Exhibit No.:	
Issues:	Cost of Service Rate Design Consolidated Tariff Pricing
Witness:	Charles B. Rea
Exhibit Type:	Direct
Sponsoring Party:	Missouri-American Water Company
Case No.:	WR-2020-0344 SR-2020-0345
Date:	June 30, 2020

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WR-2020-0344
CASE NO. SR-2020-0345

DIRECT TESTIMONY

OF

CHARLES B. REA

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

AFFIDAVIT

I, Charles B. Rea, under penalty of perjury, and pursuant to Section 509.030, RSMo, state that I am Director, Rates & Regulatory for American Water Works Service Company, Inc., that the accompanying testimony has been prepared by me or under my direction and supervision; that if inquiries were made as to the facts in said testimony, I would respond as therein set forth; and that the aforesaid testimony is true and correct to the best of my knowledge and belief.

Charles B. Rea

Charles B. Rea

June 24, 2020
Dated

DIRECT TESTIMONY
CHARLES B. REA
MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2020-0344
CASE NO. SR-2020-0345

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DIRECT TESTIMONY

CHARLES B. REA

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Charles B. Rea. My business address is 5201 Grand Avenue, Davenport, IA 52801.

Q. By whom are you employed and in what capacity?

A. I am employed by the American Water Works Service Company, Inc. ("AWWSC"). My title is Director, Rates & Regulatory.

Q. Please summarize your educational background and business experience.

A. I received a Bachelor of Arts degree in Computer Science from the University of Illinois at Springfield in 1986 and a Master's degree in Statistics and Operations Research from Southern Illinois University at Edwardsville in 1990.

I have been employed by AWWSC since January 2018. In my role as Director, Rates and Regulatory, my primary responsibility is to serve as the subject matter expert on cost of service and rate design issues. Previous to my employment with AWWSC, I was employed by MidAmerican Energy Company from June 1990 through January 2018. I have twenty-nine years of utility experience covering a wide range of issues including electric system planning, sales and revenue forecasting, electric load research, marketing, rates, cost of service, and energy efficiency. Most recently at MidAmerican, I was Director, Energy Efficiency and Regulatory Analytics. In that position I had responsibility for planning, evaluation, and operational management of MidAmerican's energy efficiency

and demand response programs in Illinois, Iowa, and South Dakota, as well as direct responsibility for electric and natural gas sales and revenue forecasting, electric peak demand forecasting, load research, retail pricing of electric and natural gas products, and electric and natural gas cost of service and rate design.

Q. What are your current employment responsibilities?

A. My primary responsibility in my role as Director, Rates and Regulatory is to serve as a subject matter expert on cost of service and rate design issues for AWWSC's operating company affiliates, including Missouri-American Water Company ("MAWC" or the "Company"). I am responsible for the development and preparation of cost of service analyses and filings and associated rate design analyses, as well as presenting cost of service and rate design proposals to our internal and external stakeholders.

Q. Are you generally familiar with the operations, books and records of MAWC?

A. Yes, I am.

Q. Have you previously testified before a regulatory body?

A. Yes. Most recently, I provided testimony regarding cost of service and rate design proposals for New-Jersey American Water Company, Virginia-American Water Company and Maryland-American Water Company, and rate design proposals for Indiana-American Water Company. I also have testified on numerous occasions in Iowa, Illinois, and South Dakota on issues regarding energy efficiency and electric and natural gas cost of service and rate design.

Q. What is the purpose of your Direct Testimony in this proceeding?

A. The purpose of my Direct Testimony is to sponsor MAWC's class cost of service study and rate design proposals. Specifically, I will address the following issues:

- Class Cost of Service
- Water Service Rate Design
- Consolidated Tariff Pricing
- Inclining Block Rates
- Large User Tariffs
- Wastewater Rate Design

Q. Please identify the schedules you will be sponsoring and for which you will be providing testimony.

A. I am sponsoring the following Company Schedules attached to my Direct Testimony.

- Schedule CBR-1: MAWC Class Cost of Service Study
- Schedule CBR-2: MAWC Proposed Rate Design
- Schedule CBR-3: MAWC Mexico Pilot Program Results
- Schedule CBR-4: Rate L Pricing Example

II. COST OF SERVICE

Q. What is a cost of service study?

A. A cost of service study is an analysis that calculates a utility's total investment and operating costs incurred to provide service to various customer groups, or service classes, for the purpose of establishing cost-based rates. The resulting cost determination process based on the allocation of costs to defined customer groups is called a cost of service study. Because the analysis is done by customer class, the study is often referred to as a "class cost of service study".

Q. Does the American Water Works Association ("AWWA") provide guidance on the appropriate methods to be used in conducting cost of service studies?

A. Yes. The AWWA M1 Manual, titled Principles of Water Rates, Fees, and Charges, provides guidance on the appropriate allocation methodologies to use in allocating different types of costs to customer classes.

Q. Has the Company relied on the recommendations made in the AWWA M1 Manual in conducting its cost of service study submitted in this case?

A. Yes. Specifically, the AWWA M1 Manual outlines the use of the Base/Extra capacity method to allocate production and distribution costs to customer classes. The Company uses this Base/Extra capacity method in its class cost of service study as I describe later in my Direct Testimony.

Q. Please describe the Company's cost of service study.

A. The Company's cost of service analysis allocates the total revenue requirement for MAWC water operations to various cost categories as I describe later in my Direct Testimony. The revenue requirement for each of these cost categories is then allocated to the various customer classes MAWC serves, with different cost categories allocated to customer classes using a class allocation factor that differs depending on the nature of the costs. In this study, the Company's aggregated cost of water service was allocated to the following customer classifications:

- Residential
- Nonresidential (excluding Rate L)
- Rate L (a new proposed rate later described in my Direct Testimony)
- Sales for Resale

- Contract Rates
- Private Fire
- Public Fire

The study was performed in accordance with generally accepted principles and procedures and results in the relative cost responsibilities of each class of customers. The allocated cost of service provides the primary criteria used in designing customer rates under the Company's proposed rate design to produce the revenues that will yield the proposed revenue requirement in this case.

Q. How is the Company's cost of service study organized?

A. The Company's cost of service study attached hereto as Schedule CBR-1 is organized into five different tabs, or sections:

- The "Summary" tab allocates the revenue requirement for each cost category to customer class and summarizes the results of the cost allocations by customer class and business function to get a total revenue requirement by class and business function. The "Summary" tab also compares the revenue requirements by customer class to Post Test-Year revenues under current rates;
- The "Account Detail" tab contains rate base, depreciation, and operations and maintenance ("O&M") balances by account and allocates each account to cost category;
- The "Usage Statistics" tab contains usage information by customer class and other information necessary to calculate class allocation factors for the "Account Detail" tab;

- The "Class Allocators" tab provides detailed calculations of all class allocation factors used in the cost of service study; and
- The "Allocation Summary" tab provides a summary of the class allocation factors.

Q. Is the Company's cost of service analysis performed on a district by district or a consolidated statewide basis?

A. The Company's cost of service analysis is performed on a consolidated statewide basis.

Q. What are the various cost categories that the Company uses to group individual accounts?

A. The cost categories that the Company assigns to specific accounts are as follows:

- Variable Cost
- Capacity Cost
  - Source of Supply
  - Water Pumping
  - Water Treatment
  - Transmission Mains
  - Distribution Mains
- Storage Facility Costs
- Metering Cost
- Service Line Costs
- Customer Service Costs
- Fire Hydrants

Q. Please describe how individual accounts that make up the Company's revenue requirement are assigned to a cost element.

A. The majority of the accounts that make up the Company's revenue requirement are directly assigned to a single cost category. Examples of this include net plant for Collecting and Impounding Reservoirs, Purchased Water for water pumping, and Water Treatment labor expenses. Accounts not directly assignable to a single cost category are allocated among cost elements based on appropriate allocation factors. Examples of this include general and intangible plant, miscellaneous rate base deductions, administrative and general ("A&G") expenses, and payroll taxes. These accounts are allocated to cost categories based on net plant, O&M, or labor dollars associated with each cost element depending on the account.

a. Variable Costs

Q. Please describe what variable costs are and how variable costs are allocated to customer classes.

A. Variable costs refer to purchased electric power, purchased water, treatment chemicals and waste disposal costs. These are costs that tend to vary directly with the amount of water produced and consumed and are allocated to customer classes in direct proportion to each class's annual water consumption.

b. Capacity Costs - General

Q. Please describe what capacity costs are and how capacity costs are allocated to customer classes.

A. Capacity costs refer to the cost of owning, operating, and maintaining the Company's water production, pumping, and distribution system that do not vary directly with the amount of

water consumed. These costs are allocated to customer classes in a variety of ways as described below.

c. Capacity Costs – Source of Supply

Q. Please describe how source of supply costs are allocated to customer classes.

A. Source of supply costs not included in the variable cost section described above are allocated to customer classes using a methodology known as the Base/Extra capacity method.

Q. Please describe the Base/Extra capacity method.

A. The Base/Extra capacity method is explained in detail in the AWWA M1 Manual. It is generally accepted as a sound method for allocating the cost of water service and has been used by the Company in previous cases. In short, the Base/Extra capacity methodology relies upon a combination of the average water consumption across the year for each customer class and each class's estimated maximum daily consumption for the year to allocate the fixed costs of the water production and distribution system to customer classes. The Base/Extra capacity allocator is a two-part allocator, the first part being the "Base" component and the second part being the "Extra" component.

The Base component for each class is the average daily consumption for the year (total annual sales divided by 365 days). For each class, the "Base" allocation component is each class's average consumption divided by the total sum of average consumption for all classes. The "Extra" component is the difference between the maximum daily consumption for a given class and the average daily consumption for that class. For each class, the "Extra" allocator is each class's extra demand value divided by the total sum of the extra demand values for all customer groups.

For each class, the Base/Extra allocator is calculated as a weighted average of the Base and Extra allocators. The Base component is weighted by the total system load factor expressed as a percentage (average daily system production divided by maximum day production), and the Extra component is weighted by one minus the system load factor.

Q. Please describe how the maximum daily consumption values for each class were estimated.

A. Maximum daily consumption values for each customer class are estimated based on daily and hourly consumption data collected via Advanced Metering Infrastructure ("AMI") meter data. For Sales for Resale customer classes, maximum daily consumption values are estimated based on AMI data collected for those customers where data exists, with estimated data used for resale customers where AMI data is not available. For other classes, maximum daily consumption is estimated based on samples of customers for which MAWC has AMI data in St. Louis County. Theses samples, which are selected by customer class and subgroups within each class, are selected such that the customers in each customer class sample have monthly usage characteristics that are nearly identical to monthly usage characteristics for MAWC customers in total (all districts), thus providing consistency between the usage characteristics of the customers in each sample and the usage characteristics of MAWC customers in total.

d. Capacity Costs – Water Pumping Costs

Q. Please describe how water pumping costs are allocated to customer classes.

A. Water pumping costs not included in the variable cost section described above are allocated to customer classes based on the Base/Extra capacity methodology.

e. Capacity Costs – Water Treatment Costs

Q. Please describe how water treatment costs are allocated to customer classes.

A. Water treatment costs not included in the variable cost section described above are allocated to customer classes based on the Base/Extra capacity methodology.

f. Capacity Costs – Transmission Mains

Q. Please does the Company distinguish between transmission mains and distribution mains?

A. Generally, for cost allocation purposes, mains with a diameter of 10 inches and larger are classified as serving a transmission function and mains smaller than 10 inches are classified as serving a distribution function.

Q. Are transmission mains costs allocated to all customer groups?

A. Yes. All customer groups are considered to take service from the Company's transmission system and therefore transmission costs are allocated to all customer classes.

