Exhibit No.:
Issue: Cost of Service Analysis
Witness: Wm. M. Stout
Type of Exhibit: Direct
Sponsoring Party: MAWC
Case No.: WR-2000-281
SR-2000-282

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WR-2000-281

Direct Testimony of

WILLIAM M. STOUT, P.E.

on Behalf of

MISSOURI-AMERICAN WATER COMPANY

Jefferson City, Missouri

November 29, 1999

DIRECT TESTIMONY OF

WILLIAM M. STOUT, P.E.

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

A. William M. Stout. My business address is 207 Senate Avenue, Camp Hill, Pennsylvania.

2. **Q. With what firm are you associated and what is your position?**

A. I am President of the firm of Gannett Fleming Valuation and Rate Consultants, Inc.

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

A. I have a Bachelor of Science degree in Management Engineering from Rensselaer Polytechnic Institute.

4. **Q. Are you a registered professional engineer?**

A. Yes, I am registered in the Commonwealth of Pennsylvania.

5. **Q. Are you a member of any professional societies?**

A. Yes, I am a member of the National and Pennsylvania Societies of Professional Engineers, the Institute of Industrial Engineers, the American Gas Association (AGA), the American Water Works Association (AWWA), the National Association of Water Companies (NAWC), the American Railway Engineering Association and the Society of Depreciation Professionals (SDP). I am a former member of the Rates & Charges Subcommittee of AWWA, a member of the Accounting Services Committee of AGA and a past president of SDP.

6. **Q. Will you outline your experience in the field of engineering?**

A. While attending Rensselaer, I was employed by the Valuation Division of Gannett Fleming Corddry and Carpenter, Inc., during the summers of 1970, 1971, and 1972. My principal assignments related to valuation studies and computer programming.

After my graduation in June 1973, I was employed by the Valuation Division as a Valuation Engineer. The scope of my depreciation activities has included assembly of basic data, statistical service life analyses utilizing the retirement rate and simulated plant record methods, field surveys, estimation of service life and salvage, calculation of annual and accrued depreciation, and preparation of reports presenting the results of the studies.

The scope of my cost of service activities has included the selection of customers to be demand-metered, the analysis of recorded customer demands, the development of cost allocation factors, the allocation of costs, the analysis of customers' consumption, the application of present and proposed rates to the consumption analysis, the design of rate structures, and the preparation of reports presenting the results of the studies.

Since January 1978, I have testified in support of the studies conducted under my direct supervision. In January 1980, I was assigned to the position of Manager of Depreciation and Cost Allocation Studies conducted by the Valuation Division. In June 1982, subsequent to a corporate reorganization, I became a Vice President of Gannett Fleming Valuation and Rate Consultants, Inc. I became a Senior Vice President in 1991 and attained my current position of President in 1994.

7. Q. **Do your professional activities include participation in continuing professional educational programs?**

A. Yes, they do. I have completed the "Fundamentals of Life Estimation," "Forecasting Service Life," and "Making and Administering [Depreciation] Policy" programs conducted by the Center for Depreciation Studies at Western

Michigan University. In 1985 I became a member of the faculty of Depreciation Programs, Inc., lecturing on "Forecasting Service Life," "Fundamentals of Salvage Analysis," and "Managing a Depreciation Study". I also am an instructor at the annual Advanced Accounting Seminar sponsored by the AGA.

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

A. The purpose of my testimony is to support the district-specific cost of service study and the customer class cost of service study conducted under my direction and supervision for Missouri-American Water Company (Missouri-American or Company) and to make recommendations related to the rate design implications of the results of these studies.

9. **Q. Have you previously testified on these subjects?**

A. Yes. I have testified before the Missouri Public Service Commission, the Pennsylvania Public Utility Commission, the Connecticut Department of Public Utility Control, the New York Public Service Commission, the West Virginia Public Service Commission, the Illinois Commerce Commission, the Arizona Corporation Commission and the New Jersey Board of Public Utilities on the subjects of cost allocation and rate design.

SUMMARY

10. **Q. What are the conclusions of your district-specific cost study?**

A. The study results indicate that the unit costs of providing service in the several districts vary based on three factors: (1) the relative age of the district's plant in service; (2) the level of water treatment required in the district; and, (3) the size of the district. All other things being equal, the unit cost of service (1) decreases as the average age of the plant in service increases, (2) increases

as the level of treatment increases, and (3) decreases as the size of the district increases.

11. Q. Do these cost study conclusions support the continued use of single tariff pricing for Missouri-American Water Company?

A. Yes. The conclusions of the district-specific cost study support the use of a single tariff for all districts. The decrease in the unit cost, in relation to the unit costs of other districts, as a district's plant ages, relative to the age of the plant in the other districts, is a result of original cost ratemaking. Major additions increase the rate base and revenue requirements and correspondingly reduce the average age of plant. The relative age of plant in the several districts varies as major additions are made to one district, increasing its unit costs beyond the average, and then to another, increasing its costs beyond the average. With the passage of time, the relative impact of these major additions lessens and the affected district's unit cost of service decreases to an amount that is less than the statewide average. Reflecting this temporal variance in district specific costs in district specific rates decreases the rate stability of all districts and would not be an appropriate ratemaking policy.

With respect to the level of treatment, increasing regulatory requirements will move all districts to significant levels of treatment, mitigating, if not eliminating, any unit cost variance that currently exists due to this cause. Current pricing policy should recognize that this variance will be significantly lessened or eliminated in the future and not differentiate district rates for this reason.

Although the variance due to the size of the district is the only variance that is not temporal or will not be significantly lessened or eliminated with increased regulations, this variance also supports single tariff pricing. As a result of economies of scale, the unit cost of providing service in a small district will be greater than the unit cost of providing service in a large district. It is for this reason that many commissions encourage the acquisition of small systems by large systems. That is, the small system will enjoy the benefits of the lower unit costs of the large system without having a significant impact on the average unit cost of service for the combined system. This is a reasonable public policy and also supports the use of a single tariff for all districts.

12. **Q. What are the conclusions of your customer class cost of service study?**

A. The study results indicate that the proposed revenues represent a movement toward the cost of service for the Residential, Industrial, Other Public Authority and Other Water Utilities customer classifications and a movement away from the cost of service for the Commercial and Private Fire Protection customer classifications.

13. **Q. Do these study conclusions support the continued use of single tariff pricing for Missouri-American Water Company?**

A. Yes, the conclusions of the customer class cost of service study support the use of a single tariff for all districts. The proposed revenues by class are sufficiently commensurate with the cost of service that the single tariff could be modified to align revenues with the cost of service to the extent warranted by other rate design considerations.

ALLOCATION OF COSTS TO DISTRICTS

14. Q. Briefly describe the purpose of your cost allocation study.

A. The purpose of the study was to allocate the common corporate costs of the Company to each of its operating districts, add this amount to the known district-specific costs and compare the resultant total cost of service by operating district to the revenues by district. Corporate costs were allocated to districts based on the nature of the cost and related cost causative parameters such as number of customers, feet of main, labor expense, etc.

15. Q. Have you prepared schedules presenting the results of your cost study?

A. Yes. The results of my assignment and allocation of costs to operating districts are presented in Schedule WMS-1, Tables 1-A through 1-E attached to my testimony.

16. Q. Please describe the procedure followed in the cost study.

A. The assignment and allocation of the cost of service at the proposed revenue level is presented in Table 1-B of Schedule WMS-1. The items of cost are identified in column 1 of Table 1-B. The cost of each item, shown in column 3, is allocated to the operating districts based on Allocation Factors 1 through 17 referenced in column 2. The development of the Allocation Factors is presented in Table 1-C.

The following principles and considerations have been used to allocate the cost items. The district specific labor and other costs are assigned to each district using Factors 1 through 7, e.g., Factor 1 is used to assign Brunswick costs directly to the Brunswick District. Engineering and related costs common to all districts such as maintaining maps and records are allocated to districts

based on the number of feet of main in the district using Factor 8. Corporate costs common to all districts that are associated with service to customers such as contracts and orders, customer service, water quality and community relations are allocated to districts based on Factor 9, the number of customers. Costs associated with billing and related accounting and collecting are allocated to districts based on the number of bills using Factor 10.

Factor 11 allocates seventy percent of leak detection costs as recorded in Accounts 662.11 and 662.21 to the Joplin District based on management's judgment as to the portion of the leak detection specialist time spent working on behalf of this district. The remaining thirty percent was allocated to the other six districts based on the length of mains in each district. Miscellaneous customer accounting expenses, Account 905.1, are allocated to districts using Factor 12 which is based on the results of allocating all other corporate customer accounting costs to the districts. Factor 13 is based on the composite results of assigning and allocating operation, maintenance and depreciation expenses, other than corporate administrative and general expenses and purchased water costs, to each operating district. This factor is used to allocate administrative and accounting costs inasmuch as the costs used in developing the composite factor represent the activities that are being accounted for and supervised.

Factors 14 and 15 are based on the allocation of labor expenses. Factor 14 is based on all labor, district-specific and corporate, inasmuch as the items being allocated such as pensions and workers compensation relate to all Company employees. Factor 15 includes only the allocated corporate labor

because the benefit costs being allocated relate only to corporate employees. The comparable benefit costs for district employees are included in the directly assigned costs.

Factor 16 is based on the allocation of the several elements of rate base and is used to allocate property insurance, property taxes, return and income taxes. These items of cost all vary with the value of the property. In developing the rate base by district, the original cost less depreciation of the plant in each district is assigned to that district. The original cost less depreciation of the structures and equipment used by corporate employees is allocated to districts based on the manner in which corporate labor was allocated to the districts, Factor 15. Cash working capital was allocated based on Factor 13, total expenses other than corporate administrative and general expenses and purchased water costs. Regulatory expenses are allocated to districts based on the total cost of service other than the amounts being allocate using Factor 17.

17. Q. **Have you summarized the results of your assignment and allocation of costs?**

A. Yes. Table 1-A presents a summary of the costs by operating district along with the revenues for each district. Table 1-A indicates that the cost of serving the Brunswick, Mexico, Parkville and St. Joseph Districts exceeds the revenues produced in these districts. In contrast, the cost of serving the Joplin, St. Charles and Warrensburg Districts is less than the proposed revenues produced in these districts.

18. Q. Are the proposed revenues based on a single tariff for all customers in the state?

A. Yes, they are.

19. Q. Have you identified the factors that cause the costs by district to vary from the revenues by district based on single tariff pricing?

A. Yes, I have. There are three primary factors that cause the costs by district to vary from the single tariff pricing revenues produced in each district. As stated previously, the factors are the average age of the plant in the district, the level of treatment in the district and the size of the district.

IMPACT OF AVERAGE AGE OF PLANT

20. Q. How does the average age of the district's plant affect the cost of service?

A. The average age of the plant on a dollar-weighted basis indicates the extent to which there have been recent significant additions to plant. A district will have a relatively low average age of plant if there have been recent significant additions and a relatively high average age of plant if there have not been any significant recent additions.

Recent significant additions to plant increase the relative level of the cost of service as a result of inflation and original cost ratemaking. That is, if there are two districts that are identical in every way except that one has a treatment plant that is 5-years old and one has a treatment plant that is 50-years old, the district with the newer plant will have a greater cost of service because the original cost of its plant, having been built during a period when the price level was higher, is greater than the original cost of the other district's treatment plant.

This wouldn't be as significant a problem if there were no inflation and the two plants cost the same amount or if the cost at the current price level was used for ratemaking purposes rather than the original cost. However, both inflation and original cost ratemaking are realities in the world of utility economics. As a result, the district with additions of plant during more recent periods at greater price levels, i.e., the district with the lower average age of plant, even though performing the same service as the district with plant that was added years ago, has a higher relative cost of service under original cost ratemaking.

21. Q. Is this impact evident in the study results?

A. Yes, it is. For example, the cost of service assigned and allocated to the St. Joseph District is greater than the revenues produced by the district. This is almost entirely attributable to the return and income taxes allocated to the district based on its original cost rate base. The percent of total Company revenues produced by the St. Joseph District is 33 percent. The percent of total Company operating, maintenance and depreciation expenses assigned and allocated to St. Joseph in my study is 39 percent, which is greater than the revenue percent due to depreciation expense. Further, because of the replacement of the major treatment plant in St. Joseph, its original cost rate base is 55 percent of the Company total. The resultant return and income taxes allocated to St. Joseph increases the total assigned and allocated cost of service, as a percent of the Company total, to 47 percent, which is also greater than the revenue contribution percent. This increase in the relative cost of service is negatively correlated with the change in the average age that

results from this recent significant addition. Table 1-D presents the average age of plant in service for each district and shows that the St. Joseph District has the lowest average age.

22. Q. Will the St. Joseph District's assigned and allocated cost of service always be greater than its single tariff pricing revenue contribution?

A. No, it will not. In the future, after there have been significant additions to other districts, the reverse will most likely be true, i.e., the assigned and allocated cost of service for St. Joseph will be less than its revenue contribution. This was the case prior to the treatment plant replacement in the district. This cyclical pattern of costs that are sometimes greater than and sometimes less than the revenue contribution will repeat and repeat over time as the relative average age of plant in the several districts varies.

IMPACT OF TREATMENT REQUIREMENTS

23. Q. How does the level of treatment required affect the cost of service?

A. Increased levels of treatment, such as the addition of filtration, increase the unit cost of service. The addition of the facilities required for such greater levels of treatment increases the original cost rate base and depreciation expense, as well as the related operation and maintenance expenses such as additional personnel and chemicals.

24. Q. Is this impact evident in the study results?

A. Yes, it is. Table 1-E presents a comparison of the directly assigned cost of service on a per customer basis in several of the districts and illustrates the impact of the level of treatment. The annual assigned costs per customer in the Joplin and St. Joseph Districts, large districts with filtration plants, are $106 and

$118, respectively. In Parkville and Mexico, smaller districts with filtration, the annual assigned costs per customer are $179 and $172, respectively. However, in a relatively small district that does not have filtration, Warrensburg, the annual assigned costs per customer are $99. Thus, when comparing districts of approximately the same size, Parkville or Mexico with Warrensburg, the higher level of treatment in Parkville and Mexico increases the unit cost of service. The lower level of treatment in Warrensburg offsets the economies of scale evident in the Joplin and St. Joseph Districts and results in assigned costs per customer that are approximately the same as those in these larger districts.

IMPACT OF ECONOMIES OF SCALE

25. Q. How do economies of scale affect the cost of service?

A. Economies of scale decrease the unit cost of service as the size of a system increases. Many costs of operating a system are relatively fixed and do not decrease proportionately as the size of a system decreases. For example, it is not possible to manage a district that has one-fifth the number of customers of another district with one-fifth of a manager or to pay the manager of the smaller district one-fifth of the pay of the manager of the larger district. Similarly, if a 25,000 customer system requires 3 operations supervisors, it is not possible to supervise the operations of a 5,000 customer system with three-fifths of a supervisor or to pay the operations supervisor in the smaller district only three-fifths of the pay of the operations supervisors in the larger district.

26. Q. Are the impacts of economies of scale evident in the study results?

A. Yes, they are. Table 1-E presents the cost of service by customer for each district. The cost of service is separated into the directly assigned operation and maintenance; allocated corporate costs; and depreciation, return, property and income taxes. With few exceptions that are not explained by the average age of plant or the level of treatment required, the unit cost of each category of cost of service generally decreases as the size of the district increases.

