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Service Commission

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Issues: Cost Allocation and Rate Design
Witness: Paul R. Herbert
Exhibit Type: Direct
Sponsoring Party: Missouri-American Water Company
Case No.: WR-2003-
Date: May 19, 2003

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WR-2003-

DIRECT TESTIMONY

OF

PAUL R. HERBERT

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

JEFFERSON CITY, MISSOURI

Exhibit No. 9
Case No(s). WR-2003-0800
Date 12/16/03 Rptr SUM

EXHIBIT
MAWC 9

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

IN THE MATTER OF MISSOURI-AMERICAN WATER COMPANY FOR AUTHORITY TO FILE TARIFFS REFLECTING INCREASED RATES FOR WATER AND SEWER SERVICE	))))	**CASE NO. WR-2003-**

AFFIDAVIT OF PAUL R. HERBERT

Paul R. Herbert, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Direct Testimony of Paul R. Herbert"; that said testimony and schedules were prepared by him and/or under his direction and supervision; that if inquires were made as to the facts in said testimony and schedules, he would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of his knowledge.

Paul R Herbert

Paul R. Herbert

State of Pennsylvania
County of Cumberland
SUBSCRIBED and sworn to
Before me this 13th **day of** May **2003.**

Notary Public

My commission expires:

NOTARIAL SEAL
CHERYL ANN RUTTER, Notary Public
Camp Hill Boro, Cumberland County
My Commission Expires Feb. 20, 2007

TABLE OF CONTENTS

PAGE

A. WITNESS INTRODUCTION 1

B. (1) QUALIFICATIONS AND EXPERIENCE 2

C. (2) COST OF SERVICE ALLOCATION 3

D. (3) RATE DESIGN 11

1. Q. Please state your name and address.

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

2. Q. By whom are you employed?

A. I am employed by Gannett Fleming, Inc.

3. Q. Please describe your position with Gannett Fleming, Inc. and briefly state your general duties and responsibilities.

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

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

A. Yes. I have testified before the Pennsylvania Public Utility Commission, the New Jersey Board of Public Utilities, the Public Utilities Commission of Ohio, the Public Service Commission of West Virginia, the Kentucky Public Service Commission, the Iowa State Utilities Board, the Virginia State Corporation Commission, and the Tennessee Regulatory Authority, concerning revenue requirements, cost of service allocation, rate design and cash working capital claims. A list of the cases that I testified is attached.

5. Q. What is your educational background?

A. I have a Bachelor of Science Degree in Finance from the Pennsylvania State

University, University Park, Pennsylvania.

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

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

7. Q. Briefly describe your work experience.

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

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

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

A. The purpose of my testimony is to explain Missouri-American Water Company's cost of service allocation studies and proposed rate designs set forth in Exhibit No. PRH-1.

COST OF SERVICE ALLOCATION

9. Q. Briefly describe the purpose of your cost allocation studies.

A. The purpose of the studies was to allocate the district specific cost of service, which is the total revenue requirement, to the customer classifications in each operating district. The operating districts include Brunswick (BRU), Jefferson City (JFC), Joplin (JOP), Mexico (MEX), Parkville (PKW), St. Charles (SCH), St. Joseph (SJO), St. Louis County (STL), and Warrensburg (WAR).

In the studies, the district specific costs were allocated to the residential, commercial, industrial, other public authorities, sales for resale, private fire protection and public fire protection classifications (Rates A through J in St. Louis County) in accordance with generally accepted principles and procedures. The cost of service allocation studies results in indications of the relative cost responsibilities of each class of customers in each operating district. The allocated cost of service is one of several criteria appropriate for consideration in designing customer rates to produce the required revenues. The results of the allocation of the district specific cost of service for the test year ended December 31, 2002, and proposed customer rates which produce the pro forma revenue requirements, are presented in the studies.

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

A. The base-extra capacity method, as described in the 2000 (and prior) Water Rates Manual published by the American Water Works Association (AWWA),

was used to allocate the pro forma costs. Base-extra capacity is a recognized method for allocating the cost of providing water service to customer classifications in proportion to the classifications' use of the commodity, facilities, and services. It is generally accepted as a sound method for allocating the cost of water service and was used by the Company in previous cases.