Q. Please describe how costs associated with transmission mains are allocated to customer classes.

A. Costs associated with transmission mains are allocated to customer class based on the Base/Extra capacity method.

g. Capacity Costs – Distribution Mains

Q. Are distribution mains costs allocated to all customer groups?

A. No. It is often the case that for large customers, service is taken directly from the transmission system (10 inches and above) and therefore it would not be appropriate to allocate costs related to the smaller diameter distribution system to these customers. For

each customer class, a calculation is done to estimate the percentage of water sales served to that class directly from the transmission system. That portion of sales in each class is not subject to an allocation of distribution costs. It is only the distribution-level sales in each class that are allocated distribution-related costs, and that relative level of sales is significantly different for different customer classes.

Q. Please describe how costs associated with distribution mains are allocated to customer classes.

A. After removing usage served at the transmission level, costs associated with distribution mains are allocated to customer classes based on the previously defined Base/Extra capacity method, which is modified to include a component that recognizes maximum hourly demand (at the distribution level) instead of maximum daily demand. This is appropriate because the transmission main system functions as a conduit from production facilities to the distribution system and is sized to accommodate varying water demands from customers that take service at the distribution level. Sizing at the distribution level needs to accommodate higher demands for shorter periods of time. It is therefore appropriate to consider hourly consumption requirements for distribution mains allocation, as opposed to daily requirements

Q. Aside from the differences between maximum hourly consumption and maximum daily consumption, does the Base/Extra allocator work the same way as you have previously described?

A. Yes. In this case, the Base component for each class is the average hourly consumption for the year (total annual sales divided by 8,760 hours). The "Extra" component is calculated as the difference between the maximum hourly consumption for a given class and the

average hourly consumption for that class. For each class, the Base/Extra allocator is calculated as a weighted average of the Base and Extra allocators. The Base component is weighted by the total system load factor expressed as a percentage defined this time as average hourly system consumption divided by maximum hourly system consumption, and the Extra component is weighted by one minus the system load factor.

Q. Please describe how the maximum hourly consumption values are calculated.

A. Similar to the process used to estimate maximum daily consumption values by customer class, maximum hourly consumption values for each customer class are estimated either through direct AMI metering of Sales for Resale customers or from samples of customers for which the Company has AMI data. The samples used to estimate maximum hourly consumption are the same samples used to estimate maximum daily consumption to ensure that there is consistency is usage patterns.

h. Capacity Costs – Storage Facility Costs

Q. Please describe how the Company allocates the revenue requirements associated with storage costs to customer classes.

A. Storage costs are allocated to customer classes based on the Base/Extra allocator using hourly estimated peak demand for the extra component, like the allocator used to allocate distribution mains costs. For the storage allocator, it is assumed that all fire service capacity requirements are served first from the Company's storage capacity, and the remaining capacity is allocated to non-fire service classes using the Base/Extra hourly allocator. Therefore, the storage allocator is more heavily weighted toward fire service than any of the other Base/Extra class allocators. I discuss the calculation of fire service capacity requirements later in my Direct Testimony.

i. Customer Related Costs – Metering Costs

Q. Please describe how the Company allocates the revenue requirements associated with the metering cost component to customer classes.

A. Metering costs are allocated to customer classes based on a weighted number of customers calculation. Customer weights in each class are based on AWWA standard meter equivalents by meter size.

j. Customer Related Costs – Service Line Costs

Q. Please describe how the Company allocates the revenue requirements associated with the service line cost component to customer classes.

A. Service line costs are allocated to customer classes based on a weighted number of customers calculation. The customer weights are the same as those used in the last MAWC water service rate case.

k. Customer Related Costs – Customer Service Costs

Q. Please describe how the Company allocates the revenue requirements associated with the customer service cost component to customer classes.

A. Customer service costs are allocated to customer classes based on the total number of customers in each class.

l. Fire Service

Q. How are fire service requirements considered in the Company's cost of service analysis?

A. Fire service requirements are determined through a combination of information on firefighting requirements provided by the American Insurance Association. This information relates firefighting requirements in terms of maximum gallons per minute and the duration of time those requirements are needed to general population levels. Given the population of the MAWC service territory, a firefighting demand of 30,000 gallons per minute for ten hours was used in the Company's cost of service analysis. This firefighting demand was split between private fire and public fire customer groups based on the relative potential water demand for each class, which is in turn based on the number and size of service lines and hydrants in each class.

Q. How is the revenue requirement for hydrants allocated to customer classes?

A. Because MAWC does not charge separately for public fire service, the revenue requirements for hydrants are allocated back to the residential, nonresidential, and Rate L customer classes based on the relative Meter Cost class allocators for those classes.

m. Other Allocation Factors

Q. How are A&G costs and cash working capital costs allocated to cost categories and customer classes?

A. Administrative and general costs are generally allocated to cost categories and customer classes on the same basis that direct costs are allocated. For most A&G expenses, costs are allocated the same way that non-A&G direct O&M costs are allocated. A&G costs that are associated with employee costs, however, are allocated directly based on labor expenses.

Cash working capital is allocated based on total O&M expense.

Q. How are depreciation costs allocated to cost categories and customer classes?

A. Annual depreciation accruals are 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 for allocating items such as income taxes and return. These factors are based on the results of allocating other costs and are computed internally in the cost allocation program.

Q. How are income taxes and operating income requirements allocated to cost categories and customer classes?

A. Income taxes and operating income requirements are allocated to cost categories and customer classes based on the amount of total rate base allocated to each customer class.

Q. Please summarize the results of MAWCs cost of service analysis.

A. The following table provides a summary of the Company's cost of service analysis and shows total test year revenues, cost of service, and the difference between the two by customer class.

Customer Class	Revenue at Present Rates	Cost of Service	Difference
Residential	$198,537,066	$278,951,990	40.5%
Non-Residential (excl. Rate L)	$70,731,737	$86,614,435	22.5%
Rate L	$9,732,893	$13,794,209	41.7%
Rate B (Sales for Resale)	$7,403,831	$7,255,090	-2.0%

Rate F (Private Fire)	$5,051,555	$5,859,695	16.0%
Contract Customers	$4,907,675	$8,769,157	78.7%
Total	$296,364,756	$401,244,575	35.4%

III. WATER SERVICE RATE DESIGN

Q. Please discuss some of the important guiding principles associated with sound rate design.

A. There are a number of important principles that pricing analysts and policy makers need to consider when developing appropriate rate design mechanisms for retail water and sewer service:

- **Cost Basis:** An important goal of rate design is to develop prices for water service to retail customers that are intended to recover the Company's approved revenue requirement and that reflect the cost of providing service to retail customers. Cost of service results inform pricing decisions and guide how rates should be set such that each customer class contributes to the revenue requirement in accordance with their cost to serve.
- **Revenue Stability:** Rates should be designed in a way that provides revenue stability to the utility and that can be reasonably expected to recover the utility's revenue requirement over the long run. Consistent recovery of the approved revenue requirement through well-designed rates helps the utility to prudently manage and invest in the water delivery system, while poor rate design decisions can hamper the utility's ability to make investments and operate and maintain the water delivery system in a manner consistent with the long-term interest of its customers.

- **Efficiency of Use:** Rates should be designed to encourage efficient use of water resources by customers. The volumetric charges for water service should appropriately reflect the variable cost of providing water service while also providing customers an appropriate incentive to conserve water and manage their bills. Rates should communicate to customers the full cost of providing water service.
- **Gradualism:** Changes in rate design should be made in a manner that avoids inappropriate levels of rate shock. Rate shock can come both from general increases in revenues that can affect all customers and from changes in rate designs that can cause large increases to specific pockets of customers. Drastic changes in rates can cause customer confusion and dissatisfaction and have adverse effects on the utility's ability to provide quality customer service.
- **Avoidance of Discrimination:** Rates should not unduly discriminate between particular customer groups or provide different price signals to similarly situated customers taking similar services from the utility.
- **Simplicity and Feasibility:** Rate designs should be relatively simple and easy to understand and easy to communicate and manage and should result in bills that are clear and understandable.

Q. Please describe the Company's current rate design for water service.

A. MAWC's current rate design for water service primarily consists of a two-part rate design that features a flat volumetric rate (in most cases) with a monthly fixed charge that varies with the size of the meter.

Q. Does the Company have different pricing structures in different geographic locations?

A. Yes. Currently, rates are split into three primary pricing districts:

- St. Louis County
- Non-St. Louis County
- Lawson

Q. Please describe the rate currently structures in place for St. Louis County and Non-St. Louis County customers.

A. The Company offers the following rates to St. Louis County and Non-St. Louis County customers:

- **Rate A:** Rate A is a volumetric rate with fixed monthly charges for residential and most non-residential customers.
- **Rate J:** Rate J is a volumetric rate with fixed monthly charges for certain customer types defined as large water users.
- **Rate B:** Rate B is a volumetric rate with fixed monthly charges for customers that are sales for resale customers.

For all of the above rates, the monthly meter charges are the same. The volumetric charges are lower for St. Louis County customers than for other customers for Rate A and Rate J, but are identical for Rate B.

In addition, the Company has an inclining block rate structure in its Mexico service territory for residential customers, where volumetric prices increase as the amount of water purchased every month increases. I will discuss the Mexico inclining block pilot project later in my Direct Testimony.

Q. Does the Company offer rates for fire protection service to St. Louis County and Non-St. Louis County customers?

A. Yes. The Company offers private fire protection service to all districts under Rate P. This rate provides for monthly service charges by size of service and provides for monthly charges for private fire hydrants. Monthly service fees and hydrant fees are the same for all customers. Volumetric charges for water used for private fire service are charged at the applicable rate for Rate Schedule A. The Company does not charge separate rates for public fire protection service. Public fire protection costs are reallocated back to general service customer classes in the Company's water service rate design and are recovered through general service rates.

Q. Please describe the general service rate structure in place for Lawson customers.

A. The general service rate for Lawson applies to all customers in Lawson. The rate consists of a fixed monthly service charge of $23.33 per month that does not change with the size of the meter, an allowance of 2,000 gallons of water per month at no charge, and a volumetric rate of $1.028 per thousand gallons of water used above the allowance level.

Q. Does MAWC have any customers on special contract rates?

A. Yes. MAWC has two large industrial customers on special contracts rates. In addition, there are three Sales for Resale customers that take service under special contract rates. In total, these customers account for approximately $4.9 million in revenue.

Q. What changes is the Company proposing to make to its rate design for water service in this case?

A. The Company is proposing the following changes to its water service rate design:

- The Company is proposing to consolidate Rate A volumetric rates for St. Louis County and Non-St. Louis County customers into a single Rate A offering that will cover all geographic districts. The Company is proposing to consolidate current Lawson rates into this single statewide Rate A offering.
- The Company is proposing to introduce a new large user rate referred to as Rate L that will ultimately take the place of the current Rate J.
- The Company is proposing to increase the price differentials in the inclining block rate structure for the inclining block rate pilot project in Mexico and continue to monitor and evaluate the effectiveness of this pilot program.

I will discuss each of these proposals in detail later in my Direct Testimony.

Q. Monthly meter charges are the same for all customers regardless of the rate schedule under which they take service with the exception of fire service. Is the Company proposing to change the monthly meter charges in this case?

A. Yes. The Company is proposing to increase monthly meter charges for a 5/8" meter to $12.00 per month, with proportionate increases to other meter sizes. The Company's cost of service analysis supports a monthly meter charge for 5/8" meters of $15.00 per month. The Company's proposal for setting the 5/8" meter charge at $12.00 represents a 50% move from current monthly meter charges towards fully cost-based monthly meter charges.

Q. **Of the total revenues collected under your proposed water rates, how much revenue is being collected through fixed charges and how much revenue is being collected through volumetric charges?**

A. Total proposed water revenues equals $407,424,789. Of this amount, $95,030,685 is collected through fixed charges (23% of the total) and $312,394,104 is collected through

volumetric charges (77% of the total).

Q. Please describe how the Company is proposing to allocate its proposed revenue increase for water service to its customer classes.

A. The Company is proposing to allocate its proposed increase in water service revenues according to the following guidelines:

- No increases are given to classes where cost of service would suggest a decrease is in order (Sales for Resale)
- Rate L and Rate F increases are set to bring revenues from these classes up to the Company's proposed cost of service for these classes.
- The remainder of the increase is allocated to the residential and non-residential classes through the use of the single volumetric charge for Rate A.