27. **Q. Will the cost differentials that result from economies of scale change over time?**

A. No, they will not. This cause of unit cost variances between the several districts will remain. It is not temporal like the impact of recent additions and not subject to ultimate mitigation like the level of treatment required. In fact, with increasing regulatory requirements, the unit cost variance due to economies of scale will likely increase as the cost of compliance increases.

COST TO OPERATE ON A STAND-ALONE BASIS

28. **Q. Would the cost to operate each district as shown in Table 1-A be different if the district was operated on a stand-alone basis?**

A. Yes, it would. The cost to operate any of the systems on a stand-alone basis would be greater than the amounts shown in Table 1-A. Many costs of Missouri-American are shared by over 95,000 customers, whether recorded at the district or corporate level, and would not be reduced proportionately if they were incurred at the district level. Administration, engineering, accounting and billing costs per customer would be much greater if each district stood on its own. For example, the cost of capital to the smaller districts, as a result of different capital structures and costs of capital would be greater for the

individual district. Similar conclusions could be reached with respect to other costs subject to economies of scale. That is, even though the small districts have a higher unit cost of service based on the cost study that I have performed, such unit costs would be higher still if the economies of scale of a statewide organization were not reflected in the bases for allocating costs to the districts and would be higher yet if the actual stand-alone cost was considered.

RATIONALE FOR SINGLE TARIFF PRICING

29. Q. **Is the continued use of a single tariff, applicable to all seven districts of Missouri-American, appropriate?**

A. Yes, it is.

30. Q. **What are the reasons that single tariff pricing is appropriate for Missouri-American?**

A. The reasons for using single tariff pricing in a multi-district operation such as Missouri-American's include the long-term rate stability which results from a single tariff, the operating characteristics of the districts, the equivalent services offered, both the allocated cost of service and the cost of service on a stand-alone basis, and the principle of gradualism.

31. Q. **Please explain how single tariff pricing will provide long-term rate stability for the several districts.**

A. Utility customer rates are dependent on the total expenses and rate base of the utility and the amount of the commodity which the utility sells. Increases in rate base, particularly as the result of the Safe Drinking Water Act, and changes in the quantity sold have a significant potential for adversely impacting the rates of small or medium size utilities or rate districts within a utility.

For example, if Joplin were required to replace significant elements of its present treatment plant, the capital cost could be significant. The ability to absorb the cost of such projects over a larger customer base is a compelling argument in support of single tariff pricing. Capital programs will never be uniform in the several districts, even over periods of 5 to 10 years. As illustrated in my previous discussion of the impact of the average age of plant, the variances in unit costs that result from major additions are temporal and only tend to cause price instability if reflected in district-specific pricing. The cost of district specific programs should be shared by all customers rather than burdening those of the affected districts. Rate increases will be more stable and major increases in specific districts will be avoided.

32. Q. **In what manner do the operating characteristics of the several districts support single tariff pricing?**

A. There are many similarities in the manner in which the several districts are operated. All of the district systems pump their treated water through transmission lines to distribution areas that include mains, booster pump stations and storage facilities. All of the districts provide water to individual customers through a service line and meter. All of the districts rely on a centralized work force for billing, accounting, engineering, administration, and regulatory matters. All of the districts rely on a common source of funds for financing working capital and plant construction. The only significant differences in operating characteristics are the sources of supply and treatment processes.

The increasing pressure from regulators and customers related to the level of treatment will ultimately eliminate this operating characteristic difference. Thus, over the long term, the commonality of the operating characteristics support the use of single tariff pricing.

33. Q. **Please explain why the equivalence of services offered support the use of single tariff pricing?**

A. The use of single tariff pricing in a utility with noncontiguous service areas is supported by the equivalent service rendered in each area. Although there would be considerable debate with respect to the equivalency of the service rendered to different customer classifications, there can be little argument that the service rendered to a residence in one district is the same as the service rendered to a residence in another district. Residential customers are relatively consistent in their uses of water: cooking, bathing, cleaning and other sanitary purposes, and lawn sprinkling. If customers use water for the same purposes, the service offering is the same and should be priced accordingly. Thus, from this perspective, there is no basis for charging different prices to customers in different districts.

The electric industry reflects such concepts when it serves customers in geographically dispersed areas. A kilowatt-hour delivered in one area has the same price as a kilowatt-hour delivered in another area despite the fact that cost of service studies could be performed to identify differences in the cost of providing service to customer classes in different regions. The same is true of the gas and telephone industries.

34. Q. Are there other cost of service considerations that support single tariff pricing?

A. Yes. The Company has centralized and consolidated a significant portion of its operations. Common costs which have been assigned or allocated to each district include management fees, corporate headquarter costs, customer service costs, depreciation expense developed on the basis of Company-wide depreciation rates and return and income taxes based on total Company financing and tax provisions. The allocations of common costs, while reasonable, are subject to judgment and do not result in the development of district-specific revenue requirements which reflect precisely the cost of serving each district, particularly if stand-alone costs are considered.

SINGLE TARIFF PRICING CONCLUSION

35. Q. Briefly summarize your analysis of the cost to serve each district and single tariff pricing for Missouri-American Water Company.

A. The results of assigning and allocating costs to the districts of Missouri-American indicate that the differences in costs between districts and, therefore, the difference between costs and single tariff pricing revenues are due to three primary factors: (1) the average age of plant; (2) the level of treatment required; and, (3) the size of the district. The first two factors are either temporal or subject to elimination resulting from customer and regulatory pressures. A policy of district-specific pricing should not be based on such factors, as it would lead to price instability.

The third factor, the size of the district, will continue to produce variances in the unit cost of serving a district. District-specific pricing that recognized the

economies of scale in providing service in a larger district would yield higher rates for small districts and lower rates for large districts. It is a reasonable public policy to ignore this cost variance in establishing customer rates. In this manner, the small districts enjoy the cost benefits of being part of a large system. Further, the impact on the rates for the larger districts, when compared to district-specific pricing of such districts, is not significant.

Single tariff pricing is appropriate for Missouri-American. Such pricing is supported by considerations of the benefits of sharing the impact of capital programs on a Company-wide basis; the significant costs that are common to all districts; the equivalent service rendered; and the gas, telephone and electric industries' precedent. Most importantly, single tariff pricing is necessary so that all customers benefit from the economies of scale by being a part of a large system. The small systems will realize the benefits of the lower unit costs of the large systems without significantly impacting the unit costs of the total system. The best interests of all customers are served through gradualism by continuing single tariff pricing.

ALLOCATION OF COST TO CUSTOMER CLASSES

36. Q. Briefly describe the purpose of your cost allocation to customer classes.

A. The purpose of the study was to allocate the total cost of service to the several customer classifications to determine if the single tariff also results in equity among the customer classifications. In the study, the total costs were allocated to the residential, commercial, industrial, other public authority, other water utilities, private fire protection and public fire protection classifications in accordance with generally accepted principles and procedures. The cost of

service allocation results in indications of the relative cost responsibilities of each class of customers. The allocated cost of service is one of several criteria appropriate for consideration in designing customer rates to produce the required revenues.

37. Q. **Have you prepared a schedule presenting the results of your customer class study?**

A. Yes. The results of my allocation of the pro forma cost of service to customer classifications are presented in Schedule WMS-2.

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

A. The base-extra capacity method, as described in 1991, and prior, Water Rates Manuals published by the American Water Works Association (AWWA), was used to allocate the pro forma costs. The method 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 has been accepted by this Commission for that purpose. It is the method that was used by the Company and accepted by this Commission in the Company's most recent rate case.

In the base-extra capacity method, the four basic categories of cost responsibility are base, extra capacity, customer, and fire protection costs. Base costs are costs that tend to vary with the quantity of water used, plus costs associated with supplying, treating, pumping and distributing water to customers under average load conditions, without the elements necessary to

meet peak demands. In the study for Missouri-American, base costs were allocated to customer classifications on the basis of average daily usage.

Extra capacity costs are costs associated with meeting usage requirements in excess of the average. They include operating and capital costs for additional plant and system capacity beyond that required for average use. The extra capacity costs in this study are subdivided into costs necessary to meet maximum day extra demand and costs to meet maximum hour extra demand. The extra capacity costs were allocated to customer classifications on the bases of each classification's maximum day and hour usage in excess of average usage.

Customer costs are costs associated with serving customers regardless of their usage or demand characteristics. Customer costs include the operating and capital costs related to meters and services, meter reading costs, and billing and collecting costs. The customer costs were allocated on the bases of the capital cost of meters and services and the number of customers.

Fire protection costs are costs associated with providing the facilities to meet the potential peak demand of fire protection service. Fire protection costs are subdivided into costs to meet Public Fire Protection and Private Fire Protection demands. The extra capacity costs assigned to Fire Protection Service were allocated to Public and Private Fire Protection Service on the basis of the total relative demands of the hydrants and fire service lines.

39. **Q. Please describe the procedure followed in the cost allocation study.**

A. Each identified classification of cost in the pro forma cost of service was allocated to the customer classifications through the use of appropriate

allocation factors. This allocation is presented in Table 2-B of Schedule WMS-2. The items of cost, which include operation and maintenance expenses, depreciation expense, taxes and income available for return, are identified in column 1 of Table 2-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 Table 2-C of the schedule.

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 and treatment chemicals 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 Table 2-C on page 8 of Schedule WMS-2.

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 Table 2-C on pages 9 through 12, of Schedule WMS-2.

Costs associated with storage facilities and 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 Table 2-C on pages 13 through 16 of Schedule WMS-2. Fire demand costs were allocated to public and private fire protection service in proportion to the relative potential demands on the system by hydrants and fire services, as presented on page 31 of Schedule WMS-2.

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. The relative weightings of Factors 2 and 3 (maximum day) and Factor 4 (maximum hour) for pumping facilities and the operation and maintenance of mains were based on horsepower of pumps and footage of mains, respectively, serving maximum day and maximum hour functions. The development of these weighted factors, referenced as Factor 6 and Factor 7, is presented on pages 17 and 18 of Schedule WMS-2.

Costs associated with meters and services facilities were allocated to customer classifications in proportion to the capital costs of the sizes and quantities of meters and services serving each classification. The development

of factors for meters and services, referenced as Factor 9 and Factor 10, is presented on pages 19 through 22 of Schedule WMS-2.

Costs for customer accounting, billing and collecting were allocated on the basis of the number of customers for each classification. The development of these factors, referenced as Factor 13, is presented on page 24 of Schedule WMS-2.

Administrative and general costs were allocated on the basis of allocated direct costs excluding those costs such as purchased power and chemicals which require little administrative and general expense. The development of factors for this allocation, referenced as Factor 15, is presented on page 25 of Schedule WMS-2.

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 pages 28 through 30 of Schedule WMS-2.

40. Q. **Refer to Table 2-C, pages 10 and 14 of Schedule WMS-2, and explain the source of the system maximum day and maximum hour ratios used in the development of factors referenced as Factors 2 through 5.**

A. The ratios were based on a review of experienced Company data. The maximum day ratio of 1.7 times the average day approximates the ratio of maximum daily send-out experienced by the Company in 1995. The maximum

hour ratio of 2.5 times the average hour is based on the maximum day data and the typical relationship between the maximum hour and maximum day ratios.

41. 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 through 5?

A. The estimated demands were based on judgment which considered field observations of the service areas of the Company, the factors used in previous studies of the Company, field studies of similar service areas in Pennsylvania conducted under my direction, and generally-accepted customer class maximum day and maximum hour demand ratios.

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

A. Yes. The results are summarized in columns 2 through 5 of Table 2-A on page 1 of Schedule WMS-2. Column 2 sets forth the allocated pro forma cost of service for each customer classification identified in column 1. Column 3 presents the allocation of the cost of public fire protection to the other customer classifications based on their cost of service. Column 4 presents the resultant adjusted cost of service by class for comparison to revenues under present and proposed rates. Column 5 presents each customer classification's cost responsibility as a percent of the total cost.

43. 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 can be made by comparing columns 5 and 7 of Table 2-A of Schedule WMS-2. 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 5 and 9 of Table 2-A of Schedule WMS-2.

44. Q. Do the proposed rates result in movement toward the cost of service for most classifications?

A. Yes. As Table 2-A on page 1 of Schedule WMS-2 demonstrates, with the exception of the Commercial and Private Fire Protection classifications, the revenues under proposed rates for each customer classification are better aligned with the cost of service than the revenues under present rates.

45. Q. Does this complete your direct testimony?

A. Yes, it does.

MISSOURI-AMERICAN WATER COMPANY
WATER DISTRICTS

ALLOCATION OF COST OF SERVICE
AS OF SEPTEMBER 30, 1999
TO OPERATING DISTRICTS

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, INC.
Harrisburg, Pennsylvania

MISSOURI-AMERICAN WATER COMPANY

COMPARISON OF COST OF SERVICE AND PROPOSED REVENUES BY DISTRICT

	Cost of Service						Proposed Revenue	
	Directly Assigned		Allocated		Total			
District	Amount	Percent of Total	Amount	Percent of Total	Amount	Percent of Total	Amount	Percent of Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Brunswick	$218,436	1.1%	$177,311	0.6%	$395,747	0.8%	$173,964	0.4%
Joplin	3,327,121	17.5%	3,669,033	13.3%	6,996,154	15.0%	11,527,601	24.8%
Mexico	1,295,089	6.8%	1,823,903	6.6%	3,118,992	6.7%	2,397,072	5.1%
Parkville	1,325,004	7.0%	1,443,940	5.2%	2,768,944	5.9%	2,287,508	4.9%
St. Charles	4,363,673	22.9%	4,462,816	16.2%	8,826,489	19.0%	12,016,056	25.8%
St. Joseph	7,487,204	39.3%	14,376,219	52.2%	21,863,423	46.9%	15,249,036	32.7%
Warrensburg	1,038,447	5.4%	1,563,818	5.7%	2,602,265	5.6%	2,920,778	6.3%
Total	$19,054,974	100.0%	$27,517,040	100.0%	$46,572,014	100.0%	$46,572,015	100.0%

