

Exhibit No.: _____
Issues: Cost Allocation/Rate Design
Witness: Paul R. Herbert
Exhibit Type: Rebuttal
Sponsoring Party: Missouri-American Water Company
Case No.: WR-2007-0216
Date: July 13, 2007

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WR-20007-0216

REBUTTAL TESTIMONY

OF

PAUL R. HERBERT

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

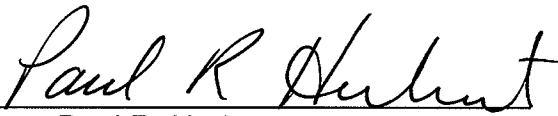
JEFFERSON CITY, MISSOURI

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)	CASE NO. WR-2007-0216
RATES FOR WATER AND SEWER)	CASE NO. SR-2007-0217
SERVICE)	

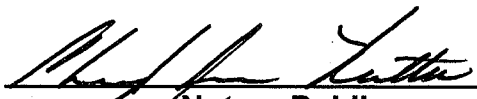
AFFIDAVIT OF PAUL R. HERBERT

Paul R. Herbert, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Rebuttal 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

Commonwealth of Pennsylvania
County of Cumberland

SUBSCRIBED and sworn to
Before me this 6th day of July 2007.


Notary Public

My commission expires: February 20, 2011

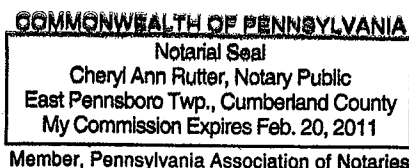


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1 requirements, cost of service allocation, rate design and cash working capital
2 claims.

3 **5. Q. What is your educational background?**

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

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

7 A. I am a member of the American Water Works Association and serve as a
8 member of the Management Committee for the Pennsylvania Section. I am
9 also a member of the Pennsylvania Municipal Authorities Association. In
10 1998, I became a member of the National Association of Water Companies
11 as well as a member of its Rates and Revenue Committee.

12 **7. Q. Briefly describe your work experience.**

13 A. I joined the Valuation Division of Gannett Fleming Corddry and Carpenter,
14 Inc., predecessor to Gannett Fleming, Inc., in September 1977, as a Junior
15 Rate Analyst. Since then, I advanced through several positions and was
16 assigned the position of Manager of Rate Studies on July 1, 1990. On June
17 1, 1994, I was promoted to Vice President and Senior Vice President in
18 November 2003. On July 1, 2007, I was promoted to my current position as
19 President of the Valuation and Rate Division.

20 While attending Penn State, I was employed during the summers of
21 1972, 1973 and 1974 by the United Telephone System - Eastern Group in its
22 accounting department. Upon graduation from college in 1975, I was
23 employed by Herbert Associates, Inc., Consulting Engineers (now Herbert

Rowland and Grubic, Inc.), as a field office manager until September 1977.

8. Q. Did you submit direct testimony previously in this proceeding?

A. No, I did not.

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

A. The purpose of my testimony is to offer rebuttal testimony to the cost of service studies of the Staff and Office of Public Counsel (OPC); to respond to AGP/Parkville testimony regarding customer classifications; and to present and explain Missouri-American Water Company's (Company) cost of service allocation studies set forth in Exhibit No. PRH-1.

10. Q. How have you structured your rebuttal testimony?

A. First, I will present and explain my cost allocation studies for all of the operating districts of the Company. In this regard, I will discuss the Base Extra Capacity method for allocating costs, which is the industry recognized standard for allocating the cost of providing water service to customer classifications. Next, I will discuss and explain key differences between the cost allocation studies of Staff, Public Counsel and mine. Finally, I will respond to AGP/Parkville witness Johnstone regarding customer classifications.

COST OF SERVICE ALLOCATION

11. 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), Warrensburg (WAR) and Warren County Water (WCW). Cost allocation studies were not performed for the sewer utilities in Parkville, Cedar Hill and Warren County.

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 June 30, 2006, and proposed customer rates which produce the pro forma revenue requirements, are presented in the studies.

