

Exhibit No.: _____
Issues: Cost Allocation and Rate Design
Witness: Paul R. Herbert
Exhibit Type: Rebuttal
Sponsoring Party: Missouri-American Water Company
Case No.: WR-2003-0500
Date: November 10, 2003

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WR-20003-0500

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 RATES)
FOR WATER SERVICE)

CASE NO. WR-2003-0500

AFFIDAVIT OF PAUL R. HERBERT

Paul R. Herbert, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying rebuttal testimony entitled "Rebuttal Testimony of Paul R. Herbert"; that said rebuttal testimony was prepared by him and/or under his direction and supervision; that if inquiries were made as to the facts in said rebuttal testimony, he would respond as therein set forth; and that the aforesaid rebuttal testimony is 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 4TH day of NOVEMBER 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

	<u>PAGE</u>
A. WITNESS INTRODUCTION	1
B. COST OF SERVICE ALLOCATION.....	1
C. RATE DESIGN.....	11

1 service study.

2
3 **7. Q. Are these concepts typically used in the traditional Base-Extra Capacity**
4 **method?**

5 A. No, they are not. These concepts are not a part of the traditional Base-Extra
6 Capacity method as described in the AWWA Manual and are not typical of the
7 many water company cost of service studies that I have prepared or
8 reviewed.

9 **8. Q. Is it reasonable to incorporate these concepts in an allocation of costs**
10 **to customer classifications?**

11 A. No, it is not. Ms. Meisenheimer's premise is that the extra capacity costs of
12 mains represent only the incremental cost of adding such capacity to the
13 system. For example, if the cost to add 50 percent extra capacity over the
14 average capacity required results in an additional cost of something less than
15 50 percent, rather than use an extra capacity factor of 33 percent ($0.50/1.50$),
16 as described in the AWWA manual, Ms. Meisenheimer would use an extra
17 capacity factor of only 18 percent. The 18 percent factor is derived by taking
18 the square root of the average day or base capacity factor of 67 percent
19 ($1.0/1.5$), resulting in a base component of 82 percent. Increasing the base
20 factor to 82 percent and subtracting from 100 percent results in the extra
21 capacity factor of 18 percent.

22 **9. Q. Is this consistent with the AWWA approach?**

23 A. No. Ms. Meisenheimer has introduced marginal or incremental cost concepts

1 into the allocation of embedded costs to customer classifications, the results
2 of which are used as a basis for designing rates that also are based on
3 embedded costs. Since we are using embedded costs, it is more appropriate
4 to consider the extent to which the facilities are used in meeting base and
5 extra capacity requirements. If, instead of using embedded costs for rate
6 setting, we were to adopt marginal cost pricing in which the extra capacity
7 requirements were priced at today's marginal cost of adding such capacity,
8 Ms. Meisenheimer's concept would at least be consistent. The AWWA
9 manual uses the ratio of capacities, not the ratio of marginal costs to total
10 costs, for allocating costs between the base and extra capacity functions. Ms.
11 Meisenheimer's concept is not described or suggested in any text that sets
12 forth methods for allocation of costs for water, gas or electric utilities.

13 **10.Q. What other comment do you have regarding the economies of scale**
14 **concept?**

15 A. Ms. Meisenheimer's concept also is inconsistent in not extending her logic to
16 the remainder of the pipe's cost. If we are to determine extra capacity costs
17 based only on the incremental cost of adding such capacity by using a larger
18 size pipe, then we also should determine the base costs based only on the
19 incremental cost of adding the average capacity. The incremental cost of
20 adding the average or base capacity is the cost to install a 6-inch main rather
21 than a main of minimal size or a "zero-inch" main. The cost of a zero-inch
22 main would largely represent the cost of mobilization, trenching, backfilling,
23 paving and restoration. However, these costs are a significant part of the cost

1 of installing a 6-inch main and would significantly reduce the portion of the
2 main allocated to the base cost function. The portion not allocated to the
3 base or extra capacity functions, i.e., the cost of the “zero-inch” main would
4 be considered a customer cost. This cost would be considered a customer
5 cost because the cost was not incurred to meet usage requirements, but was
6 incurred simply to reach the customer. Such costs are proportional to the
7 number of customers and allocable to classes based on the number of
8 customers in each class.