MISSOURI-AMERICAN WATER COMPANY

PRO FORMA COST OF SERVICE FOR THE YEAR ENDED SEPTEMBER 30, 1999, AT PROPOSED REVENUE LEVEL, ALLOCATED TO OPERATING DISTRICTS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	BRUNSWICK (4)	JOPLIN (5)	MEXICO (6)	PARKVILLE (7)	ST CHARLES (8)	ST JOSEPH (9)	WARRENSBURG (10)
BRUNSWICK DISTRICT									
LABOR	1	72,003	72,003						
OTHER	1	146,433	146,433						
JOPLIN DISTRICT									
LABOR	2	854,568		854,568					
OTHER	2	2,472,553		2,472,553					
MEXICO DISTRICT									
LABOR	3	252,092			252,092				
OTHER	3	1,042,997			1,042,997				
PARKVILLE DISTRICT									
LABOR	4	194,785				194,785			
PURCHASED WATER	4	21,964				21,964			
OTHER	4	1,108,255				1,108,255			
ST CHARLES DISTRICT									
LABOR	5	572,545					572,545		
PURCHASED WATER	5	1,403,766					1,403,766		
OTHER	5	2,387,362					2,387,362		
ST JOSEPH DISTRICT									
LABOR	6	1,307,354						1,307,354	
OTHER	6	6,179,850						6,179,850	
WARRENSBURG DISTRICT									
LABOR	7	155,163							155,163
OTHER	7	883,284							883,284
TOTAL DIRECTLY ASSIGNED COSTS		19,054,974	218,436	3,327,121	1,295,089	1,325,004	4,363,673	7,487,204	1,038,447
CORPORATE DISTRICT									
-OPERATION AND MAINTENANCE EXPENSES-									
SOURCE OF SUPPLY AND WATER TREATMENT									
601.2 Source of Supply Operation Exp.	9	227	1	53	12	11	62	74	14
624.5 Pumping Expenses	9	11		3	1	1	3	2	1
640 Supervision and Engineering	9	29,358	150	6,814	1,538	1,380	8,024	9,600	1,852
642.3 General Water Treatment Expenses	9	18		4	1	1	5	6	1
643.19 Misc Water Treatment Exp-Serv Co	9	175,262	894	40,678	9,184	8,237	47,899	57,311	11,059
652 General Water Treatment Equip	9	59		14	3	3	16	19	4
Total Water Treatment Expenses		204,935	1,045	47,566	10,739	9,633	56,009	67,012	12,931

MISSOURI-AMERICAN WATER COMPANY

PRO FORMA COST OF SERVICE FOR THE YEAR ENDED SEPTEMBER 30, 1999, AT PROPOSED REVENUE LEVEL, ALLOCATED TO OPERATING DISTRICTS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	BRUNSWICK (4)	JOPLIN (5)	MEXICO (6)	PARKVILLE (7)	ST CHARLES (8)	ST JOSEPH (9)	WARRENSBURG (10)
CORPORATE DISTRICT, CONT.									
-OPERATION AND MAINTENANCE EXPENSES-, CONT.									
TRANSMISSION AND DISTRIBUTION EXPENSES									
661 Storage Facilities Expense	8	43		9	2	2	11	17	2
662.1 Lines Expense	8	165	1	34	9	8	44	60	9
665.2 Maps and Records Labor	8	6,977	55	1,441	366	335	1,857	2,541	382
665.3 Misc T & D Expenses-Current	8	6,538	52	1,351	343	314	1,740	2,380	358
673 T & D Mains	8	93	1	19	5	4	25	34	5
678 Other T & D Plant	8	648	5	134	34	31	172	237	35
Total Transmission and Distribution Expenses		14,464	114	2,988	759	694	3,849	5,269	791
CUSTOMER ACCOUNTING									
901 Supervision	12	40,472	206	9,394	2,121	1,902	11,061	13,234	2,554
902.19 Meter Reading Management Program	10	757	4	176	40	36	207	246	48
903.2 Contracts & Orders Labor	9	100,640	513	23,359	5,274	4,730	27,505	32,909	6,350
903.3 Collecting Expenses	10	94,382	481	21,906	4,946	4,436	25,795	30,862	5,956
903.51 Billing & Accounting Computer	10	59,843	305	13,890	3,136	2,813	16,355	19,568	3,776
903.52 Billing & Accounting Other Exp	10	29,753	152	6,906	1,559	1,398	8,131	9,730	1,877
905.1 Misc Customer Acct Expenses	12	114,016	581	26,463	5,974	5,359	31,161	37,284	7,194
Total Customer Accounting		439,863	2,242	102,094	23,050	20,674	120,215	143,833	27,755
CUSTOMER SERVICE									
907.1 Customer Serv & Information Exp	9	16,343	83	3,793	856	768	4,467	5,345	1,031
Total Customer Service		16,343	83	3,793	856	768	4,467	5,345	1,031
Total Customer Accounting and Customer Service		456,206	2,325	105,887	23,906	21,442	124,682	149,178	28,786
ADMINISTRATIVE AND GENERAL EXPENSES									
-OPERATION-									
920 Administrative & Genrl Salaries									
Water Quality	9	52,205	266	12,117	2,736	2,454	14,268	17,070	3,294
Accounting	13	175,072	2,118	33,316	12,728	12,763	30,077	73,723	10,347
Engineering	8	2,296	18	474	121	110	611	836	126
Employee Relations	14	30,864	614	7,620	2,247	1,772	5,355	11,805	1,451
General	14	294,273	5,856	72,656	21,423	16,891	51,056	112,560	13,831
920.5 Incentive Plan Expense	15	69,702	969	15,899	4,677	4,078	13,982	26,305	3,792

MISSOURI-AMERICAN WATER COMPANY

PRO FORMA COST OF SERVICE FOR THE YEAR ENDED SEPTEMBER 30, 1999, AT PROPOSED REVENUE LEVEL, ALLOCATED TO OPERATING DISTRICTS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	BRUNSWICK (4)	JOPLIN (5)	MEXICO (6)	PARKVILLE (7)	ST CHARLES (8)	ST JOSEPH (9)	WARRENSBURG (10)
CORPORATE DISTRICT, CONT.									
-OPERATION AND MAINTENANCE EXPENSES-, CONT.									
ADMINISTRATIVE AND GENERAL EXPENSES, CONT.									
-OPERATION-, CONT.									
921.1 Expenses of Employees	15	55,178	767	12,586	3,702	3,228	11,069	20,824	3,002
921.13 Dues & Membership	15	1,592	22	363	107	93	319	601	87
921.2 Miscellaneous Office Expenses	15	195,977	2,724	44,702	13,150	11,465	39,313	73,962	10,661
923.1 Service Co Charges									
Accounting	13	441,452	5,342	84,008	32,094	32,182	75,841	185,895	26,090
Administrative	13	266,621	3,226	50,738	19,383	19,437	45,805	112,275	15,757
Administrative/Internal Audit	13	34,021	412	6,474	2,473	2,480	5,845	14,326	2,011
Corporate Secretarial	13	33,129	401	6,304	2,408	2,415	5,692	13,951	1,958
Engineering	8	43,801	346	9,049	2,300	2,102	11,660	15,948	2,396
Financial	13	154,475	1,869	29,397	11,230	11,261	26,539	65,050	9,129
Human Resources	14	144,815	2,882	35,755	10,543	8,312	25,125	55,392	6,806
Information Systems/Financial	13	327,927	3,968	62,405	23,840	23,906	56,338	138,090	19,380
Rates and Revenue	17	88,801	755	13,338	5,950	5,284	16,828	41,682	4,964
Risk Management	13	48,302	584	9,192	3,512	3,521	8,298	20,340	2,855
Water Quality/Regional	9	40,781	208	9,465	2,137	1,917	11,145	13,336	2,573
923.2 Auditing Services	13	37,408	453	7,119	2,720	2,727	6,427	15,751	2,211
923.3 Legal Services	9	79,903	408	18,545	4,187	3,755	21,837	26,129	5,042
923.5 Other Services - Current	13	5,526	67	1,052	402	403	949	2,326	327
924 Property Insurance	16	124,863	637	14,284	8,266	6,356	19,179	69,024	7,117
925.11 Workmens Compensation	14	1,742	35	430	127	100	302	666	82
925.2 Injuries and Damages	14	500	10	123	36	29	87	191	24
925.4 General Liability	9	181,767	927	42,188	9,525	8,543	49,677	59,438	11,469
926.1 Employee Benefits-Accrd OPEB Exp	14	484,040	9,632	119,509	35,238	27,784	83,981	185,146	22,750
926.11 Employee Benefits-Group Ins Prem	15	136,522	1,898	31,141	9,161	7,987	27,386	51,522	7,427
926.2 Other Welfare Expenses	15	41,427	576	9,449	2,780	2,423	8,310	15,635	2,254
926.21 Educational Expenses	15	8,121	113	1,852	545	475	1,629	3,065	442
926.22 Esop Contributions	15	21,956	305	5,008	1,473	1,284	4,404	8,288	1,194
926.25 401k Contributions	15	12,608	175	2,876	846	738	2,529	4,758	686
926.40 Pension Plan Expense	14	196,773	3,916	48,583	14,325	11,295	34,140	75,266	9,248
928.1 Regulatory Commission Expense	17	350,744	2,981	52,682	23,500	20,869	66,466	164,639	19,607
928.3 Amortization of Other Reg. Exp.	16	21,463	109	2,455	1,421	1,092	3,297	11,866	1,223
930.1 Institutional and Goodwill Exp.	13	963	12	183	70	70	165	406	57
930.2 Miscellaneous General Expense	15	72,201	1,004	16,469	4,845	4,224	14,484	27,247	3,928
930.27 Charitable Contributions	15	2,550	35	582	171	149	512	962	139
930.3 Research & Development	9	104,892	535	24,345	5,496	4,930	28,667	34,300	6,619
930.5 Lobbying Expenses	13	4,952	60	942	360	361	851	2,085	293
930.6 Transportation Expenses	13	22,554-	273-	4,292-	1,640-	1,644-	3,875-	9,497-	1,333-
931 Administrative and General Rents	15	4,669	65	1,065	313	273	937	1,762	254
Total Operation		4,374,320	57,027	912,448	300,928	269,894	827,507	1,764,946	241,570

MISSOURI-AMERICAN WATER COMPANY

PRO FORMA COST OF SERVICE FOR THE YEAR ENDED SEPTEMBER 30, 1999, AT PROPOSED REVENUE LEVEL, ALLOCATED TO OPERATING DISTRICTS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	BRUNSWICK (4)	JOPLIN (5)	MEXICO (6)	PARKVILLE (7)	ST CHARLES (8)	ST JOSEPH (9)	WARRENSBURG (10)
CORPORATE DISTRICT, CONT.									
-OPERATION AND MAINTENANCE EXPENSES-, CONT.									
ADMINISTRATIVE AND GENERAL EXPENSES, CONT.									
-MAINTENANCE-									
932 Maintenance of General Plant	15	5,678	79	1,295	381	332	1,139	2,143	309
932.5 Maintenance of Communication Equi	15	1,260	18	287	85	74	253	474	69
Total Maintenance		6,938	97	1,582	466	406	1,392	2,617	378
Total Administrative and General Expenses		4,381,258	57,124	914,030	301,394	270,300	828,899	1,767,563	241,948
Total Corporate Operation and Maintenance Expenses		5,056,863	60,608	1,070,471	336,798	302,069	1,013,439	1,989,022	284,456
403 DEPRECIATION & AMORT. EXPENSE	15	359,601	4,998	82,025	24,129	21,037	72,136	135,714	19,562
408 TAXES, OTHER THAN INCOME									
Federal and State Payroll Taxes	14	49,619	987	12,251	3,612	2,848	8,609	18,980	2,332
Property Taxes	16	31,377	160	3,590	2,077	1,597	4,820	17,345	1,788
Other General Taxes	17	64,454	548	9,681	4,318	3,835	12,214	30,255	3,603
Total Taxes, Other Than Income		145,450	1,695	25,522	10,007	8,280	25,643	66,580	7,723
409 INCOME TAXES	16	6,577,532	33,545	752,470	435,433	334,796	1,010,309	3,636,060	374,919
Utility Operating Income	16	15,954,465	81,368	1,825,191	1,056,186	812,082	2,450,606	8,819,627	909,405
Less: Other Water Revenues	17	576,871-	4,903-	86,646-	38,650-	34,324-	109,317-	270,784-	32,247-
Total Cost of Service Related to Corporate District		27,517,040	177,311	3,669,033	1,823,903	1,443,940	4,462,816	14,376,219	1,563,818
Total Cost of Service		46,572,014	395,747	6,996,154	3,118,992	2,768,944	8,826,489	21,863,423	2,602,265

MISSOURI-AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING CORPORATE EXPENSES TO OPERATING DISTRICTS

FACTOR 1. ALLOCATION OF COSTS ASSOCIATED WITH THE BRUNSWICK OPERATING DISTRICT

Costs are directly assigned to the Brunswick operating district.

Operating District	Allocation Factor
(1)	(2)
Brunswick	1.0000

FACTOR 2. ALLOCATION OF COSTS ASSOCIATED WITH THE JOPLIN OPERATING DISTRICT

Costs are directly assigned to the Joplin operating district.

Operating District	Allocation Factor
(1)	(2)
Joplin	1.0000

FACTOR 3. ALLOCATION OF COSTS ASSOCIATED WITH THE MEXICO OPERATING DISTRICT

Costs are directly assigned to the Mexico operating district.

Operating District	Allocation Factor
(1)	(2)
Mexico	1.0000

MISSOURI-AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING CORPORATE EXPENSES TO OPERATING DISTRICTS

FACTOR 4. ALLOCATION OF COSTS ASSOCIATED WITH THE PARKVILLE OPERATING DISTRICT

Costs are directly assigned to the Parkville operating district.

Operating District	Allocation Factor
(1)	(2)
Parkville	1.0000

FACTOR 5. ALLOCATION OF COSTS ASSOCIATED WITH THE ST. CHARLES OPERATING DISTRICT

Costs are directly assigned to the St. Charles operating district.

Operating District	Allocation Factor
(1)	(2)
St. Charles	1.0000

FACTOR 6. ALLOCATION OF COSTS ASSOCIATED WITH THE ST. JOSEPH OPERATING DISTRICT

Costs are directly assigned to the St. Joseph operating district.

Operating District	Allocation Factor
(1)	(2)
St. Joseph	1.0000

MISSOURI-AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING CORPORATE EXPENSES TO OPERATING DISTRICTS

FACTOR 7. ALLOCATION OF COSTS ASSOCIATED WITH THE WARRENSBURG OPERATING DISTRICT

Costs are directly assigned to the Warrensburg operating district.

Operating District	Allocation Factor
(1)	(2)
Warrensburg	1.0000

FACTOR 8. ALLOCATION OF COSTS RELATED TO OPERATION AND MAINTENANCE TRANSMISSION AND DISTRIBUTION EXPENSES AND SERVICE COMPANY ENGINEERING.

Factors are based on the length of mains by operating district.

Operating District	Length of Mains (Feet)	Allocation Factor
(1)	(2)	(3)
Brunswick	68,761	0.0079
Joplin	1,793,509	0.2066
Mexico	455,615	0.0525
Parkville	417,192	0.0480
St. Charles	2,310,890	0.2662
St. Joseph	3,160,432	0.3641
Warrensburg	474,688	0.0547
Total	8,681,087	1.0000

MISSOURI-AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING CORPORATE EXPENSES TO OPERATING DISTRICTS

FACTOR 9. ALLOCATION OF COSTS ASSOCIATED WITH GENERAL CUSTOMER SERVICE.

Factors are based on total number of customers for each operating district.

Operating District	Number of Customers	Allocation Factor
(1)	(2)	(3)
Brunswick	486	0.0051
Joplin	22,058	0.2321
Mexico	4,977	0.0524
Parkville	4,465	0.0470
St. Charles	25,971	0.2733
St. Joseph	31,068	0.3270
Warrensburg	5,997	0.0631
Total	95,022	1.0000

FACTOR 10. ALLOCATION OF CUSTOMER ACCOUNTING BILLING AND COLLECTING COSTS.

Factors are based on total number of bills for each operating district.

