor referenced in column 2  
20 to the cost of service in column 3. The allocation factors are set forth in Schedule C.

21 17. Q. Describe the allocation factors in Schedule C.

22 A. The allocation factors in Schedule C allocate the cost of service by function to the  
23 various classes of users based on considerations of quantity of water consumed,  
24 variability of rate of consumption, and costs associated with customer metering, billing  
25 and accounting. Factor A allocates the base cost function to customer classifications on



1 the basis of average daily usage. Factors B and C allocate the maximum day and hour  
2 extra capacity costs to classes on the bases of each classification's maximum day and  
3 hour usage in excess of the average usage.

4 Factors D and E allocate customer facilities costs to customer classes. Factor D  
5 is based on the number of 5/8-inch meter equivalents and Factor E is based on the  
6 number of 3/4-inch service equivalents for each classification. Factors F and G allocate  
7 customer accounting costs to customer classes based on the number of bills to allocate  
8 billing and collecting costs (Factor F) and the number of meter readings for allocating  
9 meter reading costs (Factor G). Factors H and I assign costs associated with private and  
10 public fire protection costs directly to the private and public fire protection  
11 classifications.

12 18. Q. Refer to Factors B and C and explain what factors were considered in estimating the  
13 maximum day extra capacity and maximum hour extra capacity demands used for the  
14 customer classifications.

15 A. The estimated demands were based on judgment which considered field studies of  
16 customer class demands conducted for the Company, field observations of the service  
17 areas of the Company, the class factors used in the last cost of service study, and  
18 generally-accepted customer class maximum day and maximum hour demand ratios.

19 19. Q. Have you summarized the results of your cost allocation study?

20 A. Yes. The results are summarized in columns 1, 2 and 3 of Schedule A on page 6 of  
21 Exhibit No. 36. The total allocated pro forma cost of service as of November 30, 2008,  
22 for each customer classification identified in column 1 is brought forward from Schedule  
23 B and shown in column 2. Column 3 presents each customer classification's cost  
24 responsibility as a percent of the total cost.

1 20. Q. Have you compared these cost responsibilities with the proportionate revenue under  
2 existing rates for each customer classification?

3 A. Yes. A comparison of the allocated cost responsibilities and the percentage of revenue  
4 under existing rates can be made by comparing columns 3 and 5 of Schedule A of  
5 Exhibit No. 36. A similar comparison of the percentage cost responsibilities (relative  
6 cost of service) and the percentage of pro forma revenues (relative revenues) under  
7 proposed rates can be made by comparing columns 3 and 7 of Schedule A of  
8 Exhibit No. 36. The proposed increase and the percent increase by class are shown in  
9 columns 8 and 9, respectfully.

10 CUSTOMER RATE DESIGN

11 21. Q. Are you responsible for the design of the rate schedules proposed by the Company in  
12 this proceeding?

13 A. Yes, I am.

14 22. Q. Is the proposed rate structure presented in an exhibit?

15 A. Yes. A comparison of the present and proposed rate schedules is presented in Schedule  
16 G on pages 37 through 40 of Exhibit No. 36.

17 23. Q. What are the appropriate factors to be considered in the design of the rate structure?

18 A. In preparing a rate structure, one should consider the allocated costs of service, the  
19 impact of radical changes from the present rate structure, the understandability and ease  
20 of application of the rate structure, community and social influences, and the value of  
21 service. General guidelines should be developed with management to determine the  
22 extent to which each of these criteria is to be incorporated in the rate structure to be  
23 designed, inasmuch as the pricing of a commodity or service ultimately should be a  
24 function of management.

25 24. Q. Did you discuss rate design guidelines with management?

1 A. Yes, I did. The guidelines established were: (1) maintain the existing rate structure that  
2 includes a service charge by meter size applicable to all classes of customers and a  
3 separate one-block volumetric charge for each classification, (2) Consolidate all rate  
4 divisions into the Central Division rate structure; (3) increase private and public fire  
5 service classes as indicated by the cost of service, and (4) adjust revenues among the  
6 remaining classes in conformity with the indicated cost of service without excessive  
7 increases to any one class.