9 **11.Q. Has the concept of the minimal size or “zero-inch” main been used in**
10 **cost allocation studies?**

11 A. Yes, it has. Although the AWWA Manual does not discuss this concept, most
12 texts on the subject of allocating costs of gas and electric utilities present this
13 approach, describing it as the minimum system or zero-intercept method of
14 determining the customer cost component of mains or conductors.

15 **12.Q. Would the use of the minimum system or zero-intercept methods be**
16 **appropriate for the Company’s system?**

17 A. The use of these methods may be appropriate for determining a customer
18 component to the Company’s distribution mains. A significant portion of the
19 cost of the system is expended just to reach the customer’s service line.
20 Such an approach would certainly be appropriate from a consistency
21 perspective if the concept of incremental cost of capacity is introduced into
22 the bases for allocating costs to functions. However, such an approach would
23 not be consistent with the AWWA Manual and would not represent a

1 traditional functional allocation of cost of a water system.

2 **13.Q. Please summarize your comments concerning Ms. Meisenheimer's**
3 **economies of scale concept.**

4 A. The use of economies of scale to justify the determination of extra capacity
5 costs based on the incremental or marginal cost of capacity is not
6 appropriate. Such an approach is not traditional or typical in the water
7 industry or the gas and electric industries. The concept is not set forth in
8 texts on the subject of cost allocation. Ms. Meisenheimer's concept has
9 several inconsistencies in that it introduces marginal cost concepts into an
10 allocation of embedded costs and not logically extending itself to the next
11 level of functionalization, i.e. the identification of a portion of mains as
12 customer related. Ms. Meisenheimer's economies of scale concept and the
13 resultant indication of costs by customer class, as set forth in Mr. Busch's
14 cost allocation exhibits, should be rejected.

15 **14Q. How is the concept of economies of scope incorporated in OPC's**
16 **study?**

17 A. It is not clear how Ms. Meisenheimer or Mr. Busch incorporated this concept
18 in their study. Generally, the principle attempts to ensure that each customer
19 class's revenue requirement is no more than the cost required to provide
20 service to that class on a stand alone basis and no less than the cost required
21 to provide service on an incremental basis. I believe that the result of
22 applying the base-extra capacity method as I have in this case provides for
23 the proper sharing of the total cost of service and does not violate the

1 principle of economies of scope as described in Ms. Meisenheimer's
2 testimony.

3 **15.Q. Please address the cost allocation testimony of Mr. Hubbs.**

4 A. Mr. Hubbs provided cost of service allocations for district specific costs using
5 the traditional base-extra capacity method. The differences between the
6 results of Mr. Hubbs studies and those I prepared are difficult to compare
7 because he used Staff's level of revenue requirement which is quite different
8 than the Company's claim. One distinct difference that affected the results in
9 the St. Louis County, Joplin, and St. Joseph districts was that Mr. Hubbs did
10 not use a small mains adjustment as I did for the purposes of allocating
11 mains. My studies reflect that many of the large users in those districts are
12 served primarily from large transmission mains (generally larger than 10-inch)
13 and do not benefit from the smaller mains in the distribution system. A more
14 detailed explanation of my small mains adjustment is provided on pages 8
15 through 10 of my direct testimony.

16 **16.Q. Why is a small mains adjustment appropriate?**

17 A. Generally, water flows from treatment facilities in large mains often referred to
18 as transmission mains. The primary purpose of transmission mains is to
19 transfer water from the treatment facilities to the distribution system. The
20 distribution system consists of many miles of smaller mains which deliver
21 water to customers' service lines. In larger systems, large users such as
22 industrial and sales for resale customers are located on transmission mains
23 and take water before it reaches the distribution system. My study recognizes

1 this fact and excludes certain large users from the allocation of small mains.