Operating District	Number of Bills	Allocation Factor
(1)	(2)	(3)
Brunswick	5,832	0.0051
Joplin	264,696	0.2321
Mexico	59,724	0.0524
Parkville	53,580	0.0470
St. Charles	311,652	0.2733
St. Joseph	372,816	0.3270
Warrensburg	71,964	0.0631
Total	1,140,264	1.0000

MISSOURI-AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING CORPORATE EXPENSES TO OPERATING DISTRICTS

FACTOR 11. ALLOCATION OF COSTS ASSOCIATED WITH LEAK DETECTION.

70% of leak detection expenses were assigned to the Joplin operating district based on a review of historical experience and the remaining 30% were allocated to the other six districts based on their length of mains.

Operating District	Length of Mains (Feet)	Weighted Factor	Allocation Factor
(1)	(2)	(3)	(4)
Joplin			0.7000
Brunswick	68,761	0.0100	0.0030
Mexico	455,615	0.0661	0.0198
Parkville	417,192	0.0606	0.0182
St. Charles	2,310,890	0.3355	0.1006
St. Joseph	3,160,432	0.4589	0.1377
Warrensburg	474,688	0.0689	0.0207
Total	6,887,578	1.0000	1.0000

FACTOR 12. ALLOCATION OF MISCELLANEOUS CUSTOMER ACCOUNTING EXPENSES

Factors are based on all other corporate customer accounting expenses.

Operating District	Customer Accounting Expenses	Allocation Factor
(1)	(2)	(3)
Brunswick	$1,455	0.0051
Joplin	66,237	0.2321
Mexico	14,955	0.0524
Parkville	13,413	0.0470
St. Charles	77,993	0.2733
St. Joseph	93,315	0.3270
Warrensburg	18,007	0.0631
Total	$285,375	1.0000

MISSOURI-AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING CORPORATE EXPENSES TO OPERATING DISTRICTS

FACTOR 13. ALLOCATION OF CORPORATE ADMINISTRATION AND ACCOUNTING EXPENSES AND CASH WORKING CAPITAL

Factors are based on the allocation of the total operation and maintenance expense excluding corporate administrative and general expenses.

Operating District	Operation and Maintenance Expenses	Allocation Factor
(1)	(2)	(3)
Brunswick	$221,920	0.0121
Joplin	3,483,562	0.1903
Mexico	1,330,493	0.0727
Parkville	1,334,809	0.0729
St. Charles	3,144,447	0.1718
St. Joseph	7,708,663	0.4211
Warrensburg	1,080,955	0.0591
Total	$18,304,849	1.0000

FACTOR 14. ALLOCATION OF LABOR RELATED TAXES AND BENEFITS.

Factors are based on the allocation of labor expense, excluding those items being allocated, and summarized below.

Operating District	Labor Expenses	Allocation Factor
(1)	(2)	(3)
Brunswick	$75,123	0.0199
Joplin	932,089	0.2469
Mexico	274,855	0.0728
Parkville	216,557	0.0574
St. Charles	654,887	0.1735
St. Joseph	1,444,033	0.3825
Warrensburg	177,514	0.0470
Total	$3,775,058	1.0000

MISSOURI-AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING CORPORATE EXPENSES TO OPERATING DISTRICTS

FACTOR 15. ALLOCATION OF CORPORATE LABOR RELATED TAXES AND BENEFITS.

Factors are based on the allocation of corporate labor expense as summarized below.

Operating District	Labor Expenses	Allocation Factor
(1)	(2)	(3)
Brunswick	$9,590	0.0139
Joplin	157,797	0.2281
Mexico	46,433	0.0671
Parkville	40,435	0.0585
St. Charles	138,753	0.2006
St. Joseph	261,044	0.3774
Warrensburg	37,633	0.0544
Total	$691,685	1.0000

FACTOR 16. ALLOCATION OF PROPERTY INSURANCE, PROPERTY TAXES, INCOME TAXES AND INCOME AVAILABLE FOR RETURN.

Factors are based on the allocation of the original cost measure of value rate base as shown on the following pages and summarized below.

Operating District	Original Cost Measure of Value	Allocation Factor
(1)	(2)	(3)
Brunswick	$904,569	0.0051
Joplin	20,275,700	0.1144
Mexico	11,733,067	0.0662
Parkville	9,013,332	0.0509
St. Charles	27,213,838	0.1536
St. Joseph	97,917,221	0.5528
Warrensburg	10,104,855	0.0570
Total	$177,162,582	1.0000

MISSOURI-AMERICAN WATER COMPANY

FACTOR 16. ORIGINAL COST MEASURE OF VALUE RATE BASE ALLOCATED TO OPERATING DISTRICTS

ACCOUNT (1)	FACTOR REF (2)	MEASURE OF VALUE (3)	BRUNSWICK (4)	JOPLIN (5)	MEXICO (6)	PARKVILLE (7)	ST CHARLES (8)	ST JOSEPH (9)	WARRENSBURG (10)
Direct Original Cost Measure of Value									
BRUNSWICK	1	823,899	823,899						
JOPLIN	2	19,047,338		19,047,338					
MEXICO	3	11,363,569			11,363,569				
PARKVILLE	4	8,693,630				8,693,630			
ST CHARLES	5	26,181,551					26,181,551		
ST JOSEPH	6	95,864,145						95,864,145	
WARRENSBURG	7	9,819,016							9,819,016
Total Direct Original Cost Measure of Value		171,793,148	823,899	19,047,338	11,363,569	8,693,630	26,181,551	95,864,145	9,819,016
CORPORATE ORIGINAL COST MEASURE OF VALUE									
NONDEPRECIABLE PLANT									
301 Organization	15	68,022	946	15,516	4,564	3,979	13,645	25,672	3,700
303 Other Intangible Plant	15	284,735	3,958	64,948	19,106	16,657	57,118	107,458	15,490
Total Nondepreciable Plant		352,757	4,904	80,464	23,670	20,636	70,763	133,130	19,190
DEPRECIABLE PLANT									
343 Transmission & Dist Mains	15	208,233	2,894	47,498	13,972	12,182	41,772	78,587	11,328
390 General Structures & Imprvmnts	15	170,795	2,374	38,958	11,460	9,992	34,261	64,459	9,291
391 Office Furniture and Equipment	15	2,576,683	35,816	587,741	172,895	150,736	516,883	972,440	140,172
392.11 Transportation Eq-Light Trucks	15	225,244	3,131	51,378	15,114	13,177	45,184	85,007	12,253
394 Tools, Shop & Garage Equipment	15	5,233	73	1,194	351	306	1,050	1,974	285
397 Communication Equipment	15	36,241	504	8,267	2,432	2,120	7,270	13,676	1,972
398 Miscellaneous Equipment	15	57,526	800	13,122	3,860	3,365	11,540	21,710	3,129
399 Book Reserve - Corporate	15	485,171-	6,744-	110,668-	32,555-	28,383-	97,325-	183,103-	26,393-
399 Amortization of CIAC	15	822,925	11,439	187,709	55,218	48,141	165,079	310,572	44,767
Total Depreciable Plant		3,617,709	50,287	825,199	242,747	211,636	725,714	1,365,322	196,804
Total Utility Plant		3,970,466	55,191	905,663	266,417	232,272	796,477	1,498,452	215,994
OTHER RATE BASE ELEMENTS									
Cash Working Capital	13	476,000	5,760	90,583	34,605	34,700	81,777	200,443	28,132
Accumulated Deferred ITC	15	58,935-	819-	13,443-	3,955-	3,448-	11,822-	22,242-	3,206-
Deferred Taxes	15	139,283-	1,936-	31,770-	9,346-	8,148-	27,940-	52,566-	7,577-
Prepayments	15	153,099	2,128	34,922	10,273	8,956	30,712	57,779	8,329
Customer Advances - Net	15	180,107-	2,503-	41,082-	12,085-	10,536-	36,129-	67,974-	9,798-
Deferred OPEBs	14	1,148,194	22,849	283,489	83,589	65,906	199,212	439,184	53,965
Total Other Rate Base Elements		1,398,968	25,479	322,699	103,081	87,430	235,810	554,624	69,845
Total Corporate Original Cost Measure of Value		5,369,434	80,670	1,228,362	369,498	319,702	1,032,287	2,053,076	285,839
Total Original Cost Measure of Value		177,162,582	904,569	20,275,700	11,733,067	9,013,332	27,213,838	97,917,221	10,104,855

MISSOURI-AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING CORPORATE EXPENSES TO OPERATING DISTRICTS

FACTOR 17. ALLOCATION OF REGULATORY COMMISSION AND OTHER MISCELLANEOUS CORPORATE EXPENSES.

Factors are based on the allocation of the total cost of service, excluding those items being allocated.

Operating District	Total Cost of Service	Allocation Factor
(1)	(2)	(3)
Brunswick	$396,366	0.0085
Joplin	7,007,099	0.1502
Mexico	3,123,874	0.0670
Parkville	2,773,280	0.0595
St. Charles	8,840,298	0.1895
St. Joseph	21,897,631	0.4694
Warrensburg	2,606,338	0.0559
Total	$46,644,886	1.0000

MISSOURI-AMERICAN WATER COMPANY

DOLLAR WEIGHTED AVERAGE AGE OF PLANT IN SERVICE

Operating District	Average Age
(1)	(2)
Brunswick	26.0
Parkville	11.3
Mexico	11.2
Warrensburg	9.6
Joplin	16.7
St. Charles	11.2
St. Joseph	8.1

MISSOURI-AMERICAN WATER COMPANY

DEVELOPMENT OF UNIT COSTS OF SERVICE BY DISTRICT

District	Number of Customers	Directly Assigned O & M		Corporate O & M		Depreciation, Return, Property & Income Taxes		Total	
		Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Brunswick	486	$169,555	$348.88	$60,608	$124.71	$165,584	$340.71	$395,747	$814.29
Joplin	22,058	2,329,874	105.62	1,070,471	48.53	3,595,809	163.02	6,996,154	317.17
Mexico	4,977	854,262	171.64	336,798	67.67	1,927,932	387.37	3,118,992	626.68
Parkville	4,465	801,402	179.49	302,069	67.65	1,665,473	373.01	2,768,944	620.14
St. Charles	25,971	2,771,175	106.70	1,013,439	39.02	5,041,875	194.13	8,826,489	339.86
St. Joseph	31,068	3,649,090	117.45	1,989,022	64.02	16,225,311	522.25	21,863,423	703.73
Warrensburg	5,997	592,458	98.79	284,456	47.43	1,725,351	287.70	2,602,265	433.93
Total	95,022	$11,167,816	117.53	$5,056,863	53.22	$30,347,335	319.37	$46,572,014	490.12

Schedule WMS-2

MISSOURI-AMERICAN WATER COMPANY
WATER DISTRICTS

ALLOCATION OF COST OF SERVICE
AS OF SEPTEMBER 30, 1999
TO CUSTOMER CLASSIFICATIONS

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, INC.
Harrisburg, Pennsylvania

MISSOURI-AMERICAN WATER COMPANY

COMPARISON OF PRO FORMA COST OF SERVICE WITH REVENUES UNDER PRESENT AND PROPOSED RATES
FOR THE YEAR ENDED SEPTEMBER 30, 1999

Customer Classification	Cost of Service				Revenues Under Present Rates		Revenues Under Proposed Rates		Proposed Increase	
	Amount	Public Fire Reallocated	Total	Percent of Total	Amount	Percent of Total	Amount	Percent of Total	Amount	Percent Increase
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Residential	$26,116,931	$2,225,877	$28,342,808	60.9%	$19,535,793	64.9%	$29,591,863	63.5%	$10,056,070	51.5%
Commercial	7,238,491	616,918	7,855,409	16.9%	5,475,266	18.2%	8,646,452	18.6%	3,171,186	57.9%
Industrial	4,643,584	395,760	5,039,344	10.8%	2,363,641	7.9%	3,898,501	8.4%	1,534,860	64.9%
Other Public Authority	1,481,837	126,293	1,608,130	3.5%	1,006,630	3.3%	1,594,741	3.4%	588,111	58.4%
Other Water Utilities	3,244,283	-	3,244,283	7.0%	1,218,529	4.0%	2,020,107	4.3%	801,578	65.8%
Private Fire Protection	444,183	37,857	482,040	1.0%	491,410	1.6%	820,351	1.8%	328,941	66.9%
Public Fire Protection	3,402,705	(3,402,705)	0	0.0%	0	0.0%	0	0.0%	0	-
Total	$46,572,014	$0	$46,572,014	100.0%	$30,091,269	100.0%	$46,572,015	100.0%	$16,480,746	54.8%

MISSOURI-AMERICAN WATER COMPANY

COST OF SERVICE FOR THE PRO FORMA YEAR ENDED SEPTEMBER 30, 1999, AT PROPOSED REVENUE LEVEL, ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER PUBLIC AUTHORITIES, OTHER WATER UTILITIES AND FIRE PROTECTION CUSTOMER CLASSIFICACTIONS

ACCOUNT (1)		FACTOR REF (2)	COST OF SERVICE (3)	RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	OTHER PUBLIC AUTHORITY (7)	OTHER WATER UTILITIES (8)	FIRE PROTECTION PRIVATE (9)	FIRE PROTECTION PUBLIC (10)
OPERATION AND MAINTENANCE EXPENSES										
SOURCE OF SUPPLY EXPENSES										
-OPERATION-										
600	Supervision and Engineering	2	8,522	4,422	1,606	1,223	346	872	7	46
601	Source of Supply Operation Expense	2	17,067	8,858	3,215	2,449	693	1,746	14	92
602	Purchased Water	1	1,425,731	687,488	281,439	245,796	60,594	135,444	1,853	13,117
	Total Operation		1,451,320	700,768	286,260	249,468	61,633	138,062	1,874	13,255
-MAINTENANCE-										
611	Structures and Improvements	2	2,460	1,277	463	353	100	252	2	13
614	Wells and Springs	2	19,447	10,092	3,664	2,791	790	1,989	16	105
616	Mains	2	306	159	58	44	12	31		2
617	Miscellaneous	2	36	19	7	5	1	4		
	Total Maintenance		22,249	11,547	4,192	3,193	903	2,276	18	120
Total Source of Supply Expenses			1,473,569	712,315	290,452	252,661	62,536	140,338	1,892	13,375
POWER AND PUMPING EXPENSES										
-OPERATION-										
620	Supervision & Engineering	6	17,281	8,817	3,188	2,412	688	1,725	57	394
622.1	Power and Production Expense	6	33	17	6	5	1	3		1
623.11	Power Purchased for Pumping	1	1,332,949	642,749	263,124	229,800	56,650	126,630	1,733	12,263
623.21	Fuel Purchased for Pumping	1	470	226	93	81	20	45	1	4
624	Pumping Labor and Expenses	6	357,932	182,617	66,038	49,967	14,246	35,722	1,181	8,161
626	Misc Pumping Expenses	6	138	72	25	19	5	14		3
	Total Operation		1,708,803	834,498	332,474	282,284	71,610	164,139	2,972	20,826
-MAINTENANCE-										
630	Pumping Supervision & Engineering	6	16,569	8,453	3,057	2,313	659	1,654	55	378
631	Pumping Structures & Improvements	6	988-	504-	182-	138-	39-	99-	3-	23-
633	Pumping Equipment	6	36,935	18,844	6,815	5,156	1,470	3,686	122	842
	Total Maintenance		52,516	26,793	9,690	7,331	2,090	5,241	174	1,197
Total Power and Pumping			1,761,319	861,291	342,164	289,615	73,700	169,380	3,146	22,023