Q. Do you have a schedule that provides the Company's complete proposed rate design in this case?

A. Yes. Schedule CBR-2 provides the Company's proposed rate design, which is based on the current rate design as modified by the proposals discussed above.

IV. CONSOLIDATED TARIFF PRICING

Q. Why is the Company proposing to consolidate rates for all customers into a single rate offering that will cover all geographic districts?

A. The Company is proposing to complete the move towards consolidating general service rates into a single statewide rate for all customers because consolidating rates across districts improves affordability of water service for all customers over the long term and is

in the long term best interest of all of our customers.

Q. What is the difference in volumetric rates between the different districts currently?

A. Currently, rates for St. Louis County and Non-St. Louis County customers are as follows:

Volumetric Rate	St. Louis County	Non-St. Louis County
Rate A	$0.4781 per 1,000 g	$0.6247 per 1000 g
Rate J	$0.1768 per 1,000 g	$0.2619 per 1000 g

In addition, for Lawson, the rate consists of a fixed monthly service charge of $23.33 per month that does not change with the size of the meter, an allowance of 2,000 gallons of water per month at no charge, and a volumetric rate of $1.028 per thousand gallons of water used above the allowance level.

Q. What are the differences currently in total bills for typical customers in the different districts?

A. For a residential customer using 5,000 gallons per month and a 5/8" meter monthly service charge, typical bills in the different districts are as follows:

- St. Louis County: $32.91 per month
- Non St. Louis County: $40.23 per month
- Lawson: $64.45 per month

For a commercial customer using 25,000 gallons per month and a 1" inch service charge, typical bills in the different districts are as follows:

- St. Louis County: $136.12 per month
- Non St. Louis County: $172.75 per month
- Lawson: $270.05 per month

Q. Why should the Commission approve this further movement to consolidated pricing for the Company in this case?

A. The consolidated tariff approach takes a long run view of serving the state on a total company basis. The aggregation of all customers across the whole system provides the system with an ability to recover the costs of serving all customers on a more equitable basis. Cost of service regulation always involves some degree of cost averaging. The administrative costs of calculating each individual customer's specific costs far outweigh the benefits of such calculations. Customers of the same class under consolidated pricing will pay rates that reflect the costs of providing similar service across the total Company. This avoids the wide disparity in rates that could arise from separate tariff pricing and ensure that customers ultimately pay the same rate for contemporaneous service provided under substantially similar conditions or circumstances.

Q. What are the benefits of consolidated tariff pricing?

A. The following benefits are important for considering the movement to consolidated pricing:

1. Better ability to recover investments in water and service quality: One of the key benefits of consolidated pricing is enabling recovery of government mandated environmental investment as well as other service quality related water investments.

2. Improved affordability for all customers: It is understandable why people who live in areas that are currently receiving service at lower rates than the average would not want to pay for new investments in other regions of the state. Consolidated pricing, however, creates benefits for all customers in the long run. Typically those customers that pay lower than average prices do so because of aging and therefore

depreciated infrastructure that will have to be replaced, and the new investment recovered in rates, sooner rather than later. At some point in the future the utility will need to invest in all regions of the state; consolidated pricing mitigates the effect of lumpy investment for all customers while promoting a standard quality of service for the entire state.

3. Lower administrative and regulatory costs: Simplifying rate structures also leads to lower administrative costs as utilities can more easily help customers who have questions, lower the cost of billing and collections, and reduce the regulatory cost of separate filings within a single rate proceeding.

4. A consistent regulatory approach for all public utilities: Due to the lumpiness of investment, at any given time using a simple, a static cost study will give a distorted picture of the true, long-term differences in costs between different regions of any large public utility. This is another reason why public utility rates tend to be standardized across an entire utility service territory. Consider, for example, the electric distribution system in a large metropolitan area. Investment inside the city may have been completed many years ago while investment in high growth areas in the outer suburbs was more recently completed, and often at a much higher cost due to inflation and the lower population density. Taking a static, cost of service view of this situation would lead one to the erroneous conclusions that it is significantly more costly to serve suburban customers and that those customers should pay a higher rate. Yet over time the investment in the city must be replaced and urban renewal in large areas of the city requires more investment, thereby rendering suspect the conclusion that cost differs significantly between regions.

(Indeed there are some factors that make it more costly to build infrastructure in a more densely populated area.) A similar argument can be made for gas distribution companies and water companies. Costs of service differ within a district and sometimes even within a neighborhood, yet we ignore those cost differentials in setting district rates for many of the same reasons that support consolidated tariff pricing.

5. Encouragement of larger water companies to purchase small, under-performing water companies: In the past few decades, the water industry has changed dramatically. Many smaller water systems simply cannot attain the economies of scale needed to support the necessary investment and, as a result, the quality of water suffers. Consolidated pricing removes a disincentive to investment in these small water companies as utilities can recover the cost of needed investment over a larger customer base. This promotes a more ubiquitous water infrastructure investment in the state and brings cost-effective, higher quality water services to a larger number of citizens.

6. Promotion of state economic development goals: In an age of intense regional and global competition, the advent of new clean water standards has added one more dimension to the competition among states for jobs and population. Non-standardized pricing can create an inconsistent and Balkanized water system for the state. Consolidated pricing allows larger companies to spread the fixed cost of providing quality water service over a larger customer base, creating a higher quality of water for the entire system and state.

Q. Are there drawbacks to consolidated tariff pricing?

A. There certainly can be. As smaller systems are acquired with relatively low rates, it is natural for customers in those smaller systems to not want to immediately move to a higher rate structure simply by virtue of having been acquired by a larger company. Alternatively, customers in smaller systems that have already made significant investments may believe that they are already paying for those large investments which might be burdensome enough in their opinion, and they don't want to now pay additional amounts for investments made in other parts of the state that they feel do not directly benefit them.

Q. Why, given these drawbacks, do you believe that continued movement toward consolidated pricing makes sense and should be approved?

A. Ultimately the goal of rate design in terms of the granularity involved in setting rates for large groups of customers should be to stabilize rates over the long run and smooth out rate increases over time to the extent that rate increases are necessary to maintain proper investment in the system and to prudently manage the system. Spreading investment cost, operating cost, and the cost of meeting water quality requirements over the largest group of customers possible is the most practical way to do that. Consolidated pricing achieves that goal. In the short run, there may be instances when subsets of customers might be paying more or less than the cost of providing service to that particular group of customers at a given point in time, assuming that cost of service can be calculated; but in the long run, all customers will be paying a commensurate share of the total cost of operating and maintaining the system, and changes in cost will be relatively stable compared to a situation where cost increases could be large and unpredictable if small groups of customers were required to cover the full cost of providing service exclusively to them.

Q. Was consolidated tariff pricing an issue in the last MAWC rate case before the Missouri Commission?

A. Yes. Consolidated tariff pricing was a significant issue in the last Missouri rate case (WR-2017-0285). At the beginning of that case there three pricing districts: East Central, Northwest, and Southwest. These districts had the same meter charges for all rates (Rate A, Rate J, and Rate B) but had different volumetric charges. That case resulted in the consolidation of rates from three districts to two that the Company currently has (plus Lawson that didn't exist at the time of the last case) for Rate A and Rate J, and a complete consolidation of Rate B.

Q. What will be the impacts to customers of completely consolidating rates based on the Company's proposals?

A. Absent any increase in revenue requirements and looking just at the act of consolidating rates between districts into a single consolidated statewide rate offering, the impacts to a typical residential customer using 5,000 gallons per month with a 5/8" meter is as follows:

District	Current	Consolidated	Increase	% Increase
St. Louis County	$32.91	$34.57	$1.66	5.0%
Non-St. Louis County	$40.23	$34.57	-$5.66	-14.1%
Lawson	$64.45	$34.57	-$29.88	-46.4%

For a typical commercial customers using 25,000 gallons per month with a 1" meter, the impacts are as follows:

District	Current	Consolidated	Increase	% Increase
St. Louis County	$136.12	$144.42	$8.30	6.1%
Non-St. Louis County	$172.75	$144.42	-$28.33	-16.4%

Lawson	$270.05	$144.42	-$125.63	-46.5%

V. MEXICO PILOT PROJECT - INCLINING BLOCK RATES

Q. What activities has the Company been involved in regarding inclining block rates since the end of the Company's last rate case?

A. The primary activity the Company has been involved in regarding inclining block rates since the last rate case has been the Mexico Inclining Block Rate Pilot Program.

Q. Please describe the Mexico Inclining Block Rate Pilot Program.

A. The Mexico Inclining Block Rate Pilot Program is a program where residential customers in the Company's Mexico, Missouri service territory pay water rates according to an inclining block rate structure, meaning that the volumetric rate for water service increases as a residential customer uses more water throughout the month.

Q. Please describe the origins of the Pilot Program.

A. The Pilot Program was approved by the Commission through the Stipulation and Agreement Regarding Inclining Block Pilot Program filed jointly by the Company, the Staff of the Missouri Public Service Commission, and the Missouri Division of Energy in Case No. WR-2017-0285.

Q. What is the purpose of the Pilot Program?

A. The purpose of the Pilot Program is to determine if residential customers in the Mexico service territory that previously took service at a rate that was the same regardless of how much water they used will modify their monthly consumption pattern in response to a rate design that charges more for water as they use more water. To aid the effort to encourage

customers to use less water in response to the inclining block rate, the Stipulation allowed for water conservation kits to be offered at no charge to residential customers participating in the Pilot Program.

Q. Was the Pilot Program a voluntary program?

A. No. All Mexico residential customers are currently taking service under the inclining block rate structure.

Q. When did the inclining block rate structure take effect for Mexico residential customers?

A. The Mexico inclining block rate structure took effect on May 28, 2018.

Q. How many residential customers in the Mexico district participate in the Pilot Program?

A. The Company has approximately 4,300 residential customers in the Mexico district. This represents approximately 1% of the Company's residential customer base.

Q. Does the Pilot Program have a sunset date?

A. Yes. The Stipulation states that the Pilot Program shall remain in place until the conclusion of the Company's next general rate case (the current proceeding) or as otherwise may be ordered by the Commission.

Q. What is the inclining block rate structure for the Pilot Program?

A. The meter charges that Mexico residential customers pay in the Pilot Project are the same as the meter charges for all other residential customers on the MAWC system. The volumetric rates vary by usage as follows:

- First 3,000 gallons: $5.8887 per thousand gallons
- Next 7,000 gallons: $6.7720 per thousand gallons
- Over 10,000 gallons: $8.4650 per thousand gallons

For comparison, the volumetric rate for other Non-St. Louis County customers is $6.2469 per thousand gallons. A Mexico residential customer using 3,000 gallons per month pays $26.67 versus $27.74 for other Non-St. Louis County customers. A Mexico residential customer using 8,000 gallons per month pays $60.53 per month versus $58.98 per month for other Non-St. Louis County customers.

Q. Have you done an analysis of usage patterns for Mexico residential customers before and after application of the inclining block rate structure?

A. Yes. This analysis is provided in Schedule CBR-3.

Q. What does this analysis show?

A. The analysis shows that while usage per customer did decline in the Mexico district after inclining block rates were implemented, usage declined in every district for the same period of time. The decline in the Mexico district is generally higher than most districts for base usage, but certainly not the highest, and there is no indication that the decline in usage in the Mexico service territory is unusually large relative to other districts. Based on the available data, the analysis does not reveal significant changes in consumption patterns for Mexico residential customers since the implementation of inclining block rates relative to other districts that do not have inclining block rates. The following table shows annual average use per customer for Mexico residential customers before and after implementation of inclining block rates:

- Pre Inclining Block Rates: 42,618 gal. per year (12 mos. Ended May 2018)

- Post Inclining Block Rates: 40,390 gal. per year (12 mos. Ended Dec 2019)

While at a high level, the data shows there has been a reduction of 5.2% in use per customer in 2019 from consumption levels before inclining block rates were implemented, this reduction is in line with reductions seen in other districts from the same time period that did not have an inclining block rate structure.