8 25. Q. Do the proposed rates comply with the guidelines enumerated in the answer to question  
9 26?

10 A. Yes, they do.

11 26. Q. Do you support the concept of single-tariff pricing and the consolidation of the rate  
12 divisions proposed in this case?

13 A. Yes, I do.

14 27. Q. Please explain the development of the service charges.

15 A. The development of the service charges is set forth on Schedule H on page 41 of the  
16 Exhibit. Service charges should recover the cost of customer facilities such as meters  
17 and services and the cost of customer accounting including billing and collecting and  
18 meter reading costs. Also, the unrecovered cost of public fire service is included as a  
19 customer cost. These costs are incurred regardless of the amount of consumption and,  
20 therefore, are appropriate to include in the service charge.

21 The schedule shows the cost of service for these cost functions in column 2.  
22 These amounts were taken from the last line in Schedule D, columns 7, 8, 9 and 10. The  
23 costs associated with meters are divided by the total 5/8-inch meter equivalents and by  
24 12 months to determine the monthly cost related to a 5/8-inch meter. The costs  
25 associated with services are divided by 3/4-inch service equivalents and by 12 months to

1 determine the monthly cost related to a 3/4-inch service. Costs associated with billing  
2 and collecting, meter reading and unrecovered public fire service are divided by the  
3 number of customers and metered customers, respectively, and by 12 months to  
4 determine the monthly cost per customer for these functions. The sum of the monthly  
5 costs for a 5/8-inch meter is \$8.34 which was used as the monthly 5/8-inch service  
6 charge. The rates for the larger-sized meters are determined by multiplying the meter  
7 capacity ratios times the \$8.34 rate for the 5/8-inch meter, as shown at the bottom on the  
8 schedule. Meter capacity ratios also were used to determine the larger-sized service  
9 charges under the existing rate structure.

10 28. Q. How were the volumetric rates determined?

11 A. After the proposed service charges were applied to the bill analysis, the existing  
12 volumetric rates for each classification were increased so that revenues from each class  
13 moved toward the indicated cost of service and that total revenues equaled the proposed  
14 revenue requirement.

15 29. Q. Does that conclude your direct testimony?

16 A. Yes, it does.

LIST OF CASES IN WHICH PAUL R. HERBERT TESTIFIED

	<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client/Utility</u>	<u>Subject</u>
1.	1983	Pa. PUC	R-832399	T. W. Phillips Gas and Oil Co.	Pro Forma Revenues
2.	1989	Pa. PUC	R-891208	Pennsylvania-American Water Company	Bill Analysis and Rate Application
3.	1991	PSC of W. Va.	91-106-W-MA	Clarksburg Water Board	Revenue Requirements (Rule 42)
4.	1992	Pa. PUC	R-922276	North Penn Gas Company	Cash Working Capital
5.	1992	NJ BPU	WR92050532J	The Atlantic City Sewerage Company	Cost Allocation and Rate Design
6.	1994	Pa. PUC	R-943053	The York Water Company	Cost Allocation and Rate Design
7.	1994	Pa. PUC	R-943124	City of Bethlehem	Revenue Requirements, Cost Allocation, Rate Design and Cash Working Capital
8.	1994	Pa. PUC	R-943177	Roaring Creek Water Company	Cash Working Capital
9.	1994	Pa. PUC	R-943245	North Penn Gas Company	Cash Working Capital
10.	1994	NJ BPU	WR94070325	The Atlantic City Sewerage Company	Cost Allocation and Rate Design
11.	1995	Pa. PUC	R-953300	Citizens Utilities Water Company of Pennsylvania	Cost Allocation and Rate Design
12.	1995	Pa. PUC	R-953378	Apollo Gas Company	Revenue Requirements and Rate Design
13.	1995	Pa. PUC	R-953379	Carnegie Natural Gas Company	Revenue Requirements and Rate Design
14.	1996	Pa. PUC	R-963619	The York Water Company	Cost Allocation and Rate Design
15.	1997	Pa. PUC	R-973972	Consumers Pennsylvania Water Company - Shenango Valley Division	Cash Working Capital
16.	1998	Ohio PUC	98-178-WS-AIR	Citizens Utilities Company of Ohio	Water and Wastewater Cost Allocation and Rate Design
17.	1998	Pa. PUC	R-984375	City of Bethlehem - Bureau of Water	Revenue Requirement, Cost Allocation and Rate Design
18.	1999	Pa. PUC	R-994605	The York Water Company	Cost Allocation and Rate Design
19.	1999	Pa. PUC	R-994868	Philadelphia Suburban Water Company	Cost Allocation and Rate Design
20.	1999	PSC of W.Va.	99-1570-W-MA	Clarksburg Water Board	Revenue Requirements (Rule 42), Cost Allocation and Rate Design