MISSOURI-AMERICAN WATER COMPANY

COST OF SERVICE FOR THE PRO FORMA YEAR ENDED SEPTEMBER 30, 1999, AT PROPOSED REVENUE LEVEL, ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER PUBLIC AUTHORITIES, OTHER WATER UTILITIES AND FIRE PROTECTION CUSTOMER CLASSIFICACTIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	OTHER PUBLIC AUTHORITY (7)	OTHER WATER UTILITIES (8)	FIRE PROTECTION PRIVATE (9)	FIRE PROTECTION PUBLIC (10)
OPERATION AND MAINTENANCE EXPENSES, CONT.									
WATER TREATMENT									
-OPERATION-									
640 Supervision and Engineering	2	109,476	56,818	20,625	15,710	4,445	11,199	88	591
641 Chemicals	1	503,046	242,570	99,301	86,725	21,379	47,789	654	4,628
642 General Water Treatment	2	380,063	197,253	71,604	54,539	15,431	38,880	304	2,052
643.1 Misc Water Treatment Exp-Current	2	290,845	150,949	54,795	41,736	11,808	29,753	233	1,571
643.3 Waste Disposal Expense-Current	1	221,773	106,940	43,778	38,234	9,425	21,068	288	2,040
Total Operation		1,505,203	754,530	290,103	236,944	62,488	148,689	1,567	10,882
-MAINTENANCE-									
650 Supervision and Engineering	2	15,626	8,110	2,944	2,242	634	1,599	13	84
651 Structures and Improvements	2	15,993	8,301	3,013	2,295	649	1,636	13	86
652 General Water Treatment Equip	2	73,688	38,244	13,883	10,574	2,992	7,538	59	398
Total Maintenance		105,307	54,655	19,840	15,111	4,275	10,773	85	568
Total Purification and Laboratory Expenses		1,610,510	809,185	309,943	252,055	66,763	159,462	1,652	11,450
TRANSMISSION AND DISTRIBUTION EXPENSES									
-OPERATION-									
660 Supervision and Engineering	11	187,550	116,244	26,313	11,534	5,702	8,383	3,301	16,073
661 Storage Facilities Expense	5	18,536	7,554	2,512	1,535	541	1,210	641	4,543
662 Lines Expense	7	371,373	171,947	57,971	36,840	12,478	28,521	7,836	55,780
663 Meter Expense	9	213,380	171,685	28,401	4,396	7,298	1,600		
664 Customer Installation Expenses	10	100,649	85,059	9,884	533	1,087	141	3,945	
665 Misc T & D Expense	11	113,776	70,518	15,963	6,997	3,459	5,086	2,002	9,751
666 T & D Rents	11	5,894	3,654	827	362	179	263	104	505
Total Operation		1,011,158	626,661	141,871	62,197	30,744	45,204	17,829	86,652
-MAINTENANCE-									
670 Supervision and Engineering	12	88,597	40,834	11,651	6,485	2,490	4,988	2,197	19,952
671 T & D Structures & Improve	12	19,951	9,195	2,624	1,460	561	1,123	495	4,493
672 Reservoirs and Standpipes	5	672,096	273,878	91,069	55,650	19,625	43,888	23,255	164,731
673 T & D Mains	7	574,100	265,807	89,617	56,951	19,290	44,091	12,114	86,230
675 Services	10	96,879	81,872	9,514	513	1,046	136	3,798	
676 Meters and Meter Installations	9	133,806	107,660	17,810	2,756	4,576	1,004		
677 Fire Hydrants	8	105,412							105,412
678 Other T & D Plant	12	2,509	1,156	330	184	71	141	62	565
Total Maintenance		1,693,350	780,402	222,615	123,999	47,659	95,371	41,921	381,383
Total Transmission and Distribution Expenses		2,704,508	1,407,063	364,486	186,196	78,403	140,575	59,750	468,035

MISSOURI-AMERICAN WATER COMPANY

COST OF SERVICE FOR THE PRO FORMA YEAR ENDED SEPTEMBER 30, 1999, AT PROPOSED REVENUE LEVEL, ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER PUBLIC AUTHORITIES, OTHER WATER UTILITIES AND FIRE PROTECTION CUSTOMER CLASSIFICACTIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	OTHER PUBLIC AUTHORITY (7)	OTHER WATER UTILITIES (8)	FIRE PROTECTION PRIVATE (9)	FIRE PROTECTION PUBLIC (10)
OPERATION AND MAINTENANCE EXPENSES, CONT.									
CUSTOMER ACCOUNTS									
901 Supervision	13	86,662	77,258	7,774	191	598	26	815	
902 Meter Reading Expenses	14	445,955	401,315	40,359	981	3,166	134		
903 Customer Records & Collecting Exp	13	1,035,025	922,724	92,842	2,277	7,142	311	9,729	
904 Uncollectible Accounts	13	260,600	232,325	23,376	573	1,798	78	2,450	
905 Misc Customer Accounting Salaries	13	221,445	197,418	19,864	487	1,528	66	2,082	
907 Customer Service & Information Exp	13	40,199	35,838	3,606	88	277	12	378	
Total Customers' Accounting and Collecting Expenses		2,089,886	1,866,878	187,821	4,597	14,509	627	15,454	
ADMINISTRATIVE AND GENERAL EXPENSES									
-OPERATION-									
920 Administrative & General Salaries	15	914,962	591,065	119,952	57,185	21,959	41,539	11,529	71,733
920.5 Incentive Plan Expense	16	69,702	44,233	9,514	4,782	1,819	3,443	746	5,165
921.1 Expenses of Employees	16	75,285	47,775	10,276	5,165	1,965	3,719	806	5,579
921.13Dues and Memberships	15	3,932	2,540	515	246	94	179	50	308
921.2 Misc Office Expense	15	332,258	214,639	43,559	20,766	7,974	15,085	4,186	26,049
921.21Office Expense Tel	15	763	492	100	48	18	35	10	60
Accounting	15	441,452	285,178	57,874	27,591	10,595	20,042	5,562	34,610
Administrative	15	266,621	172,237	34,954	16,664	6,399	12,105	3,359	20,903
Administrative/Internal Audit	15	34,021	21,977	4,460	2,126	817	1,545	429	2,667
Corporate Secretarial	15	33,129	21,402	4,343	2,071	795	1,504	417	2,597
Engineering	18	43,801	22,917	7,148	4,853	1,516	3,495	407	3,465
Financial	15	154,475	99,791	20,252	9,655	3,707	7,013	1,946	12,111
Human Resources	16	144,815	91,899	19,767	9,934	3,780	7,154	1,550	10,731
Information Systems/Financial	15	327,927	211,842	42,991	20,495	7,870	14,888	4,132	25,709
Rates and Revenue	19	88,801	49,800	13,800	8,853	2,824	6,189	844	6,491
Risk Management	15	48,302	31,203	6,332	3,019	1,159	2,193	609	3,787
Water Quality/Regional	13	40,781	36,357	3,658	90	281	12	383	
923.2 Auditing Services	15	37,408	24,166	4,904	2,338	898	1,698	471	2,933
923.3 Legal Services	15	213,555	137,957	27,997	13,347	5,125	9,695	2,691	16,743
923.5 Other Services - Current	15	5,526	3,570	724	345	133	251	70	433
924 Property Insurance	15	124,863	80,661	16,370	7,804	2,997	5,669	1,573	9,789
925.11Workmans Compensation	16	52,205	33,129	7,126	3,581	1,363	2,579	559	3,868
925.3 Injuries and Damages	15	1,478	955	194	92	35	67	19	116
925.4 General Liability	15	182,267	117,744	23,895	11,392	4,374	8,275	2,297	14,290
926.10Employee Benefits	16	484,040	307,173	66,071	33,205	12,633	23,912	5,179	35,867
926.11Group Insurance Premium	16	706,736	448,495	96,469	48,482	18,446	34,913	7,562	52,369
926.2 Other Employee Expenses	16	388,467	246,521	53,026	26,649	10,139	19,190	4,157	28,785
927 Franchise Requirements	18	19,360	10,129	3,160	2,145	670	1,545	180	1,531

MISSOURI-AMERICAN WATER COMPANY

COST OF SERVICE FOR THE PRO FORMA YEAR ENDED SEPTEMBER 30, 1999, AT PROPOSED REVENUE LEVEL, ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER PUBLIC AUTHORITIES, OTHER WATER UTILITIES AND FIRE PROTECTION CUSTOMER CLASSIFICACTIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	OTHER PUBLIC AUTHORITY (7)	OTHER WATER UTILITIES (8)	FIRE PROTECTION PRIVATE (9)	FIRE PROTECTION PUBLIC (10)
OPERATION AND MAINTENANCE EXPENSES, CONT.									
ADMINISTRATIVE AND GENERAL EXPENSES, CONT.									
-OPERATION-, CONT.									
928.1 Amort Exp Rate Proceeding	19	350,744	196,697	54,506	34,969	11,154	24,447	3,332	25,639
928.3 Amort Other Regulatory Expense	19	21,463	12,036	3,335	2,140	683	1,496	204	1,569
930.1 Institute and Goodwill Ad Exp	15	1,296	837	170	81	31	59	16	102
930.2 Miscellaneous General Expense	15	109,505	70,740	14,356	6,844	2,628	4,972	1,380	8,585
930.39Research & Development Service Co	15	104,892	67,760	13,751	6,556	2,517	4,762	1,322	8,224
930.5 Lobbying Expense	15	5,065	3,271	664	317	122	230	64	397
930.6 Transportation Expenses	15	170,142	109,912	22,306	10,634	4,083	7,724	2,144	13,339
931 Administrative and General Rents	15	32,384	20,920	4,246	2,024	777	1,470	408	2,539
Total Operation		6,032,423	3,838,020	812,765	406,488	152,380	293,094	70,593	459,083
-MAINTENANCE-									
932 Maintenance of General Plant	15	43,652	28,199	5,723	2,728	1,048	1,982	550	3,422
Total Maintenance		43,652	28,199	5,723	2,728	1,048	1,982	550	3,422
Total Administrative and General Expenses		6,076,075	3,866,219	818,488	409,216	153,428	295,076	71,143	462,505
Total Operation and Maintenance Expenses		15,715,867	9,522,951	2,313,354	1,394,340	449,339	905,458	153,037	977,388
503 DEPRECIATION EXPENSE									
311 Source of Supply Struct & Improv	2	2,246	1,166	423	322	91	230	2	12
312 Collecting &Impounding Reservoirs	1	6,217	2,998	1,227	1,072	264	591	8	57
313 Lake, River and Other Intakes	2	1,834	952	346	263	74	188	1	10
314 Wells and Springs	2	70,100	36,382	13,207	10,059	2,846	7,171	56	379
316 Supply Mains	2	189,112	98,149	35,629	27,138	7,678	19,346	151	1,021
321 Pumping Structures & Improvements	6	171,054	87,273	31,559	23,879	6,808	17,071	564	3,900
323 Other Power Production Equipment	6	7,470	3,811	1,378	1,043	297	746	25	170
325 Electric Pumping Equipment	6	417,507	213,012	77,030	58,284	16,617	41,667	1,378	9,519
326 Diesel Pumping Equipment	6	2,522	1,287	465	352	100	252	8	58
328.3 Other Pumping Equipment	6	5,315	2,711	981	742	212	530	18	121
331 Water Treat Structures & Imp	2	801,544	416,001	151,011	115,022	32,543	81,998	641	4,328
332 Water Treat Equipment	2	1,135,135	589,136	213,859	162,892	46,086	116,124	908	6,130
341 T & D Structures & Improvements	12	25,968	11,968	3,415	1,901	730	1,462	644	5,848
342 Distrib. Reservoirs & Standpipes	5	146,445	59,676	19,843	12,126	4,276	9,563	5,067	35,894
343 Transmission & Distribution Mains	7	203,493	94,217	31,765	20,187	6,837	15,628	4,294	30,565

MISSOURI-AMERICAN WATER COMPANY

COST OF SERVICE FOR THE PRO FORMA YEAR ENDED SEPTEMBER 30, 1999, AT PROPOSED REVENUE LEVEL, ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER PUBLIC AUTHORITIES, OTHER WATER UTILITIES AND FIRE PROTECTION CUSTOMER CLASSIFICACTIONS

ACCOUNT (1)		FACTOR REF (2)	COST OF SERVICE (3)	RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	OTHER PUBLIC AUTHORITY (7)	OTHER WATER UTILITIES (8)	FIRE PROTECTION PRIVATE (9)	FIRE PROTECTION PUBLIC (10)
503	DEPRECIATION EXPENSE, CONT.									
343.1	Mains less than 4"	4	24,416	11,324	3,765	2,300	811	1,814	542	3,860
343.2	Mains 6" - 8"	4	275,949	127,985	42,551	25,994	9,162	20,503	6,126	43,628
343.3	Mains over 10"	3	330,012	151,344	54,947	41,846	11,847	29,833	5,016	35,179
344	Fire Mains	8	4,313							4,313
345	Services	10	355,028	300,034	34,864	1,882	3,834	497	13,917	
346	Meters	9	233,777	188,097	31,116	4,816	7,995	1,753		
347	Meter Installations	9	139,690	112,394	18,593	2,878	4,777	1,048		
348	Fire Hydrants	8	195,973							195,973
349	Other T & D Plants	12	2,557-	1,179-	336-	187-	72-	144-	63-	576-
390	Structures and Improvements	15	95,877	61,937	12,569	5,992	2,301	4,353	1,208	7,517
391	Office Furniture and Equipment	15	345,574	223,241	45,305	21,598	8,294	15,689	4,354	27,093
392	Transportation Equipment	15	135,351	87,437	17,745	8,459	3,248	6,145	1,705	10,612
393	Stores Equipment	15	223	145	29	14	5	10	3	17
394	Tools, Shop & Garage Equipment	15	47,436	30,643	6,219	2,965	1,138	2,154	598	3,719
395	Laboratory Equipment	2	7,555	3,921	1,423	1,084	307	773	6	41
396	Power Operated Equipment	15	21,645	13,982	2,838	1,353	519	983	273	1,697
397	Communication Equipment	15	20,836	13,459	2,732	1,302	500	946	263	1,634
398	Miscellaneous Equipment	15	10,032	6,481	1,315	627	241	455	126	787
399	Other Tangible Property	15	172,385	111,361	22,600	10,774	4,137	7,826	2,172	13,515
	Depreciation on Reserve Deficienc	17	34,093	17,803	5,544	3,754	1,176	2,707	327	2,782
	Depreciation on Regulatory Asset	18	6,612	3,459	1,079	733	229	528	61	523
	Depreciation on Planning Study	15	56,947	36,787	7,466	3,559	1,367	2,585	718	4,465
	St. Joseph Treatment Plant	2	244,392	126,840	46,043	35,070	9,922	25,001	196	1,320
	Other Amortization Expenses	15	39,387	25,444	5,164	2,462	945	1,788	496	3,088
	Total Depreciation & Amort. E		5,980,908	3,271,678	945,709	614,557	198,142	439,814	51,809	459,199
507.1	TAXES, OTHER THAN INCOME									
	Property Tax	15	2,244,609	1,450,018	294,268	140,288	53,871	101,905	28,282	175,977
	Payroll Tax	16	308,118	195,531	42,058	21,137	8,042	15,221	3,297	22,832
	PSC Fees	19	302,932	169,885	47,076	30,202	9,633	21,114	2,878	22,144
	Other	15	64,454	41,638	8,450	4,028	1,547	2,926	812	5,053
	Total Taxes, Other Than Income		2,920,113	1,857,072	391,852	195,655	73,093	141,166	35,269	226,006
507.2	INCOME TAXES	18	6,577,532	3,441,364	1,073,453	728,791	227,583	524,887	61,171	520,283
	Utility Operating Income Available for Return	18	15,954,465	8,347,376	2,603,769	1,767,755	552,024	1,273,166	148,377	1,261,998
	Total Cost of Service		47,148,885	26,440,441	7,328,137	4,701,098.	1,500,181	3,284,491	449,663	3,444,874

MISSOURI-AMERICAN WATER COMPANY

COST OF SERVICE FOR THE PRO FORMA YEAR ENDED SEPTEMBER 30, 1999, AT PROPOSED REVENUE LEVEL, ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER PUBLIC AUTHORITIES, OTHER WATER UTILITIES AND FIRE PROTECTION CUSTOMER CLASSIFICACTIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	OTHER PUBLIC AUTHORITY (7)	OTHER WATER UTILITIES (8)	FIRE PROTECTION PRIVATE (9)	FIRE PROTECTION PUBLIC (10)
Less: Other Water Revenues	19	576,871-	323,510-	89,646-	57,514-	18,344-	40,208-	5,480-	42,169-
Total Cost of Service Related to Sales of Water		46,572,014	26,116,931	7,238,491	4,643,584	1,481,837	3,244,283	444,183	3,402,705

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS

FACTOR 1. ALLOCATION OF COSTS WHICH VARY WITH THE AMOUNT OF WATER CONSUMED.