Q. Based on this analysis, what do you conclude?

A. As implemented, inclining block rates have not had a significant downward impact on residential use per customer in the Mexico service territory.

Q. What is the Company's proposal regarding the Mexico Pilot Program?

A. The Company is proposing in this case to increase the price differentials between the different blocked rates in the blocked rate structure. Currently, the price multiples for the Mexico Pilot Program rates are 1.15 and 1.44, meaning that the second step price is 1.15 times the first step price and the third step price is 1.44 times the first step price. The Company is proposing to increase those multiples to 1.30 and 1.80, The Company proposes to continue to monitor consumption patterns in Mexico and compare those consumption patterns to other districts until the next rate case.

VI. LARGE USER TARIFF

Q. What is the Company's proposal in this case regarding large user tariffs?

A. The Company is proposing a new large user tariff titled Rate L, which will ultimately take the place of the Company's current Rate J offering. Customers currently on Rate J that will not qualify for Rate L will be grandfathered onto a new rate that will ease the transition from current Rate J volumetric rate levels to Rate A volumetric rate levels.

Q. Please describe the current Rate J tariff.

A. Rate J is currently a large user rate offered to MAWC customers that applies to:

- customers using more than 450,000 gallons per month, where
- usage is fairly constant throughout the year (language per tariff), and
- usage is not for residential, irrigation, or construction use.

The rate consists of a monthly meter charge and a volumetric charge that applies to all volumes billed to the customer. In every month, the amount of water billed to each customer is the maximum of a) 450,000 gallons, b) the customer's actual metered use for the month, or c) 60% of the customer's highest summer period monthly use in the twelve months previous to the current month's billing. Customers are removed from the rate for a period of twelve months if their monthly metered usage falls below 450,000 gallons per month twice during a twelve month period. No signed agreement is necessary between the customer and the Company in order to take service under Rate J.

Q. How many customers take service under Rate J currently?

A. There are approximately 140 customers currently taking service under Rate J.

Q. Please describe the Company's proposed Rate L.

A. The Company's proposed Rate L simplifies the Rate J structure and increases the usage requirement to qualify for the rate. Rate L will apply to customers using with an average monthly usage of 3,000,000 gallons or more (compared to the 450,000 gallon requirement for Rate J). There will be no restrictions on the end use of the water being consumed and there will be no minimum billings. The rate will be available to any customer with an average monthly usage of 3,000,000 gallons or more. A signed agreement is required between the customer and the Company in order to take service under Rate L to verify

current and future eligibility based on consumption patterns.

Q. Please describe how the rate structure under Rate L is developed.

A. The new Rate L pricing structure will include the meter charges that apply to all other general service customers plus a two-tiered volumetric rate referred to as a "Base Rate" and an "Extra Rate". The "Base Rate" will apply to a customer's usage up to a baseline usage level every month and the "Extra Rate" will apply to all of the customer's usage for the month above the baseline usage level. The volumetric charge for the Extra Rate is significantly higher than that for the Base Rate.

In winter months (which are defined for the purposes of this rate as December through April), all usage is considered to be base usage and the Base Rate will apply. In summer months (which is defined for the purposes of this rate as May through November), usage is split into two components. Base usage in summer months is defined as all usage up to a baseline level, which is defined in turn as the customers average monthly use for the previous winter season. All usage above the baseline in summer months is considered to be extra usage and the Extra Rate will apply to that usage. If during a summer month there is not enough usage data from the previous winter season to accurately calculate a baseline usage level, all usage will be considered base usage until an entire winter season's worth of consumption data is available to develop a baseline level of usage for that customer.

Q. How are the volumetric charges for the Base Rate and the Extra Rate determined and what is the theoretical basis for setting the Extra Rate higher than the Base Rate?

A. The volumetric charges for the Base Rate and the Extra Rate are determined based on

information from the class cost of service study I am sponsoring in this case in Schedule CBR-1. The Base/Extra capacity methodology provides an excellent theoretical framework for differentiating costs and prices between baseline usage levels and usage levels above a baseline level. The Base/Extra capacity methodology inherently recognizes that it is appropriate to allocate costs to customer classes (and by extension individual customers themselves) through a "base usage" concept and an "extra usage" concept. The "peakier" a customer or customer class is (meaning they have more extra usage relative to their baseline usage), the more costs are allocated to that customer or customer class based on their above-baseline usage. As a result, customer classes and individual customers that are peakier should pay a higher overall average price per unit than customer classes and customers that have more consistent usage from month to month.

Schedule CBR-4 represents how this two-tiered pricing structure for Rate L would apply to large users with different types of usage profiles. Page 1 of Schedule CBR-4 shows a large user with relatively flat usage over the course of the year. Because most of this customer's usage is at or below the baselines level (average winter monthly use), the overall effective volumetric rate for this customer is relatively low. Page 2 of Schedule CBR-4 shows a high use customer whose usage is much more seasonal. Because more of this customer's usage during summer months is at a level that is higher than the customer's baseline level and subject to a higher volumetric rate, the overall effective volumetric rate for this customer is higher than for the customer whose usage is more consistent from month to month.

Q. How many customers do you anticipate taking service under the new Rate L?

A. 47 customers will qualify for the new Rate L based on their current average monthly use.

Most of these customers are already Rate J customers although there are a small number that are currently on Rate A.

Q. Why did the Company choose 3,000,000 gallons as the appropriate threshold for Rate L qualification?

A. The 3,000,000 gallon threshold was chosen primarily due to cost of service considerations. The 3,000,000 gallon threshold is selected based on the percentage of water consumption taken directly from transmission-sized mains above and below the 3,000,000 gallon usage threshold. Approximately 80% of water sales for customers using 3,000,000 gallons per month is taken directly from transmission-sized mains (10" mains and above). That percentage drops to 55% for customers between 450,000 and 3,000,000 gallons per month. Since most users consuming 3,000,000 or more gallons per month do not utilize distribution mains, assigning such users a lower rate is justified.

Q. Why is the Company proposing to move from the current Rate J offering to the new Rate L offering?

A. The Company is proposing to move from the current Rate J structure to the new Rate L structure partly for the reasons stated above related to the cost basis of the rate, and partly because of the difficulties in administering the current Rate J offering.

Administration of the current Rate J offering has proven to be challenging. The current mix of monthly metering and quarterly metering for potential customers means that some customers may qualify for the rate that currently aren't on the rate because monthly usage data is not available to verify qualification. The restriction on residential usage has also been challenging to enforce because of confusion and potential disagreement as to

what qualifies as a residential customer (nursing homes, assisted living facilities, apartment buildings, etc.).

Finally, the extreme difference in volumetric rates between Rate J and Rate A gives non-qualifying customers for Rate J an inappropriate incentive to use water simply for the purpose of qualifying for Rate J, which would increase water consumption and cost on the system, but would reduce the customer's actual bill. The chart below shows the current volumetric rates for Rate A and Rate J:

Rate	St. Louis County	Non-St. Louis County
Rate A	$4.7814	$6.2469
Rate J	$1.7680	$2.8628

Note that these rates apply to all use by the customer. A St. Louis county customer that uses 300,000 gallons per month under Rate A would pay $1,434 in volumetric charges, whereas a similar customer using 450,000 gallons per month (a 50% increase in consumption) would pay $796 in volumetric charges (a 45% decrease in cost). The move to Rate L along with the additional mitigation measures I describe later in my Direct Testimony helps to remove this incentive and results in a more reasonable pricing structure for large water users.

Q. Will there be significant impacts to customers by moving to the Rate L offering?

A. Without any mitigation efforts, there would be very significant rate impacts to current Rate J customers that would not qualify for Rate L. As the table above shows, there are very large differences in the volumetric rates for Rate A and Rate J, and because the volumetric rates apply to all water used by the customer, the differences in total bills between a similar customer on Rate A and Rate J can be very large. The impact of moving directly from

Rate J and Rate A can be extreme—well over a 100% increase in most cases.

Q. What is the Company proposing in order to mitigate the impacts on customers that currently are on Rate J that would not qualify for the new Rate L?

A. To mitigate this situation of very large rate increases to Rate J customers that do not qualify for Rate L, the Company is proposing to keep the current Rate J in place and grandfather this rate for existing Rate J customers. Only customers taking service under Rate J on the effective date of the Company's proposed Rate L that do not meet the consumption requirements for Rate L would remain on Rate J, and no new customers would be allowed on Rate J after the grandfathered date. The volumetric rate for Rate J would be set equal to that for Rate A, but a special volumetric credit would also apply that would bring the effective volumetric rate closer to that of the current Rate J price. The intention is that this credit would be reduced over time (over a number of future rate cases) to bring the rate eventually equal to Rate A. The following table shows how the Rate A volumetric rate and the credit would work together to bring the effective volumetric rate closer to the existing Rate J volumetric rate.

Volumetric Rate (proposed)	Value
Rate A	$0.69827 per thousand gallon
Rate J Credit:	$0.33074
Effective Rate J Price:	$0.36753
Current Rate J Price:	$0.1768 / $0.2619

VII. WASTEWATER SERVICE RATE DESIGN

Q. Please describe the Company's current rate design for wastewater service.

A. The Company currently offers wastewater service under four different rate schedules

applicable to four different wastewater districts:

- Tariff RT 1.1 (Arnold)
- Tariff RT 2.1 (Various communities)
- Tariff RT 3.1 (Various communities)
- Tariff RT 3.2 (Lawson)

The Arnold tariff consists of a monthly flat fee of $32.64 per month for all customers plus a volumetric charge of $6.2591 per thousand gallons for consumption above 5,000 gallons per month. Tariffs RT 2.1 and RT 3.1 both offer a flat fee for residential customers ($58.13 per month for RT 2.1 and $38.75 per month for RT 3.1) and a graduated monthly charge by meter size for commercial customers with a volumetric charge for commercial customers that applies to all consumption above 6,000 gallons per month. The Lawson tariff consists of a monthly flat fee of $7.95 per month for all customers plus a volumetric charge of $4.200 per thousand gallons for consumption above 1,000 gallons per month.

Q. Is the Company proposing to make any significant changes to its rate design for wastewater service?

A. No. The Company is not proposing to change the rate design (type of billing determinants used) in any wastewater tariff. The Company is proposing to move rates closer together between each district to reduce the disparities in wastewater service rates between tariff offerings.

Q. Please discuss the current disparities in wastewater rates and the process you are using to reduce those disparities.

A. While the rate designs for wastewater service are different from rate schedule to rate schedules, it is possible to evaluate the rates on a single consistent basis by looking at

average monthly residential bills for each rate. For example, customers using an average of 5,000 gallons per month for Tariff RT 3.2 (Lawson), the bill equates to $24.75. At the same level of usage, the average monthly bill for a customer on Tariff RT 2.1 is $58.13. To reduce disparities the Company is proposing the following rate increases:

- For Tariff RT 1.1 (Arnold) the Company is proposing a 15.0% increase.
- The remainder of the proposed increase is allocated to Tariff RT 2.1 and Tariff RT 3.1 with the rates set such that the Rates for Tariff RT 3.1 will be 80% of those for Tariff Rate 2.1. This allocation narrows the current gap between Tariff RT 2.1 and Tariff RT 3.1 rates.
- For Tariff RT 3.2 (Lawson), the Company is proposing to place these customers on the Tariff RT 3.1 rate.

Q. Is the Company proposing collect its entire proposed wastewater service revenue requirement through its wastewater rates?

A. Yes. The Company is proposing to recover its entire proposed wastewater revenue requirement through wastewater rates and does not propose any recover of wastewater revenue requirements through its water service rates.