21.	2000	Ky. PSC	2000-120	Kentucky-American Water Company	Cost Allocation and Rate Design
22.	2000	Pa. PUC	R-00005277	PPL Gas Utilities	Cash Working Capital
23.	2000	NJ BPU	WR00080575	Atlantic City Sewerage Company	Cost Allocation and Rate Design
24.	2001	Ia. St Util Bd	RPU-01-4	Iowa-American Water Company	Cost Allocation and Rate Design
25.	2001	Va. St. Corp Cm	PUE010312	Virginia-American Water Company	Cost Allocation and Rate Design
26.	2001	WV PSC	01-0326-W-42T	West-Virginia American Water Company	Cost Allocation and Rate Design
27.	2001	Pa. PUC	R-016114	City of Lancaster	Tapping Fee Study
28.	2001	Pa. PUC	R-016236	The York Water Company	Cost Allocation and Rate Design
29.	2001	Pa. PUC	R-016339	Pennsylvania-American Water Company	Cost Allocation and Rate Design
30.	2001	Pa. PUC	R-016750	Philadelphia Suburban Water Company	Cost Allocation and Rate Design
31.	2002	Va. St. Corp Cm	PUE-2002-0375	Virginia-American Water Company	Cost Allocation and Rate Design
32.	2003	Pa. PUC	R-027975	The York Water Company	Cost Allocation and Rate Design
33.	2003	Tenn Reg. Auth	03-	Tennessee-American Water Company	Cost Allocation and Rate Design
34.	2003	Pa. PUC	R-038304	Pennsylvania-American Water Company	Cost Allocation and Rate Design
35.	2003	NJ BPU	WR03070511	New Jersey-American Water Company	Cost Allocation and Rate Design
36.	2003	Mo. PSC	WR-2003-0500	Missouri-American Water Company	Cost Allocation and Rate Design
37.	2004	Va. St. Corp Cm	PUE-200 -	Virginia-American Water Company	Cost Allocation and Rate Design
38.	2004	Pa. PUC	R-038805	Pennsylvania Suburban Water Company	Cost Allocation and Rate Design
39.	2004	Pa. PUC	R-049165	The York Water Company	Cost Allocation and Rate Design
40.	2004	NJ BPU	WRO4091064	The Atlantic City Sewerage Company	Cost Allocation and Rate Design
41.	2005	WV PSC	04-1024-S-MA	Morgantown Utility Board	Cost Allocation and Rate Design
42.	2005	WV PSC	04-1025-W-MA	Morgantown Utility Board	Cost Allocation and Rate Design
43.	2005	Pa. PUC	R-051030	Aqua Pennsylvania, Inc.	Cost Allocation and Rate Design
44.	2006	Pa. PUC	R-051178	T. W. Phillips Gas and Oil Co.	Cost Allocation and Rate Design
45.	2006	Pa. PUC	R-061322	The York Water Company	Cost Allocation and Rate Design
46.	2006	NJ BPU	WR-06030257	New Jersey American Water Company	Cost Allocation and Rate Design
47.	2006	Pa. PUC	R-061398	PPL Gas Utilities, Inc.	Cost Allocation and Rate Design
48.	2006	NM PRC	06-00208-UT	New Mexico American Water Company	Cost Allocation and Rate Design
49.	2007	CA PUC	U-339-W	Suburban Water Systems	Water Conservation Rate Design
50.	2007	CA PUC	U-168-W	San Jose Water Company	Water Conservation Rate Design