Factors are based on the pro forma test year average daily consumption for each customer classification.

Customer Classification	Average Daily Consumption, 1,000 Gallons	Allocation Factor
(1)	(2)	(3)
Residential	18,471	0.4822
Commercial	7,561	0.1974
Industrial	6,605	0.1724
Other Public Authority	1,628	0.0425
Other Water Utilities	3,641	0.0950
Private Fire Protection	50	0.0013
Public Fire Protection	352	0.0092
Total	38,309	1.0000

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS

FACTOR 2. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE AND MAXIMUM DAY EXTRA CAPACITY FUNCTIONS.

Factors are based on the weighting of the factors for average daily consumption (Factor 1) and the factors derived from maximum day extra capacity demand for each customer classification, as follows:

	Average Daily Consumption		Maximum Day Extra Capacity		
Customer Classification	Allocation Factor 1	Weighted Factor	Allocation Factor	Weighted Factor	Allocation Factor
(1)	(2)	(3)=(2)x 0.5882	(4)	(5)=(4)x 0.4118	(6)=(3)+(5)
Residential	0.4822	0.2836	0.5718	0.2356	0.5190
Commercial	0.1974	0.1161	0.1755	0.0723	0.1884
Industrial	0.1724	0.1014	0.1022	0.0421	0.1435
Other Public Authority	0.0425	0.0250	0.0378	0.0156	0.0406
Other Water Utilities	0.0950	0.0559	0.1127	0.0464	0.1023
Private Fire Protection	0.0013	0.0008			0.0008
Public Fire Protection	0.0092	0.0054			0.0054
Total	1.0000	0.5882	1.0000	0.4120	1.0000

The derivation of the maximum day extra capacity factors in column 4 and the basis for the column 3 and 5 weightings are presented on the following page.

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 2. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE AND MAXIMUM DAY EXTRA CAPACITY FUNCTIONS, cont.

		Maximum Day Extra Capacity		
Customer Classification	Average Daily Consumption, 1,000 Gallons	Factor*	Rate of Flow, 1,000 Gallons Per Day	Allocation Factor
(1)	(2)	(3)	(4)=(2)x(3)	(5)
Residential	18,471	1.0	18,471.5	0.5718
Commercial	7,561	0.8	5,670.8	0.1755
Industrial	6,605	0.5	3,302.4	0.1022
Other Public Authority	1,628	0.8	1,221.3	0.0378
Other Water Utilities	3,641	1.0	3,641.2	0.1127
Total	37,907		32,307.2	1.0000

The weighting of the factors is based on the maximum day ratio of 1.70, based on a review of maximum day ratios experienced during the period 1990 through 1998 (see Schedule F).

	Maximum Day Ratio	Weight
Average Day	1.00	0.5882
Maximum Day Extra Capacity	0.70	0.4118
Total	1.70	1.0000

* Ratio of maximum day to average day minus 1.0.

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 3. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE, MAXIMUM DAY EXTRA CAPACITY AND FIRE PROTECTION FUNCTIONS.

Factors are based on the weighting of the average daily consumption, the maximum day extra capacity demand, and the fire protection demand for each customer classification.

	Average Daily Consumption		Maximum Day Extra Capacity		Fire Protection		
Customer Classification	Allocation Factor	Weighted Factor	Allocation Factor	Weighted Factor	Allocation Factor	Weighted Factor	Allocation Factor
(1)	(2)	(3)=(2) X 0.5198	(4)	(5)=(4) X 0.3639	(6)	(7)=(6) X 0.1163	(8)=(3)+(5)+(7)
Residential	0.4822	0.2506	0.5718	0.2080			0.4586
Commercial	0.1974	0.1026	0.1755	0.0639			0.1665
Industrial	0.1724	0.0896	0.1022	0.0372			0.1268
Other Public Authority	0.0425	0.0221	0.0378	0.0138			0.0359
Other Water Utilities	0.0950	0.0494	0.1127	0.0410			0.0904
Private Fire Protection	0.0013	0.0007			0.1235	0.0145	0.0152
Public Fire Protection	0.0092	0.0048			0.8765	0.1018	0.1066
Total	1.0000	0.5198	1.0000	0.3639	1.0000	0.1163	1.0000

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 3. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE, MAXIMUM DAY EXTRA CAPACITY AND FIRE PROTECTION FUNCTIONS, cont.

The weighting of the factors is based on the potential demand of general and fire protection service. The bases for the potential demand of general service are the maximum day ratio of 1.70 and the total system sendout for 1998 of 40.214 mgd. The ratio is based on a review of the experienced maximum day ratios during the period 1990 through 1998 (see Schedule F). The system demand for fire protection is 15,000 gpm for 10 hours.

	Ratio	Rate of Flow, (GPD)	Weight
Average Hour	1.00	40,214,500	0.5198
Maximum Hour Extra Capacity	0.70	28,150,150	0.3639
Subtotal	1.70	68,364,650	0.8837
Fire Protection		9,000,000	0.1163
Total		77,364,650	1.0000

The public and private fire protection allocation factors in column 6 on the previous page are based on the relative potential demands (see Schedule G).

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 4. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE AND MAXIMUM HOUR EXTRA CAPACITY FUNCTIONS.

Factors are based on the weighting of the average daily consumption, the maximum day extra capacity demand, and the fire protection demand for each customer classification.

	Average Hourly Consumption			Maximum Hour Extra Capacity		Fire Protection		
Customer Classification	100 Gals.	Allocation Factor	Weighted Factor	Allocation Factor	Weighted Factor	Allocation Factor	Weighted Factor	Allocation Factor
(1)	(2)	(3)	(4)=(3) X 0.3293	(5)	(6)=(5) X 0.4939	(7)	(8)=(7) X 0.1769	(9)=(4)+(6)+(8)
Residential	769.6	0.4822	0.1588	0.6178	0.3051	0.0000	0.0000	0.4638
Commercial	315.0	0.1974	0.0650	0.1806	0.0892			0.1542
Industrial	275.2	0.1724	0.0568	0.0757	0.0374			0.0942
Other Public Authority	67.8	0.0425	0.0140	0.0389	0.0192			0.0332
Other Water Utilities	151.7	0.0950	0.0313	0.0870	0.0430			0.0743
Private Fire Protection	2.1	0.0013	0.0004			0.1235	0.0218	0.0222
Public Fire Protection	14.7	0.0092	0.0030			0.8765	0.1551	0.1581
Total	1,596.1	1.0000	0.3293	1.0000	0.4939	1.0000	0.1769	1.0000

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 4. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE AND MAXIMUM HOUR EXTRA CAPACITY FUNCTIONS, cont.

The weighting of the factors is based on the potential demand of general and fire protection service. the bases for the potential demand of general service are the maximum hour ratio of 2.5 and the total system sendout for 1998 of 40.214 mgd. The ratio is based on a review of the experienced maximum hour ratios during the period 1966 through 1998 (see Schedule F). The system demand for fire protection is 15,000 gpm.

	Ratio	Rate of Flow, (GPM)	Weight
Average Hour	1.00	27,927	0.3293
Maximum Hour Extra Capacity	1.50	41,890	0.4939
Subtotal	2.50	69,817	0.8231
Fire Protection		15,000	0.1769
Total		84,817	1.0000

The maximum hour extra capacity factors in column 5 of the previous page are determined as follows:

Customer Classification	Average Hourly Consumption 100 Gals.	Maximum Hour Extra Capacity Factor*	Maximum Hour Extra Capacity 100 Gals. Per Hour	Allocation Factor
(1)	(2)	(3)	(4)=(2)x(3)	(5)
Residential	769.6	3.5	2,693.6	0.6178
Commercial	315.0	2.5	787.5	0.1806
Industrial	275.2	1.2	330.2	0.0757
Other Public Authority	67.8	2.5	169.5	0.0389
Other Water Utilities	151.7	2.5	379.3	0.0870
Total	1,579.3		4,360.1	1.0000

* Ratio of Maximum Hour To Average Hour Minus 1.0.

The public and private fire protection allocation factors in column 7 on the previous page are based on the relative potential demands (see Schedule G).

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 5. ALLOCATION OF COSTS ASSOCIATED WITH STORAGE FACILITIES.

Factors are based on the weighting of the average hourly consumption, the maximum hour extra capacity demand, and the fire protection demand for each customer classification.

Customer Classification	Average Hourly Consumption			Maximum Hour Extra Capacity		Fire Protection		
	100 Gals.	Allocation Factor	Weighted Factor	Allocation Factor	Weighted Factor	Allocation Factor	Weighted Factor	Allocation Factor
(1)	(2)	(3)	(4)=(3) X 0.2894	(5)	(6)=(5) X 0.4340	(7)	(8)=(7) X 0.2766	(9)=(4)+(6)+(8)
Residential	769.6	0.4822	0.1395	0.6178	0.2680	0.0000	0.0000	0.4075
Commercial	315.0	0.1974	0.0571	0.1806	0.0784			0.1355
Industrial	275.2	0.1724	0.0499	0.0757	0.0329			0.0828
Other Public Authority	67.8	0.0425	0.0123	0.0389	0.0169			0.0292
Other Water Utilities	151.7	0.0950	0.0275	0.0870	0.0378			0.0653
Private Fire Protection	2.1	0.0013	0.0004			0.1235	0.0342	0.0346
Public Fire Protection	14.7	0.0092	0.0027			0.8765	0.2424	0.2451
Total	1,596.1	1.0000	0.2894	1.0000	0.4340	1.0000	0.2766	1.0000

The weighting of the factors is based on the ratio of the capacity required for a 10 - hour demand of fire flow, as related to total storage capacity. The calculation is shown on the following page.

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 5. ALLOCATION OF COSTS ASSOCIATED WITH STORAGE FACILITIES, cont.

The weighting of the factors is based on the ratio of the capacity required for a 10 - hour demand of fire flow, as related to total storage capacity.

Fire Protection Weight = $\frac{15{,}000 \text{ GPM} \times 60 \text{ Min.} \times 10 \text{ Hours}}{32{,}536{,}000 \text{ Gallons}}$ = 0.2766

General Service Weight = 1.0000 - 0.2766 = 0.7234

The weighting of the average hourly consumption and maximum hour extra demand for general service is based on the maximum hour ratio, as follows:

	Maximum Hour Ratio	Percent	Weight
Average Hour	1.00	40.00	0.2894
Extra Capacity Maximum Hour	1.50	60.00	0.4340
Total	2.50	100.00	0.7234

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 6. ALLOCATION OF COSTS ASSOCIATED WITH POWER AND PUMPING FACILITIES.

Factors are based on the weighting of the maximum daily consumption, Factor 2, the maximum daily consumption with fire, Factor 3, and the maximum hour consumption, Factor 4, for each customer classification, as follows:

	Maximum Daily Consumption		Maximum Daily Consumption		Maximum Hourly Consumption		
Customer Classification	Allocation Factor 2	Weighted Factor	Allocation Factor 3	Weighted Factor	Allocation Factor 4	Weighted Factor	Allocation Factor
(1)	(2)	(3)=(2)X 0.8495	(4)	(5)=(4)X 0.1087	(6)	(7)=(6)X 0.0418	(8)=(3)+ (5)+(7)
Residential	0.5190	0.4409	0.4586	0.0498	0.4638	0.0195	0.5102
Commercial	0.1884	0.1600	0.1665	0.0181	0.1542	0.0064	0.1845
Industrial	0.1435	0.1219	0.1268	0.0138	0.0942	0.0039	0.1396
Other Public Authority	0.0406	0.0345	0.0359	0.0039	0.0332	0.0014	0.0398
Other Water Utilities	0.1023	0.0869	0.0904	0.0098	0.0743	0.0031	0.0998
Private Fire Protection	0.0008	0.0007	0.0152	0.0017	0.0222	0.0009	0.0033
Public Fire Protection	0.0054	0.0046	0.1066	0.0116	0.1581	0.0066	0.0228
Total	1.0000	0.8495	1.0000	0.1087	1.0000	0.0418	1.0000

The weighting of the factors is based on the horse power of pumps associated with maximum day facilities, maximum day and fire facilities, and maximum hour facilities, as follows:

	Horsepower of Pumps	Weight
Associated with Maximum Day	10,820	0.8495
Associated with Maximum Day and Fire	1,385	0.1087
Associated with Maximum Hour	533	0.0418
Total	12,738	1.0000

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 7. ALLOCATION OF COSTS ASSOCIATED WITH TRANSMISSION AND DISTRIBUTION MAINS.