Q. Do you have a schedule that provides the Company's complete proposed rate design for wastewater service in this case?

A. Yes. Schedule CBR-2 provides the Company's proposed rate design for wastewater service.

Q. Does this conclude your Direct Testimony?

A. Yes.

Missouri-American Water Company
Class Cost of Service Study - Functional Allocators to Customer Class
Case No: WR-2020-0344, SR-2020-0345

	Functional COS	Alloc	Description	Residential	Non Residential	Rate L	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	Variance
Source of Supply Expense												
Fixed	$ 10,284,341	2	Base/Extra Daily	$ 6,005,036	$ 2,639,111	$ 705,329	$ 410,127	$ 500,169	$ 18,927	$ 5,642	$ 10,284,341	$ -
Variable	$ 7,075,251	1	Total Usage	$ 3,901,548	$ 1,759,922	$ 558,864	$ 374,935	$ 453,152	$ 20,669	$ 6,161	$ 7,075,251	$ -
Power and Pumping Expenses												
Fixed	$ 26,385,450	2	Base/Extra Daily	$ 15,406,489	$ 6,770,890	$ 1,809,589	$ 1,052,219	$ 1,283,230	$ 48,560	$ 14,474	$ 26,385,450	$ -
Variable	$ 4,467,538	1	Total Usage	$ 2,463,561	$ 1,111,271	$ 352,884	$ 236,746	$ 286,135	$ 13,051	$ 3,890	$ 4,467,538	$ -
Water Treatment												
Fixed	$ 63,568,396	2	Base/Extra Daily	$ 37,117,645	$ 16,312,573	$ 4,359,700	$ 2,535,028	$ 3,091,586	$ 116,992	$ 34,871	$ 63,568,396	$ -
Variable	$ 11,218,680	1	Total Usage	$ 6,186,384	$ 2,790,573	$ 886,147	$ 594,506	$ 718,529	$ 32,773	$ 9,768	$ 11,218,680	$ -
Transmission	$ 50,515,288	3	Base/Extra Daily w/ Fire	$ 27,263,236	$ 11,984,289	$ 3,207,931	$ 1,868,139	$ 2,278,051	$ 3,015,071	$ 898,572	$ 50,515,288	$ -
Distribution	$ 116,984,581	4	Base/Extra Hourly w/ Fire	$ 83,358,728	$ 21,535,069	$ 1,259,796	$ -	$ -	$ 8,344,192	$ 2,486,796	$ 116,984,581	$ -
Storage	$ 5,219,812	5	Storage	$ 3,519,024	$ 912,136	$ 240,372	$ 111,227	$ 135,511	$ -	$ 301,543	$ 5,219,812	$ -
Meters	$ 51,563,470	8	Meters	$ 39,947,232	$ 11,274,607	$ 255,527	$ 64,765	$ 21,338	$ -	$ -	$ 51,563,470	$ -
Services	$ 16,666,400	9	Services	$ 13,021,303	$ 2,071,495	$ 14,968	$ 6,361	$ 1,240	$ -	$ 1,551,033	$ 16,666,400	$ -
Customers	$ 20,369,212	10	Customers	$ 18,707,213	$ 1,227,865	$ 2,027	$ 1,036	$ 216	$ -	$ 430,854	$ 20,369,212	$ -
Hydrants	$ 16,926,156	7	Hydrants	$ -	$ -	$ -	$ -	$ -	$ 16,810,064	$ 116,092	$ 16,926,156	$ -
Total	**$ 401,244,575**			**$ 256,897,398**	**$ 80,389,802**	**$ 13,653,134**	**$ 7,255,090**	**$ 8,769,157**	**$ 28,420,299**	**$ 5,859,695**	**$ 401,244,575**	$ -
				64.03%	20.04%	3.40%	1.81%	2.19%	7.08%	1.46%	100.00%	
Rate Year Water Revenue	$ 296,364,756			$ 198,537,066	$ 70,731,737	$ 9,732,893	$ 7,403,831	$ 4,907,675	$ -	$ 5,051,555	$ 296,364,756	$ -
Other Water Operating Revenues	$ 6,180,214											
Increase	$ 104,879,819			$ 58,360,332	$ 9,658,065	$ 3,920,242	$ (148,741)	$ 3,861,482	$ 28,420,299	$ 808,140	$ 104,879,819	$ (0)
Percent Increase	35.4%			29.40%	13.65%	40.28%	-2.01%	78.68%	0.00%	16.00%	35.39%	
Rate Year Revenue				$ 198,537,066	$ 70,731,737	$ 9,732,893	$ 7,403,831	$ 4,907,675	$ -	$ 5,051,555	$ 296,364,756	
Cost of Service Increase				$ 58,360,332	$ 9,658,065	$ 3,920,242	$ (148,741)	$ 3,861,482	$ 28,420,299	$ 808,140	$ 104,879,819	
Allocation of Public Fire				$ 22,054,591	$ 6,224,633	$ 141,075			$ (28,420,299)		$ -	
Revenue Target				$ 278,951,990	$ 86,614,435	$ 13,794,209	$ 7,255,090	$ 8,769,157	$ -	$ 5,859,695	$ 401,244,575	
Percent Increase				40.5%	22.5%	41.7%	-2.0%	78.7%	0.0%	16.0%	35.4%	

Including Increase	$ 407,424,789
Workpaper	407,424,781
	$ 8

Variable Cost	$ 22,761,469

Missouri-American Water Company
Class Cost of Service Study - Account Detail
Case No: WR-2020-0344, SR-2020-0345

	Post Test Year	Alloc	Description	Source of Supply	Pumping	Water Treatment	Transmission	Distribution	Storage	Meters	Services	Customers	Hydrants	Total	Variance
Source of Supply Expense															
Operating Expense															
Purchased Water	$ 1,415,529	A	Source of Supply	$ 1,415,529	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,415,529	$ -
Fuel and Power	$ 5,659,722	A	Source of Supply	$ 5,659,722	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,659,722	$ -
Salaries and Wages	$ 88,080	A	Source of Supply	$ 88,080	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 88,080	$ -
Contract Services - Other	$ 102,044	A	Source of Supply	$ 102,044	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 102,044	$ -
Building Maintenance and Services	$ 365,660	A	Source of Supply	$ 365,660	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 365,660	$ -
Miscellaneous	$ 661	A	Source of Supply	$ 661	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 661	$ -
Telelcommunications	$ 183,032	A	Source of Supply	$ 183,032	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 183,032	$ -
Postage	$ 23	A	Source of Supply	$ 23	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 23	$ -
Office supplies and services	$ 4,910	A	Source of Supply	$ 4,910	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,910	$ -
Materials & Supplies	$ 11,464	A	Source of Supply	$ 11,464	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,464	$ -
Rents-Property	$ 2,858	A	Source of Supply	$ 2,858	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,858	$ -
Rents-Equipment	$ 9,551	A	Source of Supply	$ 9,551	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,551	$ -
Transportation	$ 6,955	A	Source of Supply	$ 6,955	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,955	$ -
	$ 7,850,489			$ 7,850,489	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,850,489	$ -
Maintenance Expense															
Salaries and Wages	$ 471,651	A	Source of Supply	$ 471,651	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 471,651	$ -
Materials & Supplies	$ 18,517	A	Source of Supply	$ 18,517	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,517	$ -
Transportation	$ 31,039	A	Source of Supply	$ 31,039	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 31,039	$ -
Miscellaneous	$ 2,201	A	Source of Supply	$ 2,201	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,201	$ -
Contract Services - Eng	$ -	A	Source of Supply	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contract Services - Other	$ 62,219	A	Source of Supply	$ 62,219	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 62,219	$ -
	$ 585,627			$ 585,627	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 585,627	$ -
Total SS Expense	**$ 8,436,116**			**$ 8,436,116**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 8,436,116**	**$ -**
Power and Pumping Expenses															
Operating Expense															
Fuel and Power	$ 4,467,538	B	Pumping	$ -	$ 4,467,538	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,467,538	$ -
Salaries and Wages	$ 1,907,131	B	Pumping	$ -	$ 1,907,131	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,907,131	$ -
Employee Benefits	$ 336	B	Pumping	$ -	$ 336	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 336	$ -
Building Maintenance and Services	$ 19,124	B	Pumping	$ -	$ 19,124	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 19,124	$ -
Miscellaneous	$ 5,491	B	Pumping	$ -	$ 5,491	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,491	$ -
Office supplies and services	$ 295	B	Pumping	$ -	$ 295	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 295	$ -
Materials & Supplies	$ 12,660	B	Pumping	$ -	$ 12,660	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,660	$ -
Rents-Equipment	$ 12,099	B	Pumping	$ -	$ 12,099	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,099	$ -
Transportation	$ 92,641	B	Pumping	$ -	$ 92,641	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 92,641	$ -
	$ 6,517,315			$ -	$ 6,517,315	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,517,315	$ -
Maintenance Expense															
Salaries and Wages	$ 556,628	B	Pumping	$ -	$ 556,628	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 556,628	$ -
Transportation	$ 7,539	B	Pumping	$ -	$ 7,539	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,539	$ -
Contract Services - Eng	$ 1,670	B	Pumping	$ -	$ 1,670	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,670	$ -
Contract Services - Other	$ 79,472	B	Pumping	$ -	$ 79,472	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 79,472	$ -
Miscellaneous	$ 6,153	B	Pumping	$ -	$ 6,153	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,153	$ -
Materials & Supplies	$ 42,502	B	Pumping	$ -	$ 42,502	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 42,502	$ -
	$ 693,964			$ -	$ 693,964	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 693,964	$ -
Total Pumping Expense	**$ 7,211,279**			**$ -**	**$ 7,211,279**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 7,211,279**	**$ -**
Water Treatment															
Operating Expense															
Fuel and Power	$ 654,066	C	Water Treatment	$ -	$ -	$ 654,066	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 654,066	$ -
Chemicals	$ 9,424,265	C	Water Treatment	$ -	$ -	$ 9,424,265	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,424,265	$ -
Waste Disposal	$ 1,140,349	C	Water Treatment	$ -	$ -	$ 1,140,349	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,140,349	$ -
Salaries and Wages	$ 3,714,763	C	Water Treatment	$ -	$ -	$ 3,714,763	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,714,763	$ -
Employee Benefits	$ 317	C	Water Treatment	$ -	$ -	$ 317	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 317	$ -
Contract Services - Eng	$ 22,793	C	Water Treatment	$ -	$ -	$ 22,793	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22,793	$ -
Contract Services - Other	$ 251,311	C	Water Treatment	$ -	$ -	$ 251,311	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 251,311	$ -
Building Maintenance and Services	$ 114,935	C	Water Treatment	$ -	$ -	$ 114,935	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 114,935	$ -
Miscellaneous	$ 349,168	C	Water Treatment	$ -	$ -	$ 349,168	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 349,168	$ -
Telelcommunications	$ 32,325	C	Water Treatment	$ -	$ -	$ 32,325	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 32,325	$ -
Postage	$ 5,792	C	Water Treatment	$ -	$ -	$ 5,792	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,792	$ -
Office supplies and services	$ 23,556	C	Water Treatment	$ -	$ -	$ 23,556	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 23,556	$ -
Materials & Supplies	$ 50,318	C	Water Treatment	$ -	$ -	$ 50,318	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 50,318	$ -
Rents-Property	$ 141	C	Water Treatment	$ -	$ -	$ 141	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 141	$ -
Rents-Equipment	$ 197,695	C	Water Treatment	$ -	$ -	$ 197,695	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 197,695	$ -
Transportation	$ 186	C	Water Treatment	$ -	$ -	$ 186	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 186	$ -
	$ 15,981,980			$ -	$ -	$ 15,981,980	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,981,980	$ -

Missouri-American Water Company
Class Cost of Service Study - Account Detail
Case No: WR-2020-0344, SR-2020-0345