2
3 **17.Q. What is the effect of Mr. Hubbs not using a small mains adjustment?**

4 A. By not using a small mains adjustment, Mr. Hubbs' cost allocations result in
5 significantly higher costs allocated to industrial and sales for resale
6 classifications or Rates B, D and J in St. Louis County. This will have an
7 adverse impact on industry and will make it more difficult for the Company to
8 meet competitive pressures. As shown on his Schedule A for St. Louis
9 County, Rates B, D and J require substantial increases while the overall cost
10 of service for this district, based on Staff's revenue requirements, is a 17%
11 decrease.

12 **18.Q. Did Mr. Hubbs offer a reason for changing his position?**

13 A. No, he did not.

14 **19.Q. Please address the testimony of Mr. Gorman.**

15 A. Mr. Gorman generally accepts the cost of service studies I prepared but offers
16 two minor adjustments, the allocation of purchased power and contract sales.
17 Mr. Gorman suggests that the demand charge portion of the Company's
18 electric bills be allocated on an extra capacity basis, using my Factor 5
19 instead of Factor 1 based on average daily sales. I would agree with this
20 refinement but not to the extent that Mr. Gorman suggests. I have conducted
21 an analysis of another large water company power bills and noticed that most
22 of the bills include a monthly demand charge regardless of the level of
23 service. Most electric rates are structured with a customer charge, a demand

1 charge and commodity charges. Depending on the rate schedule, there will
2 be a monthly demand charge even if power is taken at a steady rate 24 hours
3 a day, 7 days a week. The extent that the demand charge fluctuates from
4 month to month I would consider to be the extra capacity portion of the
5 Company's power purchases. In my analysis of the other water company, the
6 difference between the minimum demand charge for the lowest demand
7 month and the demand charges for the remaining months resulted in
8 approximately 5% of the total purchased power expense attributable to extra
9 capacity. I would support a refinement to my cost allocation that would
10 allocate 5% of purchased power to the extra capacity function.

11 **20.Q. Please describe Mr. Gorman's allocation of contract sales.**

12 A. In my cost allocation study, I deducted the contract sales from the cost of
13 service from all classes in proportion to the result of each class's cost of
14 service. This recognizes that contract customers have been retained on the
15 system to the benefit of the remaining tariff customers and should offset the
16 cost of service in proportion to each class's cost of service. I disagree with
17 Mr. Gorman's suggestion to use Factor 2 because it would improperly place
18 too much benefit on consumption related revenue.

19 **21.Q. Please summarize your comments on the cost allocation issues.**

20 A. Each of the witnesses supports the use of the base-extra capacity method.
21 However, only the Company's studies have applied the principles consistent
22 with embedded cost rate making and reflect the proper allocation of small
23 mains. It is important that the Company's studies are used for the purposes

1 of designing rates in this case to ensure a proper allocation of costs to the
2 various customer classes.

3 4 **RATE DESIGN**

5 **22.Q. Please address the parties' rate design proposals.**

6 A. OPC did not propose specific rate schedules, rather Ms. Meisenheimer
7 discusses her rate design principles for district specific pricing (percentage
8 increase by class within districts) based on the OPC's study results. She
9 recommends capping the increase in Brunswick to 15% with the shortfall
10 being recovered from districts that receive decreases.

11 Mr. Hubbs designed rates based on the staff's revenue requirements
12 within each district. The exception was in Brunswick where Mr. Hubbs
13 suggests that the next highest district rates are charged and that other
14 districts or the Company make up the shortfall. Mr. Hubbs designed district
15 specific customer charges and single block consumption charges for each
16 classification within each district. He reallocated public fire cost of service
17 back to the residential, commercial, industrial and public classifications,
18 based on total cost of service results. He proposes to recover the public fire
19 costs through the consumption charges within each district.