Factors are based on the weighting of the maximum daily consumption with fire, Factor 3, and the maximum hour consumption, Factor 4, for each customer classification, as follows:

	Maximum Daily Consumption		Maximum Hourly Consumption		
Customer Classification	Allocation Factor 3	Weighted Factor	Allocation Factor 4	Weighted Factor	Allocation Factor
(1)	(2)	(3)=(2)X 0.1533	(4)	(5)=(4)X 0.8467	(6)=(3)+(5)
Residential	0.4586	0.0704	0.4638	0.3926	0.4630
Commercial	0.1665	0.0255	0.1542	0.1306	0.1561
Industrial	0.1268	0.0194	0.0942	0.0798	0.0992
Other Public Authority	0.0359	0.0055	0.0332	0.0281	0.0336
Other Water Utilities	0.0904	0.0139	0.0743	0.0629	0.0768
Private Fire Protection	0.0152	0.0023	0.0222	0.0188	0.0211
Public Fire Protection	0.1066	0.0163	0.1581	0.1339	0.1502
Total	1.0000	0.1533	1.0000	0.8467	1.0000

The weighting of the factors is based on the total footage of mains, designated as either transmission mains or distribution mains, as follows:

	Total Footage of Mains	Weight
Transmission Mains	1,330,658	0.1533
Distribution Mains	7,350,429	0.8467
Total	8,681,087	1.0000

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 8. ALLOCATION OF COSTS ASSOCIATED WITH FIRE HYDRANTS.

Factors are based on the number of hydrants, as follows:

Customer Classification	Number of Hydrants	Allocation Factor
(1)	(2)	(3)
Public Fire Protection	8,343	1.0000
Total	8,343	1.0000

FACTOR 9. ALLOCATION OF COSTS ASSOCIATED WITH METERS.

Factors are based on the relative cost of meters by size and customer classification, as developed on the following page and summarized below.

Customer Classification	5/8" Dollar Equivalents	Allocation Factor
(1)	(2)	(3)
Residential	85,233	0.8046
Commercial	14,102	0.1331
Industrial	2,178	0.0206
Other Public Authority	3,619	0.0342
Other Water Utilities	794	0.0075
Total	105,926	1.0000

MISSOURI AMERICAN WATER COMPANY

BASIS FOR ALLOCATING METER COSTS TO CUSTOMER CLASSIFICATIONS

Meter Size	5/8" Dollar Equivalent	Residential		Commercial		Industrial		Other Public Authority		Other Water Utilities		Private Fire Protection		Total	
		Number of Meters	Weighting	Number of Meters	Weighting	Number of Meters	Weighting	Number of Meters	Weighting	Number of Meters	Weighting	Number of Meters	Weighting	Number of Meters	Weighting
(1)	(2)	(3)	(4)=(2)X(3)	(5)	(6)=(2)X(5)	(7)	(8)=(2)X(7)	(9)	(10)=(2)X(9)	(11)	(12)=(2)X(11)	(13)	(14)=(2)X(11)	(15)	(16)
5/8	1.00	79,140	79,140	6,004	6,004	34	34	207	207	1	1	736	736	86,122	86,122
3/4	1.30	603	783	197	256	5	6	19	24	0	0	0	0	823	1,069
1	1.80	2,702	4,863	1,133	2,040	50	91	102	183	2	3	0	0	3,989	7,180
1-1/2	3.90	53	206	345	1,346	15	57	44	173	0	0	0	0	457	1,782
2	4.80	42	199	695	3,334	122	583	213	1,024	32	154	0	0	1,103	5,294
3	7.10	2	14	20	142	6	43	20	140	5	38	0	0	53	377
4	27.80	1	28	21	586	35	959	29	799	8	222	0	0	93	2,594
6	43.80	0	0	9	394	9	405	5	208	3	128	0	0	26	1,135
8	129.20	0	0	0	0	0	0	7	861	2	248	0	0	9	1,109
Total		82,542	85,233	8,424	14,102	275	2,178	645	3,619	53	794	736	736	92,675	106,662

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 10. ALLOCATION OF COSTS ASSOCIATED WITH SERVICES.

Factors are based on the relative cost of services by size and customer classification, as developed on the following page and summarized below.

Customer Classification	3/4" Dollar Equivalents	Allocation Factor
(1)	(2)	(3)
Residential	83,087	0.8451
Commercial	9,649	0.0982
Industrial	525	0.0053
Other Public Authority	1,057	0.0108
Other Water Utilities	133	0.0014
Private Fire Protection	3,856	0.0392
Total	98,307	1.0000

MISSOURI AMERICAN WATER COMPANY

BASIS FOR ALLOCATING SERVICE COSTS TO CUSTOMER CLASSIFICATIONS

Service Size	3/4" Dollar Equivalent	Residential		Commercial		Industrial		Other Public Authority		Other Water Utilities		Private Fire Protection		Total	
		Number of Services	Weighting	Number of Services	Weighting	Number of Services	Weighting	Number of Services	Weighting	Number of Services	Weighting	Number of Services	Weighting	Number of Services	Weighting
(1)	(2)	(3)	(4)=(2)X(3)	(5)	(6)=(2)X(5)	(7)	(8)=(2)X(7)	(9)	(10)=(2)X(9)	(11)	(12)=(2)X(11)	(13)	(14)=(2)X(11)	(15)	(16)
3/4	1.00	79,742	79,742	6,201	6,201	39	39	226	226	1	1	0	0	86,209	86,209
1	1.17	2,702	3,168	1,133	1,329	50	59	102	119	2	2	0	0	3,989	4,677
1-1/2	1.58	53	83	345	544	15	23	44	70	0	0	0	0	457	720
2	2.04	42	85	695	1,419	122	248	213	436	32	66	11	22	1,114	2,276
4	2.88	3	9	41	118	41	117	48	139	13	39	120	345	266	767
6	4.24	0	0	9	38	9	39	5	20	3	12	341	1,447	367	1,556
8	6.98	0	0	0	0	0	0	7	47	2	13	228	1,591	237	1,651
10	9.50	0	0	0	0	0	0	0	0	0	0	36	342	36	342
12	12.16	0	0	0	0	0	0	0	0	0	0	9	109	9	109
Total		82,542	83,087	8,424	9,649	275	525	645	1,057	53	133	745	3,856	92,684	98,307

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 11. ALLOCATION OF TRANSMISSION AND DISTRIBUTION OPERATION SUPERVISION AND ENGINEERING, MISCELLANEOUS AND RENT EXPENSES.

Factors are based on transmission and distribution operation expenses other than those being allocated, as follows:

Customer Classification	Transmission and Distribution Operating Expenses	Allocation Factor
(1)	(2)	(3)
Residential	$436,245	0.6198
Commercial	98,768	0.1403
Industrial	43,304	0.0615
Other Public Authority	21,404	0.0304
Other Water Utilities	31,472	0.0447
Private Fire Protection	12,422	0.0176
Public Fire Protection	60,323	0.0857
Total	$703,938	1.0000

FACTOR 12. ALLOCATION OF TRANSMISSION AND DISTRIBUTION MAINTENANCE SUPERVISION AND ENGINEERING, STRUCTURES AND IMPROVEMENTS, AND OTHER EXPENSES.

Factors are based on transmission and distribution maintenance expenses other than those being allocated, as follows:

Customer Classification	Transmission and Distribution Maintenance Expenses	Allocation Factor
(1)	(2)	(3)
Residential	$729,217	0.4609
Commercial	208,010	0.1315
Industrial	115,870	0.0732
Other Public Authority	44,537	0.0281
Other Water Utilities	89,119	0.0563
Private Fire Protection	39,167	0.0248
Public Fire Protection	356,373	0.2252
Total	$1,582,293	1.0000

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 13. ALLOCATION OF BILLING AND COLLECTING COSTS.

Factors are based on the total number of customers.

Customer Classification	Total Customers	Allocation Factor
(1)	(6)	(7)
Residential	84,710	0.8915
Commercial	8,522	0.0897
Industrial	210	0.0022
Other Public Authority	662	0.0069
Other Water Utilities	27	0.0003
Private Fire Protection	891	0.0094
Public Fire Protection	0	0.0000
Total	95,022	1.0000

FACTOR 14. ALLOCATION OF METER READING COSTS.

Factors are based on the number of metered customers.

Customer Classification	Total Metered Customers	Allocation Factor
(1)	(6)	(7)
Residential	84,710	0.8999
Commercial	8,522	0.0905
Industrial	210	0.0022
Other Public Authority	662	0.0071
Other Water Utilities	27	0.0003
Total	94,131	1.0000

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 15. ALLOCATION OF ADMINISTRATIVE AND GENERAL EXPENSES AND CASH WORKING CAPITAL - EXPENSES.

Factors are based on the allocation of all other operation and maintenance expenses excluding purchased water, power, and chemicals.

Customer Classification	Operation & Maintenance Expenses	Allocation Factor
(1)	(2)	(3)
Residential	$3,976,968	0.6460
Commercial	807,218	0.1311
Industrial	384,564	0.0625
Other Public Authority	147,862	0.0240
Other Water Utilities	279,448	0.0454
Private Fire Protection	77,366	0.0126
Public Fire Protection	482,834	0.0784
Total	$6,156,260	1.0000

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 16. ALLOCATION OF LABOR RELATED TAXES AND BENEFITS.

Factors are based on the allocation of direct labor expense as shown on the following pages and summarized below.

Customer Classification	Direct Labor Expense	Allocation Factor
(1)	(2)	(3)
Residential	$2,672,060	0.6346
Commercial	574,925	0.1365
Industrial	288,714	0.0686
Other Public Authority	109,846	0.0261
Other Water Utilities	208,035	0.0494
Private Fire Protection	45,008	0.0107
Public Fire Protection	312,013	0.0741
Total	$4,210,601	1.0000

FACTOR 17. ALLOCATION OF ORGANIZATION, FRANCHISES AND CONSENTS, MISCELLANEOUS INTANGIBLE PLANT AND OTHER RATE BASE ELEMENTS.

Factors are based on the allocation of the original cost less depreciation other than those items being allocated, as follows:

Customer Classification	Original Cost Less Depreciation	Allocation Factor
(1)	(2)	(3)
Residential	$90,879,525	0.5222
Commercial	28,296,975	0.1626
Industrial	19,163,748	0.1101
Other Public Authority	5,995,742	0.0345
Other Water Utilities	13,813,183	0.0794
Private Fire Protection	1,662,840	0.0096
Public Fire Protection	14,200,418	0.0816
Total	$174,012,431	1.0000

MISSOURI-AMERICAN WATER COMPANY

FACTOR 16. OPERATION AND MAINTENANCE DIRECT LABOR EXPENSE ALLOCATED TO
RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER PUBLIC AUTHORITIES, OTHER WATER UTILITIES AND FIRE PROTECTION CUSTOMER CLASSIFICACTIONS

	ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	OTHER PUBLIC AUTHORITY (7)	OTHER WATER UTILITIES (8)	FIRE PROTECTION PRIVATE (9)	FIRE PROTECTION PUBLIC (10)
600	Supervision and Engineering	2	8,522	4,422	1,606	1,223	346	872	7	46
601	Source of Supply Operation Expense	2	12,215	6,339	2,301	1,753	496	1,250	10	66
611	Source of Supply Struct & Impr	2	719	373	135	103	29	74	1	4
616	Supply Mains	2	205	107	39	29	8	21		1
620	Pumping Oper Super & Engin Elec	6	17,281	8,817	3,188	2,412	688	1,725	57	394
624	Pumping Labor Electric	6	308,911	157,607	56,994	43,124	12,295	30,829	1,019	7,043
630	Pumping Supervision & Engineering	6	16,569	8,453	3,057	2,313	659	1,654	55	378
631	Pumping Structures & Improv	6	292	148	54	41	12	29	1	7
633	Pumping Equipment	6	21,659	11,050	3,996	3,024	862	2,162	71	494
640	Supervision and Engineering	2	109,476	56,818	20,625	15,710	4,445	11,199	88	591
642	General Water Treatment	2	377,458	195,901	71,113	54,165	15,325	38,614	302	2,038
650	Supervision and Engineering	2	15,626	8,110	2,944	2,242	634	1,599	13	84
651	Structures and Improvements	2	6,037	3,133	1,137	866	245	618	5	33
652	General Water Treatment Equip	2	32,227	16,725	6,072	4,625	1,308	3,297	26	174
660	Supervision and Engineering	11	187,550	116,244	26,313	11,534	5,702	8,383	3,301	16,073
661	Storage Facilities Expense	5	911	372	123	75	27	59	32	223
662	Lines Expense	7	303,602	140,568	47,392	30,117	10,201	23,317	6,406	45,601
663	Meter Expenses	9	182,325	146,699	24,267	3,756	6,236	1,367		
664	Customer Installation Expenses	10	100,649	85,059	9,884	533	1,087	141	3,945	
665	Misc T & D Expenses	11	95,054	58,914	13,336	5,846	2,890	4,249	1,673	8,146
670	Supervision and Engineering	12	88,597	40,834	11,651	6,485	2,490	4,988	2,197	19,952
671	T & D Structures & Improve	12	19,950	9,195	2,623	1,460	561	1,123	495	4,493
672	Reservoirs and Standpipes	5	11,266	4,590	1,527	933	329	736	390	2,761
673	T & D Mains	7	312,742	144,799	48,819	31,024	10,508	24,019	6,599	46,974
675	Services	10	69,466	58,706	6,822	368	750	97	2,723	
676	Meters and Meter Installations	9	77,153	62,077	10,269	1,589	2,639	579		
677	Fire Hydrants	8	78,851							78,851
678	Other T & D Plant	12	1,685	777	222	123	47	95	42	379
901	Supervision	13	86,662	77,258	7,774	191	598	26	815	
902	Meter Reading Expenses	14	434,590	391,088	39,330	956	3,086	130		
903	Customer Records & Collecting Exp	13	247,574	220,713	22,207	545	1,708	74	2,327	
920	Administrative & General Salaries	15	984,665	636,092	129,090	61,542	23,632	44,704	12,407	77,198
932	A&G Structures & Improvements	15	112	72	15	7	3	5	1	9
	Total Labor Expense		4,210,601	2,672,060	574,925	288,714	109,846	208,035	45,008	312,013

MISSOURI AMERICAN WATER COMPANY

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 18. ALLOCATION OF INCOME TAXES AND INCOME AVAILABLE FOR RETURN.

Factors are based on the allocation of the original cost measure of value rate base as shown on the following pages and summarized below.

Customer Classification	Original Cost Measure of Value	Allocation Factor
(1)	(2)	(3)
Residential	$92,713,057	0.5232
Commercial	28,907,856	0.1632
Industrial	19,625,164	0.1108
Other Public Authority	6,123,271	0.0346
Other Water Utilities	14,139,233	0.0798
Private Fire Protection	1,645,598	0.0093
Public Fire Protection	14,008,397	0.0791
Total	$177,162,576	1.0000

FACTOR 19. ALLOCATION OF REGULATORY COMMISSION EXPENSES, ASSESSMENTS AND OTHER WATER REVENUES.

The factors are based on the allocation of the total cost of service, excluding those items being allocated.