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

A. The base-extra capacity method, as described in 2000 and prior Water Rates Manuals 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

1 classifications in proportion to the classifications' use of the commodity,
2 facilities, and services. It is generally accepted as a sound method for
3 allocating the cost of water service and was used by the Company in previous
4 cases.

5 **13. Q. Please describe the procedure followed in each of the cost allocation**
6 **studies.**

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

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

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

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

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

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

14. 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.

15. Q. Refer to Schedule C, and explain the source of the system maximum

1 **day and maximum hour ratios used in the development of factors**
2 **referenced as Factors 2, 3 and 4.**

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

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

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

16 **17. Q. Please explain the allocation of small mains in certain districts.**

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

23 **18. Q. How was this adjustment accomplished?**

1 A. In Joplin, five of the six largest industrial customers are connected to mains
2 12-inch and larger. The sixth customer is served from an 8-inch main, but is
3 located a short distance from 12- and 16-inch mains. The test year
4 consumption for these six customers was excluded from the industrial class
5 for the basis of developing Factor 4.

6 In St. Joseph, the four largest industrial accounts and all sales for
7 resale accounts are served from mains 12-inch and larger. The test year
8 consumption for these customers was excluded in the development of Factor
9 4.

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

18 A further analysis of the 103 customers connected to small mains was
19 conducted to measure the length of distribution mains used to serve these
20 customers from the transmission system. This analysis showed that only
21 about 225,000 feet of small mains are used from the transmission system to
22 the connection point of the 103 Rate J customers. The 225,000 feet
23 represents about 1.3% of the total 17.5 million feet of distribution mains. This

1 analysis clearly shows that although certain Rate J customers are connected
2 to smaller mains, the length of those mains are only a small fraction of the
3 total distribution main system. Therefore, based on this analysis, 10% of the
4 Rate J consumption was used in the development of Factor 4, to reflect that a
5 small part of the distribution mains are used by Rate J customers.

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

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

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

14 A. Yes. A comparison of the allocated cost responsibilities and the percentage
15 revenue under existing rates for each district can be made by comparing
16 columns 3 and 5 of Schedule A. A similar comparison of the percentage cost
17 responsibilities (relative cost of service) and the percentage of pro forma
18 revenues (relative revenues) under proposed rates can be made by
19 comparing columns 3 and 7 of Schedule A .
20

21 **REBUTTAL OF COST OF SERVICE ISSUES**

22 **21. Q. Please discuss the similarities and differences among the cost of**
23 **service studies prepared by you and the studies submitted by Mr.**

1 **Russo of the Staff and Ms. Meisenheimer of the OPC.**

2 A. The similarities include the use of the base-extra capacity method of
3 allocation and the use of district specific cost of service. The differences are
4 numerous – some significant, many others not so significant. I will try to focus
5 on the significant differences.

6 **22. Q. Please continue.**

7 A. The major differences include:

- 8 • The use of a much lower revenue requirement by Staff and OPC –
9 a total of \$7 million increase as opposed to the Company's \$41
10 million increase.
- 11 • Differences in the distribution of the revenue requirements to the
12 various districts.
- 13 • Differences in the billing determinants in some districts used for
14 allocation purposes as a result of different projected revenues.
- 15 • Differences in the allocation of distribution mains in certain districts.
- 16 • Differences in the allocation of costs to contract customers.
- 17 • Differences in the use of certain peak factors.

18 The issues dealing with revenue requirements, the distribution of revenue
19 requirements to the districts and the proper level of billing determinants will be
20 addressed in other Company rebuttal testimony.

21 **23. Q. Please address the allocation of distribution mains.**

22 A. One distinct difference that affected the results in the St. Louis County, Joplin,
23 and St. Joseph districts was that Staff and OPC did not use a small mains

1 adjustment as I did for the purposes of allocating mains. My studies reflect
2 that many of the large users in those districts are served primarily from large
3 transmission mains (generally larger than 10-inch) and do not benefit from the
4 smaller mains in the distribution system. A more detailed explanation of my
5 small mains adjustment is provided earlier in my testimony.