20 **23.Q. Please explain the Company's position with respect to the rate design** 21 **issues.**

22 A. First, I want to reiterate the importance of using the Company's cost of
23 service studies as a guide for rate design. This will ensure that fair and

1 equitable rate structures are designed for each customer classification within
2 each district. Also, the Company strongly opposes Mr. Hubbs suggestion that
3 the Company absorb any shortfall in the Brunswick district. This simply is
4 contrary to the notion that ratepayers should pay for all of the prudently
5 incurred costs necessary to provide service to them. The Company does not
6 necessarily object to other reasonable cost shifting efforts to mitigate the rate
7 impact on the Brunswick District.

8 **24.Q. Please address the issue of customer charges.**

9 A. For customer charges, the Company proposed a uniform schedule of
10 customer charges for all districts excluding St. Louis and St. Charles, which
11 has its own schedule of customer charges. The Company believes a uniform
12 schedule of customer charges makes sense, since every customer is
13 metered, has a similar service line, has his meter read in a similar manner,
14 and has his bill prepared at a central location. Also, the present tariff has a
15 uniform schedule of customer charges for all districts except for St. Louis and
16 Jefferson City. For these reasons and for administrative ease and
17 understanding, the Company would prefer to have two sets of customer
18 charges -- one for St. Louis and St. Charles and one for the remaining
19 districts, but would not object to district specific customer charges if all of the
20 other parties support it.

21 **25.Q. Please continue with consumption charges.**

22 A. As mentioned above, Mr. Hubbs designed single-block rates for each
23 classification within each district. The Company proposed single-block

1 residential rates within each district, so we are in agreement for the residential
2 class. For all districts other than St. Louis and St. Charles, the Company
3 proposed two to four declining block rate structures for each non-residential
4 class. The Company believes that larger-use customers should benefit from
5 declining block rates. Having single-block rates for each class benefits the
6 small users at the expense of large users. The Company needs to retain
7 large users on the system so that they will share in the fixed costs of the
8 system which benefits all users including residential customers. Higher
9 single-block rates may encourage large users to seek or develop alternative
10 supplies to the detriment of the remaining customer base who would have to
11 replace the lost revenue.

12 Finally, Mr. Hubbs recommends that the public fire costs that he
13 reallocates back to the non-fire, non-resale classes be recovered in the
14 consumption charges. The Company strongly opposes this proposal. The
15 Company believes that such costs should be recovered on a per customer
16 basis, as proposed in the tariffs, or recovered through fixed customer
17 charges. The costs required to provide fire services are fixed. They include
18 the investment and maintenance of larger-sized mains, storage facilities and
19 the fire hydrants themselves in order to provide instantaneous fire
20 suppression when called upon. These costs do not vary with water usage at
21 all. Yet Mr. Hubbs proposes to recover such costs through consumption rates
22 resulting in customers who use more water paying more for fire protection.
23 This unfairly shifts a disproportionate share of these costs to large users.

1 Furthermore, large users often provide their own fire protection by paying for
2 a private fire line. Having a private fire line connected to a sprinkler system
3 will often eliminate the need for public fire for large users. By including public
4 fire costs in their consumption rate, these customers are, in essence, being
5 double-billed for fire protection. Mr. Hubbs' recommendation should be
6 rejected in favor of the Company's proposal.

7 **26.Q. Please address Mr. Kalbarczyk testimony regarding the contract for the**
8 **Empire District Electric Company.**

9 A. The Company does not oppose the interruptible rate of \$0.666 per thousand
10 gallons proposed by Empire as long as Empire continues to agree to
11 purchase a minimum of \$500,000 of water per year. However, the Company
12 objects to the rate proposed by Mr. Kalbarczyk for usage beyond the
13 \$500,000 level at the "fully-loaded production cost" of \$0.357 per thousand
14 gallons.

15 **27.Q. Why does the Company oppose such a rate?**

16 A. The Company does not see any reason to drop below the tail-block rate of
17 \$0.666 just because Empire reaches the minimum purchase of \$500,000 of
18 water. There is no cost basis for doing so. The Company still has to deliver
19 this water to the customer and should be compensated for such delivery in
20 addition to the production costs. The \$0.666 rate should be applied to all
21 usage by Empire.

22 **28.Q. Does this conclude your rebuttal testimony?**

23 A. Yes, it does.