	Post Test Year	Alloc	Description	Source of Supply	Pumping	Water Treatment	Transmission	Distribution	Storage	Meters	Services	Customers	Hydrants	Total	Variance
Maintenance Expense															
Salaries and Wages	$ 1,998,588	C	Water Treatment	$ -	$ -	$ 1,998,588	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,998,588	$ -
Transportation	$ 16,969	C	Water Treatment	$ -	$ -	$ 16,969	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 16,969	$ -
Contract Services - Eng	$ 1,687	C	Water Treatment	$ -	$ -	$ 1,687	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,687	$ -
Contract Services - Other	$ 602,564	C	Water Treatment	$ -	$ -	$ 602,564	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 602,564	$ -
Miscellaneous	$ 174,372	C	Water Treatment	$ -	$ -	$ 174,372	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 174,372	$ -
Materials & Supplies	$ 643,585	C	Water Treatment	$ -	$ -	$ 643,585	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 643,585	$ -
	$ 3,437,765			$ -	$ -	$ 3,437,765	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,437,765	$ -
Total Water Treatment Expense	**$ 19,419,745**			**$ -**	**$ -**	**$ 19,419,745**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 19,419,745**	**$ -**
Transmission & Distribution Expense															
Operating Expense															
Fuel and Power	$ 364,951	1	T/D Oper. Expense	$ -	$ -	$ -	$ 49,758	$ 192,415	$ (54)	$ 122,832	$ -	$ -	$ -	$ 364,951	$ -
Salaries and Wages	$ 4,684,569	1	T/D Oper. Expense	$ -	$ -	$ -	$ 638,705	$ 2,469,872	$ (698)	$ 1,576,690	$ -	$ -	$ -	$ 4,684,569	$ -
Employee Benefits	$ 32,516	1	T/D Oper. Expense	$ -	$ -	$ -	$ 4,433	$ 17,144	$ (5)	$ 10,944	$ -	$ -	$ -	$ 32,516	$ -
Contract Services - Eng	$ (109,426)	1	T/D Oper. Expense	$ -	$ -	$ -	$ (14,919)	$ (57,693)	$ 16	$ (36,830)	$ -	$ -	$ -	$ (109,426)	$ -
Contract Services - Other	$ 1,971,763	1	T/D Oper. Expense	$ -	$ -	$ -	$ 268,835	$ 1,039,584	$ (294)	$ 663,638	$ -	$ -	$ -	$ 1,971,763	$ -
Building Maintenance and Services	$ 81,856	1	T/D Oper. Expense	$ -	$ -	$ -	$ 11,160	$ 43,157	$ (12)	$ 27,550	$ -	$ -	$ -	$ 81,856	$ -
Miscellaneous	$ 763,145	1	T/D Oper. Expense	$ -	$ -	$ -	$ 104,049	$ 402,357	$ (114)	$ 256,852	$ -	$ -	$ -	$ 763,145	$ -
Telelcommunications	$ 146,326	1	T/D Oper. Expense	$ -	$ -	$ -	$ 19,950	$ 77,148	$ (22)	$ 49,249	$ -	$ -	$ -	$ 146,326	$ -
Postage	$ 386	1	T/D Oper. Expense	$ -	$ -	$ -	$ 53	$ 204	$ (0)	$ 130	$ -	$ -	$ -	$ 386	$ -
Office supplies and services	$ 54,650	1	T/D Oper. Expense	$ -	$ -	$ -	$ 7,451	$ 28,813	$ (8)	$ 18,394	$ -	$ -	$ -	$ 54,650	$ -
Materials & Supplies	$ 251,722	1	T/D Oper. Expense	$ -	$ -	$ -	$ 34,320	$ 132,717	$ (37)	$ 84,722	$ -	$ -	$ -	$ 251,722	$ -
Rents-Property	$ 1,224	1	T/D Oper. Expense	$ -	$ -	$ -	$ 167	$ 645	$ (0)	$ 412	$ -	$ -	$ -	$ 1,224	$ -
Rents-Equipment	$ 10,803	1	T/D Oper. Expense	$ -	$ -	$ -	$ 1,473	$ 5,696	$ (2)	$ 3,636	$ -	$ -	$ -	$ 10,803	$ -
Transportation	$ (143,259)	1	T/D Oper. Expense	$ -	$ -	$ -	$ (19,532)	$ (75,531)	$ 21	$ (48,217)	$ -	$ -	$ -	$ (143,259)	$ -
	$ 8,111,226			$ -	$ -	$ -	$ 1,105,904	$ 4,276,528	$ (1,208)	$ 2,730,003	$ -	$ -	$ -	$ 8,111,226	$ -
Maintenance Expense															
Salaries and Wages	$ 3,184,141	2	T/D Maint.. Expense	$ -	$ -	$ -	$ 142,972	$ 552,871	$ 166,816	$ 798,772	$ 849,329	$ -	$ 673,381	$ 3,184,141	$ -
Contract Services - Eng	$ 63,059	2	T/D Maint.. Expense	$ -	$ -	$ -	$ 2,831	$ 10,949	$ 3,304	$ 15,819	$ 16,820	$ -	$ 13,336	$ 63,059	$ -
Contract Services - Other	$ 1,922,594	2	T/D Maint.. Expense	$ -	$ -	$ -	$ 86,327	$ 333,825	$ 100,724	$ 482,301	$ 512,827	$ -	$ 406,589	$ 1,922,594	$ -
Transportation	$ 1,499,314	2	T/D Maint.. Expense	$ -	$ -	$ -	$ 67,321	$ 260,330	$ 78,549	$ 376,117	$ 399,923	$ -	$ 317,074	$ 1,499,314	$ -
Miscellaneous	$ 1,223,235	2	T/D Maint.. Expense	$ -	$ -	$ -	$ 54,925	$ 212,394	$ 64,085	$ 306,860	$ 326,282	$ -	$ 258,689	$ 1,223,235	$ -
Materials & Supplies	$ 1,127,327	2	T/D Maint.. Expense	$ -	$ -	$ -	$ 50,618	$ 195,741	$ 59,060	$ 282,801	$ 300,700	$ -	$ 238,407	$ 1,127,327	$ -
	$ 9,019,670			$ -	$ -	$ -	$ 404,994	$ 1,566,110	$ 472,539	$ 2,262,669	$ 2,405,882	$ -	$ 1,907,476	$ 9,019,670	$ -
Total T&D Expense	**$ 17,130,896**			**$ -**	**$ -**	**$ -**	**$ 1,510,897**	**$ 5,842,638**	**$ 471,331**	**$ 4,992,672**	**$ 2,405,882**	**$ -**	**$ 1,907,476**	**$ 17,130,896**	**$ -**
General Mains Expense															
Operations															
Salaries and Wages	$ 1,608,811	K	Mains	$ -	$ -	$ -	$ 330,555	$ 1,278,256	$ -	$ -	$ -	$ -	$ -	$ 1,608,811	$ -
Miscellaneous	$ 4,160	K	Mains	$ -	$ -	$ -	$ 855	$ 3,305	$ -	$ -	$ -	$ -	$ -	$ 4,160	$ -
	$ 1,612,971			$ -	$ -	$ -	$ 331,410	$ 1,281,561	$ -	$ -	$ -	$ -	$ -	$ 1,612,971	$ -
Maintenance Expense															
Salaries and Wages	$ 405,863	K	Mains	$ -	$ -	$ -	$ 83,391	$ 322,472	$ -	$ -	$ -	$ -	$ -	$ 405,863	$ -
Miscellaneous	$ 4,481	K	Mains	$ -	$ -	$ -	$ 921	$ 3,560	$ -	$ -	$ -	$ -	$ -	$ 4,481	$ -
	$ 410,344			$ -	$ -	$ -	$ 84,312	$ 326,032	$ -	$ -	$ -	$ -	$ -	$ 410,344	$ -
General Mains Expense	**$ 2,023,315**			**$ -**	**$ -**	**$ -**	**$ 415,721**	**$ 1,607,594**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 2,023,315**	**$ -**
Storage Expense															
Operating Expense															
Salaries and Wages	$ (362)	F	Storage	$ -	$ -	$ -	$ -	$ -	$ (362)	$ -	$ -	$ -	$ -	$ (362)	$ -
Miscellaneous	$ -	F	Storage	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$ (362)			$ -	$ -	$ -	$ -	$ -	$ (362)	$ -	$ -	$ -	$ -	$ (362)	$ -
Maintenance Expense															
Salaries and Wages	$ 565	F	Storage	$ -	$ -	$ -	$ -	$ -	$ 565	$ -	$ -	$ -	$ -	$ 565	$ -
Miscellaneous	$ 97,808	F	Storage	$ -	$ -	$ -	$ -	$ -	$ 97,808	$ -	$ -	$ -	$ -	$ 97,808	$ -
	$ 98,373			$ -	$ -	$ -	$ -	$ -	$ 98,373	$ -	$ -	$ -	$ -	$ 98,373	$ -
Total Storage Expense	**$ 98,011**			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 98,011**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 98,011**	**$ -**
Meter Expense															
Operating Expense															
Salaries and Wages	$ 814,767	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ 814,767	$ -	$ -	$ -	$ 814,767	$ -
Miscellaneous	$ 3,342	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,342	$ -	$ -	$ -	$ 3,342	$ -
	$ 818,109			$ -	$ -	$ -	$ -	$ -	$ -	$ 818,109	$ -	$ -	$ -	$ 818,109	$ -
Maintenance Expense															
Salaries and Wages	$ 470,445	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ 470,445	$ -	$ -	$ -	$ 470,445	$ -
Miscellaneous	$ 597	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ 597	$ -	$ -	$ -	$ 597	$ -
	$ 471,042			$ -	$ -	$ -	$ -	$ -	$ -	$ 471,042	$ -	$ -	$ -	$ 471,042	$ -

Missouri-American Water Company
Class Cost of Service Study - Account Detail
Case No: WR-2020-0344, SR-2020-0345