6 **24. Q. Why is a small mains adjustment appropriate?**

7 A. Generally, water flows from treatment facilities in large mains often referred to
8 as transmission mains. The primary purpose of transmission mains is to
9 transfer water from the treatment facilities to the distribution system and are
10 allocated on a maximum day basis. The distribution system consists of many
11 miles of smaller mains which deliver water to customers' service lines and are
12 designed to meet maximum hour demands. In larger systems, large users
13 such as industrial and sales for resale customers are located on transmission
14 mains and take water before it reaches the distribution system. My study
15 recognizes this fact and excludes certain large users from the allocation of
16 small mains.

17 **25. Q. What is the effect of Staff and OPC not using a small mains adjustment?**

18 A. By not using a small mains adjustment, Staff and OPC cost allocations result
19 in higher costs allocated to industrial and sales for resale classifications in St.
20 Louis County and St. Joseph Districts and to the industrial class in Joplin.
21 This will have an adverse impact on industry and will make it more difficult for
22 the Company to meet competitive pressures.

23 **26. Q. Please describe how you treated the allocation of costs to contract**

1 **sales customers.**

2 A. In my cost allocation study, I excluded the volumes associated with contract
3 sales and deducted the contract sales revenue from the cost of service from
4 all classes in proportion to the result of each class's cost of service. This
5 recognizes that contract customers have been retained on the system to the
6 benefit of the remaining tariff customers and should offset the cost of service
7 in proportion to each class's cost of service. Staff and OPC did not make this
8 refinement and they effectively allocate the entire difference between the
9 costs allocated to contract customers and the actual contract revenue to the
10 remaining tariff customers in that classification rather than to all tariff
11 customers.

12 **27. Q. What other cost allocation differences exist among the studies?**

13 A. There are differences in the estimated system-wide peak hour ratios used in
14 the studies. It appears that Staff and OPC used non-coincident demands to
15 estimate the system peak hour factor rather than an estimated coincident
16 peak hour. A factor based on non-coincident demands would produce a
17 higher ratio than a factor based on coincident demands. Typically if no actual
18 system peak hour data is available, a factor of 1.5 times the maximum day
19 ratio is used to estimate the coincident peak hour ratio.

20 **28. Q. What are your conclusions with regard to the cost of service studies**
21 **submitted in this case?**

22 A. Each of the witnesses supports the use of the base-extra capacity method.
23 However, only the Company's studies have applied the principles consistent

1 with proper rate making and reflect the proper allocation of small mains, the
2 costs associated with contract customers and the allocation of peak hour
3 demands. It is important that the Company's studies are used for the
4 purposes of designing rates in this case to ensure an appropriate allocation of
5 costs to the various customer classes.

7 REBUTTAL REGARDING CUSTOMER CLASSIFICATIONS

8 **29. Q. Please address Mr. Johnstone's concern about the customer**
9 **classifications used in the studies.**

10 A. Mr. Johnstone criticizes the use of customer classifications for tariff design
11 because the tariff does not indicate "what it takes" to be included in a certain
12 classification.

13 **30. Q. Does his criticism have any merit?**

14 A. No, it does not. The Company classifies customers according to the AWWA
15 standard for Residential, Commercial, Industrial, Public Authority, Resale and
16 Fire Protection customers. These classifications are defined below:

- 17 • Residential – One and two-family dwellings, usually
18 separate.
- 19 • Commercial – Multifamily apartment buildings and non-
20 residential, non-industrial business enterprises.
- 21 • Industrial – Manufacturing and processing establishments.
- 22 • Public Authority – Public schools, hospitals, colleges,
23 municipal or other governmental offices or operations.

- Resale – Sales of water to another water utility for resale.
- Fire Protection – Private fire lines for businesses and public fire hydrants paid for by municipalities.

Each customer is classified into one of the above categories based on the characteristics of the customer. This is common practice in the water industry. Relevant pages from the AWWA M1 manual describing the customer classifications are attached as Exhibit PRH-2.

31. Q. Does this conclude your testimony?

A. Yes, it does.