11. Q. Please describe the procedure followed in each of the cost allocation studies.

A. Each identified classification of cost in the district specific cost of service was allocated to the customer classifications through the use of appropriate factors. These allocations are presented in Schedule B for each study. The items of cost, which include operation and maintenance expenses, depreciation expense, taxes and income available for return, are identified in column 1 of Schedule B. The cost of each item, shown in column 3, is allocated to the several customer classifications based on allocation factors referenced in column 2. The development of the allocation factors is presented in Schedule C. I will use some of the larger cost items to illustrate the principles and considerations used in the cost allocation methodology.

Purchased water, purchased electric power, treatment chemicals and waste disposal are examples of costs that tend to vary with the amount of water consumed and are thus considered base costs. They are allocated to the several customer classifications in direct proportion to the average daily consumption of those classifications through the use of Factor 1. The

development of Factor 1 is shown in Schedule C.

Other source of supply, water treatment and transmission costs are associated with meeting usage requirements in excess of the average, generally to meet maximum day requirements. Costs of this nature were allocated to customer classifications partially as base costs, proportional to average daily consumption, partially as maximum day extra capacity costs, in proportion to maximum day extra capacity, and, in the case of certain pumping stations and transmission mains, partially as fire protection costs, through the use of Factors 2 and 3. The development of the allocation factors, referenced as Factors 2 and 3, is shown in Schedule C.

Costs associated with storage facilities and the capital costs of distribution mains were allocated partly on the basis of average consumption and partly on the basis of maximum hour extra demand, including the demand for fire protection service, because these facilities are designed to meet maximum hour and fire demand requirements. The development of the factors, referenced as Factors 4 and 5, used for these allocations is shown in Schedule C.

Fire demand costs were allocated to public and private fire protection service in proportion to the relative potential demands on the system by public fire hydrants and private service lines as presented in Schedule E.

Costs associated with pumping facilities and the operation and maintenance of mains were allocated on combined bases of maximum day and maximum hour extra capacity because these facilities serve both

functions. For pumping facilities, the relative weightings of Factor 2 (maximum day), Factor 3 (maximum day and fire) and Factor 4 (maximum hour) were based on horsepower of pumps serving maximum day, maximum day and fire and maximum hour functions. The development of this weighted factor is referenced as Factor 6.

For operation and maintenance of mains, the relative weightings of Factor 3 (maximum day and fire) and Factor 4 (maximum hour) were based on the footage of transmission and distribution mains. Generally, for cost allocation purposes, mains larger than 10-inch were classified as serving a transmission function and mains 10-inch and smaller were classified as serving a distribution function. The development of this weighted factor is referenced as Factor 7.

Costs associated with meters were allocated to customer classifications in proportion to the relative unit costs of the sizes and quantities of meters serving each classification. The development of the factor for meters is referenced as Factor 9. Factor 10, Allocation of Services, was developed in a similar manner as Factor 9, except that the relative unit cost per foot by service size was used in order to weight the number of services by classification. Costs associated with public fire hydrants were assigned directly to the public fire protection class (Factor 8).

Costs for customer accounting, billing and collecting were allocated on the basis of the number of customers for each classification, and costs for meter reading were allocated on the basis of metered customers. The

development of these factors is referenced as Factor 13 and Factor 14.

Administrative and general costs were allocated on the basis of allocated direct costs, excluding those costs such as purchased water, power, chemicals and waste disposal, which require little administrative and general expense. The development of the factor is referenced as Factor 15.

Annual depreciation accruals were allocated on the basis of the function of the facilities represented by the depreciation expense for each depreciable plant account. The original cost less depreciation of utility plant in service was similarly allocated for the purpose of developing factors, referenced as Factor 18, for allocating items such as income taxes and return. The development of Factor 18 is presented on the last three pages of Schedule C.