	Post Test Year	Alloc	Description	Source of Supply	Pumping	Water Treatment	Transmission	Distribution	Storage	Meters	Services	Customers	Hydrants	Total	Variance
Total Meter Expense	**$ 1,289,151**			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 1,289,151**	**$ -**	**$ -**	**$ -**	**$ 1,289,151**	**$ -**
Service Expense															
Operating Expense															
Salaries and Wages	$ -	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous	$ -	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$ -			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Expense															
Salaries and Wages	$ 501,051	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 501,051	$ -	$ -	$ 501,051	$ -
Miscellaneous	$ (195)	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (195)	$ -	$ -	$ (195)	$ -
	$ 500,856			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 500,856	$ -	$ -	$ 500,856	$ -
Total Service Expense	**$ 500,856**			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 500,856**	**$ -**	**$ -**	**$ 500,856**	**$ -**
Hydrant Expense															
Maintenance Expense															
Salaries and Wages	$ 394,965	J	Hydrants	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 394,965	$ 394,965	$ -
Miscellaneous	$ 2,133	J	Hydrants	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,133	$ 2,133	$ -
	$ 397,098			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 397,098	$ 397,098	$ -
Hydrant Expense	**$ 397,098**			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 397,098**	**$ 397,098**	**$ -**
Customer Accounts															
Fuel and Power	$ 2,280	I	Customers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,280	$ -	$ 2,280	$ -
Salaries and Wages	$ 1,300,070	I	Customers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,300,070	$ -	$ 1,300,070	$ -
Contract Services - Other	$ 262,245	I	Customers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 262,245	$ -	$ 262,245	$ -
Building Maintenance and Services	$ 21,334	I	Customers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,334	$ -	$ 21,334	$ -
Telelcommunications	$ 39,014	I	Customers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 39,014	$ -	$ 39,014	$ -
Office supplies and services	$ 8,616	I	Customers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,616	$ -	$ 8,616	$ -
Materials & Supplies	$ 98,469	I	Customers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 98,469	$ -	$ 98,469	$ -
Transportation	$ 4,667	I	Customers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,667	$ -	$ 4,667	$ -
Uncollectible Accounts	$ 4,004,307	I	Customers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,004,307	$ -	$ 4,004,307	$ -
Customer accounting, other	$ 1,324,944	I	Customers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,324,944	$ -	$ 1,324,944	$ -
	$ 7,065,946			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,065,946	$ -	$ 7,065,946	$ -
Total Customer Accounting Expense	**$ 7,065,946**			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 7,065,946**	**$ -**	**$ 7,065,946**	**$ -**
Administrative & General Expense															
Operating Expense															
Fuel and Power	$ 44,394	3	Fixed O&M	$ 1,480	$ 2,985	$ 8,921	$ 2,096	$ 8,104	$ 619	$ 6,833	$ 3,162	$ 7,686	$ 2,507	$ 44,394	$ -
Salaries and Wages	$ 12,501,821	4	Labor	$ 316,611	$ 1,393,623	$ 3,231,752	$ 676,303	$ 2,615,262	$ 94,080	$ 2,070,657	$ 763,841	$ 735,383	$ 604,309	$ 12,501,821	$ -
Employee Benefits	$ 6,498,346	4	Labor	$ 164,572	$ 724,394	$ 1,679,839	$ 351,537	$ 1,359,392	$ 48,902	$ 1,076,311	$ 397,039	$ 382,246	$ 314,115	$ 6,498,346	$ -
Support Services Costs - Employee	$ 21,406,933	4	Labor	$ 542,135	$ 2,386,308	$ 5,533,745	$ 1,158,037	$ 4,478,127	$ 161,093	$ 3,545,596	$ 1,307,929	$ 1,259,201	$ 1,034,761	$ 21,406,933	$ -
Support Services Costs - Admin	$ 17,472,183	3	Fixed O&M	$ 582,620	$ 1,174,664	$ 3,511,080	$ 824,833	$ 3,189,630	$ 243,749	$ 2,689,405	$ 1,244,447	$ 3,025,108	$ 986,646	$ 17,472,183	$ -
Contract Services - Eng	$ 30,415	3	Fixed O&M	$ 1,014	$ 2,045	$ 6,112	$ 1,436	$ 5,552	$ 424	$ 4,682	$ 2,166	$ 5,266	$ 1,718	$ 30,415	$ -
Contract Services - Other	$ 1,801,430	3	Fixed O&M	$ 60,070	$ 121,111	$ 362,002	$ 85,043	$ 328,860	$ 25,131	$ 277,285	$ 128,306	$ 311,897	$ 101,726	$ 1,801,430	$ -
Building Maintenance and Services	$ 356,408	3	Fixed O&M	$ 11,885	$ 23,961	$ 71,621	$ 16,825	$ 65,064	$ 4,972	$ 54,860	$ 25,385	$ 61,708	$ 20,126	$ 356,408	$ -
Miscellaneous	$ 2,158,840	3	Fixed O&M	$ 71,988	$ 145,140	$ 433,824	$ 101,915	$ 394,106	$ 30,117	$ 332,299	$ 153,762	$ 373,778	$ 121,909	$ 2,158,840	$ -
Telelcommunications	$ 796,888	3	Fixed O&M	$ 26,573	$ 53,575	$ 160,137	$ 37,620	$ 145,476	$ 11,117	$ 122,661	$ 56,758	$ 137,972	$ 45,000	$ 796,888	$ -
Postage	$ 20,613	3	Fixed O&M	$ 687	$ 1,386	$ 4,142	$ 973	$ 3,763	$ 288	$ 3,173	$ 1,468	$ 3,569	$ 1,164	$ 20,613	$ -
Office supplies and services	$ 1,225,379	3	Fixed O&M	$ 40,861	$ 82,383	$ 246,243	$ 57,848	$ 223,699	$ 17,095	$ 188,616	$ 87,277	$ 212,160	$ 69,197	$ 1,225,379	$ -
Materials & Supplies	$ 166,293	3	Fixed O&M	$ 5,545	$ 11,180	$ 33,417	$ 7,850	$ 30,358	$ 2,320	$ 25,597	$ 11,844	$ 28,792	$ 9,390	$ 166,293	$ -
Communications	$ 74,549	3	Fixed O&M	$ 2,486	$ 5,012	$ 14,981	$ 3,519	$ 13,609	$ 1,040	$ 11,475	$ 5,310	$ 12,907	$ 4,210	$ 74,549	$ -
Rents-Property	$ 132,474	3	Fixed O&M	$ 4,417	$ 8,906	$ 26,621	$ 6,254	$ 24,184	$ 1,848	$ 20,391	$ 9,435	$ 22,936	$ 7,481	$ 132,474	$ -
Rents-Equipment	$ 72,488	3	Fixed O&M	$ 2,417	$ 4,873	$ 14,567	$ 3,422	$ 13,233	$ 1,011	$ 11,158	$ 5,163	$ 12,550	$ 4,093	$ 72,488	$ -
Transportation	$ 548,652	3	Fixed O&M	$ 18,295	$ 36,886	$ 110,253	$ 25,901	$ 100,159	$ 7,654	$ 84,451	$ 39,077	$ 94,993	$ 30,982	$ 548,652	$ -
Regulatory Expense	$ 581,068	3	Fixed O&M	$ 19,376	$ 39,066	$ 116,767	$ 27,431	$ 106,077	$ 8,106	$ 89,441	$ 41,386	$ 100,605	$ 32,813	$ 581,068	$ -
Insurance	$ 6,815,967	3	Fixed O&M	$ 227,282	$ 458,241	$ 1,369,686	$ 321,771	$ 1,244,287	$ 95,088	$ 1,049,147	$ 485,464	$ 1,180,106	$ 384,894	$ 6,815,967	$ -
	$ 72,705,141			$ 2,100,316	$ 6,675,739	$ 16,935,711	$ 3,710,615	$ 14,348,942	$ 754,656	$ 11,664,038	$ 4,769,220	$ 7,968,865	$ 3,777,040	$ 72,705,141	$ -
Maintenance Expense															
Salaries and Wages	$ 152,116	4	Labor	$ 3,852	$ 16,957	$ 39,322	$ 8,229	$ 31,821	$ 1,145	$ 25,195	$ 9,294	$ 8,948	$ 7,353	$ 152,116	$ -
Transportation	$ 23,421	3	Fixed O&M	$ 781	$ 1,575	$ 4,707	$ 1,106	$ 4,276	$ 327	$ 3,605	$ 1,668	$ 4,055	$ 1,323	$ 23,421	$ -
Contract Services - Eng	$ -	3	Fixed O&M	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contract Services - Other	$ 39,367	3	Fixed O&M	$ 1,313	$ 2,647	$ 7,911	$ 1,858	$ 7,187	$ 549	$ 6,060	$ 2,804	$ 6,816	$ 2,223	$ 39,367	$ -
Miscellaneous	$ 1,277,712	3	Fixed O&M	$ 42,606	$ 85,901	$ 256,760	$ 60,319	$ 233,252	$ 17,825	$ 196,672	$ 91,004	$ 221,221	$ 72,152	$ 1,277,712	$ -
Materials & Supplies	$ 31,899	3	Fixed O&M	$ 1,064	$ 2,145	$ 6,410	$ 1,506	$ 5,823	$ 445	$ 4,910	$ 2,272	$ 5,523	$ 1,801	$ 31,899	$ -
	$ 1,524,515			$ 49,616	$ 109,224	$ 315,110	$ 73,018	$ 282,359	$ 20,291	$ 236,441	$ 107,042	$ 246,563	$ 84,852	$ 1,524,515	$ -
Total A&G Expense	**$ 74,229,656**			**$ 2,149,932**	**$ 6,784,963**	**$ 17,250,820**	**$ 3,783,632**	**$ 14,631,301**	**$ 774,946**	**$ 11,900,479**	**$ 4,876,262**	**$ 8,215,428**	**$ 3,861,891**	**$ 74,229,656**	**$ -**
Total Operations & Maintenace Exp. (Water)	**$ 137,802,069**			**$ 10,586,048**	**$ 13,996,242**	**$ 36,670,565**	**$ 5,710,251**	**$ 22,081,533**	**$ 1,344,288**	**$ 18,182,302**	**$ 7,783,000**	**$ 15,281,374**	**$ 6,166,466**	**$ 137,802,069**	**$ -**
Total Operations & Maintenace Exp. (Sewer)	**$ 4,676,944**														

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	Post Test Year	Alloc	Description	Source of Supply	Pumping	Water Treatment	Transmission	Distribution	Storage	Meters	Services	Customers	Hydrants	Total	Variance
Taxes Other Than Income Tax															
Property Taxes	$ 30,039,889	5	Net Plant (less gen. ar	$ 672,385	$ 1,672,795	$ 3,603,592	$ 5,663,902	$ 13,271,489	$ 366,227	$ 2,626,487	$ 715,641	$ 349,999	$ 1,097,374	$ 30,039,889	$ -
Payroll Taxes	$ 2,635,983	4	Labor	$ 66,757	$ 293,843	$ 681,408	$ 142,597	$ 551,423	$ 19,837	$ 436,594	$ 161,054	$ 155,054	$ 127,417	$ 2,635,983	$ -
Utility Reg Assessment	$ 2,450,858	6	Rate Base	$ 65,954	$ 163,375	$ 351,333	$ 465,709	$ 946,559	$ 36,051	$ 247,051	$ 45,698	$ 32,711	$ 96,416	$ 2,450,858	$ -
Other Taxes	$ (124,946)	6	Rate Base	$ (3,362)	$ (8,329)	$ (17,911)	$ (23,742)	$ (48,256)	$ (1,838)	$ (12,595)	$ (2,330)	$ (1,668)	$ (4,915)	$ (124,946)	$ -
	$ 35,001,784			$ 801,733	$ 2,121,683	$ 4,618,422	$ 6,248,465	$ 14,721,214	$ 420,276	$ 3,297,537	$ 920,063	$ 536,096	$ 1,316,292	$ 35,001,784	$ -
Total Taxes Other Than Income Taxes (Water)	**$ 35,001,784**			**$ 801,733**	**$ 2,121,683**	**$ 4,618,422**	**$ 6,248,465**	**$ 14,721,214**	**$ 420,276**	**$ 3,297,537**	**$ 920,063**	**$ 536,096**	**$ 1,316,292**	**$ 35,001,784**	**$ -**
Total Taxes Other Than Income Taxes (Sewer)	**$ 994,704**														
Plant Depreciation															
Intangible Plant															
Organization	$ -	5	Net Plant (less gen. ar	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Franchises	$ -	5	Net Plant (less gen. ar	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other P/E-Intangible	$ 66,654	5	Net Plant (less gen. ar	$ 1,492	$ 3,712	$ 7,996	$ 12,567	$ 29,447	$ 813	$ 5,828	$ 1,588	$ 777	$ 2,435	$ 66,654	$ -
Source of Supply															
Land & Land Rights	$ -	A	Source of Supply	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Structures & Improvements	$ 472,410	A	Source of Supply	$ 472,410	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 472,410	$ -
Collection & Impound Reservoirs	$ 347	A	Source of Supply	$ 347	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 347	$ -
Lake, River, & Other Intakes	$ 261,616	A	Source of Supply	$ 261,616	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 261,616	$ -
Wells & Springs	$ 219,912	A	Source of Supply	$ 219,912	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 219,912	$ -
Infiltration Galleries & Tunnels	$ 32	A	Source of Supply	$ 32	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 32	$ -
Supply Mains	$ 345,969	A	Source of Supply	$ 345,969	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 345,969	$ -
Other P/E-Supply	$ 2,773	A	Source of Supply	$ 2,773	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,773	$ -
Water Pumping															
Pumping Land & Land Rights	$ -	B	Pumping	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pumping Structures & Improvements	$ 1,152,076	B	Pumping	$ -	$ 1,152,076	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,152,076	$ -
Boiler Plant Equipment	$ -	B	Pumping	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Power Generation Equipment	$ 402,536	B	Pumping	$ -	$ 402,536	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 402,536	$ -
Steam Pumping Equipment	$ 9,220	B	Pumping	$ -	$ 9,220	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,220	$ -
Electric Pumping Equipment	$ 1,694,415	B	Pumping	$ -	$ 1,694,415	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,694,415	$ -
Diesel Pumping Equipment	$ 42,295	B	Pumping	$ -	$ 42,295	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 42,295	$ -
Pump Equip Hydraulic	$ 10,401	B	Pumping	$ -	$ 10,401	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,401	$ -
Other Pumping Equipment	$ 78,634	B	Pumping	$ -	$ 78,634	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 78,634	$ -
Water Treatment															
Water Treatment Land & land Rights	$ -	C	Water Treatment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Water Treatment Structures & Improvements	$ 3,311,882	C	Water Treatment	$ -	$ -	$ 3,311,882	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,311,882	$ -
Water Treatment Equipment	$ 4,876,398	C	Water Treatment	$ -	$ -	$ 4,876,398	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,876,398	$ -
Water Treatment - Other	$ 29,464	C	Water Treatment	$ -	$ -	$ 29,464	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 29,464	$ -
T&D															
Transmission & Distribution Land	$ -	K	Mains	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission & Distribution Structures & Impr	$ 289,566	K	Mains	$ -	$ -	$ -	$ 59,496	$ 230,070	$ -	$ -	$ -	$ -	$ -	$ 289,566	$ -
TD Mains 4in & Less	$ 501,388	E	Distribution	$ -	$ -	$ -	$ -	$ 501,388	$ -	$ -	$ -	$ -	$ -	$ 501,388	$ -
TD Mains 6in to 8in	$ 21,110,491	E	Distribution	$ -	$ -	$ -	$ -	$ 21,110,491	$ -	$ -	$ -	$ -	$ -	$ 21,110,491	$ -
TD Mains 10in to 16in	$ 5,216,725	D	Transmission	$ -	$ -	$ -	$ 5,216,725	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,216,725	$ -
TD Mains 18in & Grtr	$ 4,149,695	D	Transmission	$ -	$ -	$ -	$ 4,149,695	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,149,695	$ -
Other Transmission & Distribution Plant	$ 765	K	Mains	$ -	$ -	$ -	$ 157	$ 608	$ -	$ -	$ -	$ -	$ -	$ 765	$ -
Storage															
Distribution Reservoirs & Standpipes	$ 737,139	F	Storage	$ -	$ -	$ -	$ -	$ -	$ 737,139	$ -	$ -	$ -	$ -	$ 737,139	$ -
Distribution Reservoirs & Standpipes - Tank Coating	$ 227,187	F	Storage	$ -	$ -	$ -	$ -	$ -	$ 227,187	$ -	$ -	$ -	$ -	$ 227,187	$ -
Meters															
Meters	$ 10,684,167	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,684,167	$ -	$ -	$ -	$ 10,684,167	$ -
Meter Installation	$ 1,887,142	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,887,142	$ -	$ -	$ -	$ 1,887,142	$ -
Meter Vaults	$ -	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Services															
Services	$ 2,261,782	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,261,782	$ -	$ -	$ 2,261,782	$ -
Hydrants															
Hydrants	$ 2,711,128	J	Hydrants	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,711,128	$ 2,711,128	$ -
Fire Mains	$ 10,064	J	Mains	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,064	$ 10,064	$ -