Customer Classification	Total Cost of Service	Allocation Factor
(1)	(2)	(3)
Residential	$26,440,441	0.5608
Commercial	7,328,137	0.1554
Industrial	4,701,098	0.0997
Other Public Authority	1,500,181	0.0318
Other Water Utilities	3,284,491	0.0697
Private Fire Protection	449,663	0.0095
Public Fire Protection	3,444,874	0.0731
Total	$47,148,885	1.0000

MISSOURI-AMERICAN WATER COMPANY

FACTOR 18. ORIGINAL COST MEASURE OF VALUE RATE BASE ALLOCATED TO
RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER PUBLIC AUTHORITIES, OTHER WATER UTILITIES AND FIRE PROTECTION CUSTOMER CLASSIFICACTIONS

	ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	OTHER PUBLIC AUTHORITY (7)	OTHER WATER UTILITIES (8)	FIRE PROTECTION PRIVATE (9)	FIRE PROTECTION PUBLIC (10)
NONDEPRECIABLE PLANT										
301	Organization	17	296,862	155,020	48,270	32,685	10,242	23,571	2,850	24,224
302	Franchises and Consents	17	39,500	20,627	6,423	4,349	1,363	3,136	379	3,223
303	Other Intangible Plant	17	164,852	86,086	26,805	18,150	5,687	13,089	1,583	13,452
310	Other Source of Supply Land	2	370,939	192,517	69,885	53,230	15,060	37,947	297	2,003
311	Structures & Improvements	2	30,809	15,990	5,804	4,421	1,251	3,152	25	166
312	Collection & Impound Reservoirs	1	260,485	125,605	51,420	44,908	11,071	24,746	339	2,396
320	Pumping Land and Land Rights	6	390,837	199,405	72,109	54,561	15,555	39,006	1,290	8,911
330	Water Treat Land & Land Rights	2	33,418	17,344	6,296	4,795	1,357	3,419	27	180
340	Trans & Dist Land & Land Rights	7	658,849	305,047	102,846	65,358	22,137	50,600	13,902	98,959
389	General Land and Land Rights	15	201,703	130,301	26,443	12,606	4,841	9,157	2,541	15,814
	Total Nondepreciable Plant		2,448,254	1,247,942	416,301	295,063	88,564	207,823	23,233	169,328
DEPRECIABLE PLANT										
	Various Contr. in Aid of Const.	4	4,429,420	2,054,365	683,017	417,251	147,057	329,106	98,333	700,291
313	Lake, River and Other Intakes	2	301,508	156,484	56,804	43,266	12,241	30,844	241	1,628
314	Wells and Springs	2	2,658,169	1,379,589	500,799	381,447	107,922	271,931	2,127	14,354
316	Supply Mains	2	10,349,967	5,371,632	1,949,934	1,485,220	420,209	1,058,802	8,280	55,890
321	Pumping Structures & Improvements	6	7,234,670	3,691,129	1,334,797	1,009,960	287,940	722,020	23,874	164,950
322	Boiler Plant Equipment	2	37,073-	19,240-	6,985-	5,320-	1,505-	3,793-	30-	200-
323	Force Mains	3	343,329	157,450	57,164	43,534	12,326	31,037	5,219	36,599
324	Steam Pumping Equipment	6	6,907	3,525	1,274	964	275	689	23	157
325	Electric Pumping Equipment	6	9,988,870	5,096,322	1,842,947	1,394,446	397,557	996,889	32,963	227,746
326	Diesel Pumping Equipment	6	91,601	46,735	16,900	12,787	3,646	9,142	302	2,089
328.3	Other Pumping Equipment	6	171,855	87,681	31,707	23,991	6,840	17,151	567	3,918
331	Water Treat Structures & Improv	2	24,117,410	12,516,936	4,543,720	3,460,848	979,167	2,467,211	19,294	130,234
332	Water Treat Equipment	2	37,799,312	19,617,844	7,121,390	5,424,201	1,534,652	3,866,870	30,239	204,116
332.4	Water Treat Equip Filter Plant	2	3,073	1,595	579	441	125	314	2	17
341	T & D Structures & Improvements	12	276,075	127,242	36,304	20,209	7,758	15,543	6,847	62,172
342	Distrib. Reservoirs & Standpipes	5	5,673,290	2,311,866	768,731	469,748	165,660	370,466	196,296	1,390,523
343	Transmission & Distribution Mains	7	14,315,187	6,627,932	2,234,601	1,420,067	480,990	1,099,406	302,050	2,150,141
	Under 4-inch	4	634,694	294,371	97,870	59,788	21,072	47,158	14,090	100,345
	6 - 8-inch	4	8,499,379	3,942,012	1,310,604	800,642	282,179	631,504	188,686	1,343,752
	10-inch & Over	3	13,439,519	6,163,362	2,237,680	1,704,131	482,479	1,214,933	204,281	1,432,653
344	Fire Mains	8	258,343							258,343
345	Services	10	10,305,737	8,709,379	1,012,023	54,620	111,302	14,428	403,985	
346	Meters	9	3,049,916	2,453,963	405,944	62,828	104,307	22,874		
347	Meter Installations	9	4,446,278	3,577,475	591,800	91,593	152,063	33,347		
348	Fire Hydrants	8	5,126,903							5,126,903
349	Other T & D Plant	12	15,520	7,153	2,041	1,136	436	874	385	3,495

MISSOURI-AMERICAN WATER COMPANY

FACTOR 18. ORIGINAL COST MEASURE OF VALUE RATE BASE ALLOCATED TO
RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER PUBLIC AUTHORITIES, OTHER WATER UTILITIES AND FIRE PROTECTION CUSTOMER CLASSIFICACTIONS

ACCOUNT (1)		FACTOR REF (2)	COST OF SERVICE (3)	RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	OTHER PUBLIC AUTHORITY (7)	OTHER WATER UTILITIES (8)	FIRE PROTECTION PRIVATE (9)	FIRE PROTECTION PUBLIC (10)
DEPRECIABLE PLANT, CONT.										
390	General Structures and Improvemen	15	1,630,720	1,053,446	213,787	101,920	39,137	74,035	20,547	127,848
390.1	Office Structures	15	1,453,650	939,057	190,574	90,853	34,888	65,996	18,316	113,966
390.2	General Structures - HVAC	15	71,296	46,057	9,347	4,456	1,711	3,237	898	5,590
390.3	Miscellaneous Structures & Improv	15	114,564	74,008	15,019	7,160	2,750	5,201	1,444	8,982
391	Office Furniture and Equipment	15	146,415-	94,584-	19,195-	9,151-	3,514-	6,647-	1,845-	11,479-
391.20	Computers & Peripheral Equipment	15	1,222,437	789,695	160,261	76,402	29,338	55,499	15,403	95,839
391.25	Computer Software	15	1,531,327	989,237	200,757	95,708	36,752	69,522	19,295	120,056
391.26	Personal Computer Software	15	207,829	134,258	27,246	12,989	4,988	9,435	2,619	16,294
391.30	Other Office Equipment	15	58,455	37,762	7,663	3,653	1,403	2,654	737	4,583
392.11	Transportation Equip-Light Trucks	15	115,686	74,734	15,166	7,230	2,776	5,252	1,458	9,070
392.12	Transportation Equip-Heavy Trucks	15	109,694	70,862	14,381	6,856	2,633	4,980	1,382	8,600
392.2	Transportation Equip-Cars	15	240,788	155,549	31,567	15,049	5,779	10,932	3,034	18,878
392.3	Transportation Equip-Other	15	30,280	19,559	3,970	1,893	727	1,375	382	2,374
393	Stores Equipment	15	994	642	130	62	24	45	13	78
394	Tools, Shop & Garage Equipment	15	698,973	451,538	91,635	43,686	16,775	31,733	8,807	54,799
395	Laboratory Equipment	2	132,415	68,723	24,947	19,002	5,376	13,546	106	715
396	Power Operated Equipment	15	256,461	165,674	33,622	16,029	6,155	11,643	3,231	20,107
397	Communication Equipment	15	24,792	16,015	3,250	1,550	595	1,126	312	1,944
397.2	Communication Equip - Telephone	15	64,688	41,787	8,481	4,043	1,553	2,937	815	5,072
398	Miscellaneous Equipment	15	199,708	129,011	26,182	12,482	4,793	9,067	2,516	15,657
399	Other Tangible Property	15	547,190	353,484	71,737	34,199	13,133	24,842	6,895	42,900
	Total Depreciable Plant		172,065,391	89,893,316	27,962,172	18,923,869	5,924,470	13,645,156	1,644,419	14,071,989
	Total Utility Plant		174,513,645	91,141,258	28,378,473	19,218,932	6,013,034	13,852,979	1,667,652	14,241,317
OTHER RATE BASE ELEMENTS										
	Accumulated Deferred ITC (3%)	17	58,936-	30,776-	9,583-	6,489-	2,033-	4,680-	566-	4,809-
	Deferred Income Taxes	17	5,253,114-	2,743,177-	854,156-	578,368-	181,232-	417,097-	50,430-	428,654-
	Materials and Supplies	17	429,776	224,429	69,882	47,318	14,827	34,124	4,126	35,070
	Prepayments	15	153,099	98,902	20,071	9,569	3,674	6,951	1,929	12,003
	OPEB's Contr to External Fund	16	1,148,194	728,644	156,728	78,766	29,968	56,721	12,286	85,081
	Premature Retr St. Joseph Plant	2	3,332,906	1,729,779	627,919	478,272	135,316	340,956	2,666	17,998
	Post AFUDC	2	2,421,006	1,256,502	456,118	347,414	98,293	247,669	1,937	13,073
	Cash Working Capital	15	476,000	307,496	62,404	29,750	11,424	21,610	5,998	37,318
	Total Other Rate Base Elements		2,648,931	1,571,799	529,383	406,232	110,237	286,254	22,054-	232,920-
	Total Original Cost Measure of Value		177,162,576	92,713,057	28,907,856	19,625,164	6,123,271	14,139,233	1,645,598	14,008,397

MISSOURI AMERICAN WATER COMPANY

BASIS FOR ALLOCATING DEMAND RELATED COSTS OF FIRE SERVICE TO RESIDENTIAL AND PRIVATE AND PUBLIC FIRE PROTECTION CUSTOMER CLASSIFICATIONS

Description			Restrictive Diameters Squared	Quantity	Relative Demand	Allocation Factor
(1)			(2)	(3)	(4)=(2)x(3)	(5)
PRIVATE FIRE PROTECTION						
Hydrant	Lead	Nozzle Sizes				
6	6	2-2 1/2",1-4 1/2"	32.75	146	4,782	
Fire Lines						
2	-inch		4.00	11	44	
3	-inch		9.00	1	9	
4	-inch		16.00	119	1,904	
6	-inch		36.00	341	12,276	
8	-inch		64.00	228	14,592	
10	-inch		100.00	36	3,600	
12	-inch		144.00	9	1,296	
Total Fire Lines				745	33,721	
Total Private Fire Protection				891	38,503	0.1235
PUBLIC FIRE PROTECTION						
Hydrant	Lead	Nozzle Sizes				
6	6	2-2 1/2",1-4 1/2"	32.75	8,343	273,233	
Total Public Fire Protection				8,343	273,233	0.8765
Total Fire Protection				9,234	311,736	1.0000

MISSOURI-AMERICAN WATER COMPANY

SUMMARY OF AVERAGE DAILY SEND OUT,
AND MAXIMUM DAILY USE
FOR THE YEARS 1990 - 1998

Year	Average Daily Send Out (MGD)	Maximum Daily Use		
		MGD	Ratio to Average	Highest Use Day
(1)	(2)	(3)	(4)	(5)
Joplin				
1990	9.66	14.11	1.46	8/29/90
1991	9.95	16.14	1.62	7/22/91
1992	9.61	14.83	1.54	6/30/92
1993	9.95	12.94	1.30	8/23/93
1994	10.59	15.12	1.43	7/6/94
1995	10.85	16.80	1.55	8/30/95
1996	11.06	15.44	1.40	6/26/96
1997	10.68	14.90	1.40	7/31/97
1998	10.90	15.76	1.45	9/4/98
Mexico				
1990	1.86	3.04	1.64	7/15/90
1991	2.01	2.74	1.36	3/29/91
1992	2.04	3.18	1.56	7/2/92
1993	1.99	2.55	1.28	8/20/93
1994	1.96	2.53	1.29	8/22/94
1995	2.28	2.92	1.28	8/28/95
1996	2.19	3.05	1.39	7/18/96
1997	2.22	2.89	1.30	7/17/97
1998	2.24	2.87	1.28	5/19/98
St. Joseph				
1990	16.54	22.56	1.36	9/30/90
1991	16.39	24.63	1.50	7/20/91
1992	15.94	21.98	1.38	6/30/92
1993	15.96	21.62	1.35	6/15/93
1994	14.66	22.29	1.52	8/25/94
1995	14.52	22.13	1.52	7/12/95
1996	15.12	19.38	1.28	7/18/96
1997	15.02	20.87	1.39	7/16/97
1998	15.02	20.91	1.39	8/24/98

MISSOURI-AMERICAN WATER COMPANY

SUMMARY OF AVERAGE DAILY SEND OUT,
AND MAXIMUM DAILY USE
FOR THE YEARS 1990 - 1998

Year	Average Daily Send Out (MGD)	Maximum Daily Use		
		MGD	Ratio to Average	Highest Use Day
(1)	(2)	(3)	(4)	(5)
Warrensburg				
1990	2.05	3.23	1.57	8/28/90
1991	2.12	3.40	1.60	8/27/91
1992	2.22	3.35	1.50	7/1/92
1993	2.41	3.93	1.63	8/26/93
1994	2.29	3.64	1.59	6/20/94
1995	2.32	3.63	1.57	8/30/95
1996	2.29	3.42	1.50	7/18/96
1997	2.24	3.86	1.72	7/24/97
1998	2.39	3.79	1.58	7/21/98
St. Charles				
1990	5.34	N/A	N/A	N/A
1991	6.75	N/A	N/A	N/A
1992	6.62	N/A	N/A	N/A
1993	6.00	10.00	1.67	6/18/93
1994	7.16	16.54	2.31	6/15/94
1995	8.13	18.00	2.22	7/13/95
1996	7.34	17.57	2.39	7/7/96
1997	8.35	18.55	2.22	7/25/97
1998	7.80	19.00	2.44	7/19/98
Brunswick				
1990	0.18	0.27	1.53	12/28/90
1991	0.21	0.32	1.51	4/6/91
1992	0.18	0.27	1.47	8/26/92
1993	0.15	0.30	1.94	7/29/93
1994	0.15	0.22	1.46	9/24/94
1995	0.15	0.20	1.35	7/5/95
1996	0.15	0.24	1.60	2/7/96
1997	0.15	0.24	1.58	4/1/97
1998	0.14	0.20	1.43	5/23/98

MISSOURI-AMERICAN WATER COMPANY

SUMMARY OF AVERAGE DAILY SEND OUT,
AND MAXIMUM DAILY USE
FOR THE YEARS 1990 - 1998

Year	Average Daily Send Out (MGD)	Maximum Daily Use		
		MGD	Ratio to Average	Highest Use Day
(1)	(2)	(3)	(4)	(5)
Parkville				
1990	N/A	2.87	N/A	N/A
1991	N/A	2.95	N/A	N/A
1992	N/A	2.70	N/A	N/A
1993	N/A	2.31	N/A	N/A
1994	1.71	3.20	1.87	N/A
1995	1.63	3.32	2.04	N/A
1996	1.76	3.20	1.81	N/A
1997	1.86	3.11	1.67	7/26/97
1998	1.72	3.36	1.95	7/19/98
Total				
1994	38.52	63.54	1.65	
1995	39.88	67.00	1.68	
1996	39.91	62.30	1.56	
1997	40.52	64.41	1.59	
1998	40.21	65.89	1.64	