Factors 15 and 18, as well as Factors 11, 12, 16, 17 and 19, are composite allocation factors. These factors are based on the result of allocating other costs and are computed internally in the cost allocation program. Refer to Schedule C for a description of the bases for each composite allocation factor.

12. Q. What was the source of the total cost of service data set forth in column 3 of Schedule B?

A. The pro forma costs of service were furnished by the Company, and are set forth in Company accounting exhibits and workpapers. The cost of service by district used in my allocation studies reflects the revenue contribution among districts as explained in Mr. Grubb's testimony.

13. Q. Refer to Schedule C, and explain the source of the system maximum day and maximum hour ratios used in the development of factors referenced as Factors 2, 3 and 4.

A. The ratios were based on a review of historic Company data for each district. Schedule D shows the experienced maximum day ratios for each district over the last several years. The maximum hour ratios were estimated based on actual data or the relationship of system maximum hour ratios compared to system maximum day ratios for similar systems.

14. Q. What factors were considered in estimating the maximum day extra capacity and maximum hour extra capacity demands used for the customer classifications in the development of Factors 2, 3 and 4?

A. The estimated demands were based on judgment, which considered field studies of actual customer class demands conducted for other American Companies, field observations of the service areas of the Company, field studies of similar service areas in Pennsylvania, and generally accepted customer class maximum day and maximum hour demand ratios.

15. Q. Please explain the allocation of small mains in certain districts.

A. Factor 4, used to allocate distribution mains, was modified to exclude consumption for certain large customers connected primarily to large mains, commonly referred to as transmission mains, in Joplin, St. Joseph and St. Louis County districts. This was done to recognize that certain industrial and sales for resale customers are connected directly to the transmission system and do not benefit from the smaller distribution mains.

16. Q. How was this adjustment accomplished?

A. In Joplin, five of the six largest industrial customers are connected to mains 12-inch and larger. The sixth customer is served from an 8-inch main, but is located a short distance from 12- and 16-inch mains. The test year consumption for these six customers was excluded from the industrial class for the basis of developing Factor 4.

In St. Joseph, the five largest industrial accounts and the six largest sales for resale accounts are served from mains 12-inch and larger. The test year consumption for these customers was excluded in the development of Factor 4.

In St. Louis County, all sales for resale customers (Rates B and D) are served from the transmission system and therefore, were excluded from Factor 4. For the industrial or Rate J classification, an analysis of the customers was performed to determine the size main each Rate J customer is served from. The analysis showed that out of 215 Rate J customers, 112 customers representing 61.8% of the Rate J consumption are connected to mains 12-inch and larger. The remaining 103 customers with 38.2% of the consumption are connected to mains smaller than 12-inch.

A further analysis of the 103 customers connected to small mains was conducted to measure the length of distribution mains used to serve these customers from the transmission system. This analysis showed that only about 225,000 feet of small mains are used from the transmission system to the connection point of the 103 Rate J customers. The 225,000 feet

represents about 1.3% of the total 17.5 million feet of distribution mains. This analysis clearly shows that although certain Rate J customers are connected to smaller mains, the length of those mains is only a small fraction of the total distribution main system. Therefore, based on this analysis, 10% of the Rate J consumption was used in the development of Factor 4, to reflect that a small part of the distribution mains are used by Rate J customers.

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

A. Yes. The results are summarized in columns 1, 2 and 3 of Schedule A for each district. Column 2 sets forth the total allocated pro forma cost of service as of December 31, 2002, for each customer classification identified in column 1. Column 3 presents each customer classification's cost responsibility as a percent of the total cost.

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

A. Yes. A comparison of the allocated cost responsibilities and the percentage revenue under existing rates for each district can be made by comparing columns 3 and 5 of Schedule A. A similar comparison of the percentage cost responsibilities (relative cost of service) and the percentage of pro forma revenues (relative revenues) under proposed rates can be made by comparing columns 3 and 7 of Schedule A .

CUSTOMER RATE DESIGN

19. Q. What are the appropriate factors to be considered in the design of the

rate structure?

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

20. Q. Did management discuss with you rate design guidelines?

A. Yes, they did. The guidelines were as follows: (1) Maintain district specific pricing for each district's rate structure; (2) determine the unit cost per public fire hydrant in each district so that public fire protection costs can be recovered from each customer in a similar manner as the current practice in St. Louis County; (3) design a rate schedule for St. Charles that is similar in structure to St. Louis County; (4) for all other districts, use a one-block structure for the residential class and two- to four-block structures for non-residential classes; and (5) design minimum charges and volumetric rates so that proposed revenues by customer classification move toward the indicated cost of service in each district.

21. Q. Do you agree with these guidelines?

A. Yes, I do.

22. Q. Have you prepared proposed rate schedules for each classification and each rate zone?

A. Yes. Schedule F in Part III of the cost allocation study presents the results of the proposed rate design.

23. Q. Please explain the proposed minimum charges.

A. An analysis of the customer costs in each district was prepared to determine the appropriate minimum charges by meter size. For the six districts other than Jefferson City, St. Charles and St. Louis County, the customer costs for a 5/8-inch meter ranged from $7.63 to $12.73 per month. Based on this analysis, the 5/8-inch minimum charge was set at $8.50 per month for each of the six districts representing a 20% increase over the current $7.08 charge. This 20% increase was applied to the minimums for the larger meter sizes to determine the proposed minimum charges for 3/4-inch through 12-inch meters.

For Jefferson City, the existing 5/8-inch minimum is $7.76 per month including a 100 cubic foot allowance. This allowance was eliminated and the minimum charges were set equal to the minimums for the six districts described above.

For St. Louis County, the analysis of customer costs resulted in a 5/8-inch minimum of $10.66 per month and $14.37 per quarter. Since these unit costs represent a 73% and 59.5% increase respectively, over existing rates, the minimum charges were set at $8.50 per month and $12.20 per quarter. Minimums, for the larger meter size were developed in a similar manner. Minimum charges for St. Charles were set equal to those for St. Louis County.

24. Q. Please explain the volumetric charges.

A. Generally, for the seven districts other than St. Charles and St. Louis, a one-block uniform volumetric rate is proposed for the residential classification in each district. This is a change from the existing declining block structure for residential customers and recognizes that large residential users do not have favorable load factors and should not pay less for their usage than small users. For non-residential customers, a two, three or four block structure is proposed with the first block rate equal to the residential rate and the remaining block rates designed to move revenues toward or equal to the indicated cost of service by classification within each district. The exceptions to the same first block rate by class were in Parkville and St. Joseph where the rates for industrial customers were designed to meet certain cost of service goals.

In St. Louis County, the same single-block rate structure for Rates A through J is proposed with increases in each rate according to cost of service. All St. Charles customers were placed in the Rate A classification with the volumetric rate set at approximately 73% of the St. Louis County Rate A rate, to achieve the desired cost of service level.

25. Q. Please explain private fire charges.

A. In most districts, the existing private fire revenues exceed the indicated cost of service. Therefore, no changes to the private fire line rates are proposed at this time.

26. Q. Please explain the public fire hydrant charges.

A. The cost of service for public fire protection was established in each district and the annual unit cost was determined by dividing the cost of service by the number of public hydrants in each district. The public fire hydrant rates will be charged on a per customer basis in each district as a separate charge in a similar manner as the existing practice in St. Louis County.

27. Q. Has the Company prepared proof of revenue schedules under present and proposed rates?

A. Yes. Company Schedules CAS-13 and 14 sets forth the proof of revenues from the application of present and proposed rates to the customer consumption analysis. The revenues from these exhibits are brought forward to Schedule A, columns 4 and 6.

28. Q. Does this complete your testimony at this time?

A. Yes, it does.

LIST OF CASES IN WHICH PAUL R. HERBERT TESTIFIED

	Year	Jurisdiction	Docket No.	Client/Utility	Subject
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

LIST OF CASES IN WHICH PAUL R. HERBERT TESTIFIED, cont.

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-2002-00375	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