Missouri-American Water Company
Class Cost of Service Study - Account Detail
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	Post Test Year	Alloc	Description	Source of Supply	Pumping	Water Treatment	Transmission	Distribution	Storage	Meters	Services	Customers	Hydrants	Total	Variance
General Plant															
General Land & Land Rights	$ -	3	Fixed O&M	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stores Shops Equipment Structures	$ 364,512	3	Fixed O&M	$ 12,155	$ 24,506	$ 73,250	$ 17,208	$ 66,543	$ 5,085	$ 56,107	$ 25,962	$ 63,111	$ 20,584	$ 364,512	$ -
Office Structures	$ 234,473	3	Fixed O&M	$ 7,819	$ 15,764	$ 47,118	$ 11,069	$ 42,804	$ 3,271	$ 36,091	$ 16,700	$ 40,596	$ 13,241	$ 234,473	$ -
General Structures - HVAC	$ 9,910	3	Fixed O&M	$ 330	$ 666	$ 1,991	$ 468	$ 1,809	$ 138	$ 1,525	$ 706	$ 1,716	$ 560	$ 9,910	$ -
Miscellaneous Structures	$ 97,488	3	Fixed O&M	$ 3,251	$ 6,554	$ 19,590	$ 4,602	$ 17,797	$ 1,360	$ 15,006	$ 6,944	$ 16,879	$ 5,505	$ 97,488	$ -
Structures & Improvements - Leasehold	$ 3,249	3	Fixed O&M	$ 108	$ 218	$ 653	$ 153	$ 593	$ 45	$ 500	$ 231	$ 563	$ 183	$ 3,249	$ -
Office Furniture and Equipment	$ 66,328	3	Fixed O&M	$ 2,212	$ 4,459	$ 13,329	$ 3,131	$ 12,108	$ 925	$ 10,209	$ 4,724	$ 11,484	$ 3,745	$ 66,328	$ -
Computers & Peripheral Equipment	$ 721,290	3	Fixed O&M	$ 24,052	$ 48,493	$ 144,945	$ 34,051	$ 131,675	$ 10,063	$ 111,025	$ 51,373	$ 124,883	$ 40,731	$ 721,290	$ -
Computer Hardware & Software	$ 670,827	3	Fixed O&M	$ 22,369	$ 45,100	$ 134,804	$ 31,669	$ 122,463	$ 9,359	$ 103,257	$ 47,779	$ 116,146	$ 37,881	$ 670,827	$ -
Computer Software	$ 3,485,345	3	Fixed O&M	$ 116,221	$ 234,322	$ 700,389	$ 164,537	$ 636,266	$ 48,623	$ 536,482	$ 248,242	$ 603,447	$ 196,816	$ 3,485,345	$ -
Personal Computer Software	$ -	3	Fixed O&M	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Office Equipment	$ 61,521	3	Fixed O&M	$ 2,051	$ 4,136	$ 12,363	$ 2,904	$ 11,231	$ 858	$ 9,470	$ 4,382	$ 10,652	$ 3,474	$ 61,521	$ -
BTS Initial Investment	$ 4,242,974	3	Fixed O&M	$ 141,484	$ 285,257	$ 852,637	$ 200,304	$ 774,575	$ 59,192	$ 653,100	$ 302,204	$ 734,622	$ 239,599	$ 4,242,974	$ -
Transportation Equipment - Light Trucks	$ 1,304,825	3	Fixed O&M	$ 43,510	$ 87,724	$ 262,208	$ 61,599	$ 238,202	$ 18,203	$ 200,845	$ 92,935	$ 225,915	$ 73,683	$ 1,304,825	$ -
Transportation Equipment - Heavy Trucks	$ 1,136,492	3	Fixed O&M	$ 37,897	$ 76,407	$ 228,381	$ 53,652	$ 207,472	$ 15,855	$ 174,934	$ 80,946	$ 196,771	$ 64,177	$ 1,136,492	$ -
Transportation Equipment - Cars	$ -	3	Fixed O&M	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transportation Equipment - Other	$ 727,763	3	Fixed O&M	$ 24,268	$ 48,928	$ 146,246	$ 34,357	$ 132,857	$ 10,153	$ 112,021	$ 51,835	$ 126,004	$ 41,096	$ 727,763	$ -
Stores Equipment	$ 36,273	3	Fixed O&M	$ 1,210	$ 2,439	$ 7,289	$ 1,712	$ 6,622	$ 506	$ 5,583	$ 2,584	$ 6,280	$ 2,048	$ 36,273	$ -
Tools, Shop, & Garage Equipment	$ 285,356	3	Fixed O&M	$ 9,515	$ 19,185	$ 57,343	$ 13,471	$ 52,093	$ 3,981	$ 43,923	$ 20,324	$ 49,406	$ 16,114	$ 285,356	$ -
Laboratory Equipment	$ 77,212	C	Water Treatment	$ -	$ -	$ 77,212	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 77,212	$ -
Power Operated Equipment	$ -	3	Fixed O&M	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Communication Equipment	$ -	3	Fixed O&M	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Communication Equipment (non telephone)	$ 471,521	3	Fixed O&M	$ 15,723	$ 31,701	$ 94,753	$ 22,260	$ 86,078	$ 6,578	$ 72,579	$ 33,584	$ 81,638	$ 26,627	$ 471,521	$ -
Telephone Equipment	$ -	3	Fixed O&M	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous Equipment	$ 289,806	3	Fixed O&M	$ 9,664	$ 19,484	$ 58,237	$ 13,681	$ 52,905	$ 4,043	$ 44,608	$ 20,641	$ 50,177	$ 16,365	$ 289,806	$ -
Other Tangible Property	$ 69,558	3	Fixed O&M	$ 2,319	$ 4,676	$ 13,978	$ 3,284	$ 12,698	$ 970	$ 10,707	$ 4,954	$ 12,043	$ 3,928	$ 69,558	$ -
Plant Depreciation (Water)	$ 77,120,996			$ 1,780,710	$ 4,353,307	$ 11,172,458	$ 10,112,754	$ 24,478,797	$ 1,164,348	$ 14,775,110	$ 3,280,421	$ 2,473,110	$ 3,529,983	$ 77,120,996	$ -
CIAC-Non Taxable - Mains	$ (3,147,715)	K	Mains	$ -	$ -	$ -	$ (646,747)	$ (2,500,968)	$ -	$ -	$ -	$ -	$ -	$ (3,147,715)	$ -
CIAC-Non Taxable - Ext Dep	$ (1,211,396)	K	Mains	$ -	$ -	$ -	$ (248,900)	$ (962,496)	$ -	$ -	$ -	$ -	$ -	$ (1,211,396)	$ -
CIAC-Non Taxable - Services	$ (7,408)	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (7,408)	$ -	$ -	$ (7,408)	$ -
CIAC-Non Taxable - Meters	$ (332,446)	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ (332,446)	$ -	$ -	$ -	$ (332,446)	$ -
CIAC-Non Taxable - Hydrants	$ (194,019)	J	Hydrants	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (194,019)	$ (194,019)	$ -
CIAC-Non Taxable - Other	$ (98,242)	K	Mains	$ -	$ -	$ -	$ (20,185)	$ (78,057)	$ -	$ -	$ -	$ -	$ -	$ (98,242)	$ -
CIAC-Non Taxable - WIP	$ -	K	Mains	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CIAC-Taxable - Mains	$ (953,853)	K	Mains	$ -	$ -	$ -	$ (195,984)	$ (757,869)	$ -	$ -	$ -	$ -	$ -	$ (953,853)	$ -
CIAC-Taxable - Extension Deposits	$ (181,547)	K	Mains	$ -	$ -	$ -	$ (37,302)	$ (144,245)	$ -	$ -	$ -	$ -	$ -	$ (181,547)	$ -
CIAC-Taxable - Services	$ (601,699)	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (601,699)	$ -	$ -	$ (601,699)	$ -
CIAC-Taxable - Meters	$ (58,024)	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ (58,024)	$ -	$ -	$ -	$ (58,024)	$ -
CIAC-Taxable - Hydrants	$ (19,391)	J	Hydrants	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (19,391)	$ (19,391)	$ -
CIAC-Taxable - Other	$ (3,634)	K	Mains	$ -	$ -	$ -	$ (747)	$ (2,887)	$ -	$ -	$ -	$ -	$ -	$ (3,634)	$ -
CIAC-Taxable - WIP	$ -	K	Mains	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CIAC-Taxable - Services SIT	$ -	K	Mains	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Amortization of CIAC (Water)	$ (6,809,374)			$ -	$ -	$ -	$ (1,149,864)	$ (4,446,522)	$ -	$ (390,470)	$ (609,107)	$ -	$ (213,410)	$ (6,809,374)	$ -
Total Depreciation Expense (Water)	**$ 70,311,622**			**$ 1,780,710**	**$ 4,353,307**	**$ 11,172,458**	**$ 8,962,890**	**$ 20,032,274**	**$ 1,164,348**	**$ 14,384,640**	**$ 2,671,314**	**$ 2,473,110**	**$ 3,316,573**	**$ 70,311,622**	**$ -**
Plant Depreciation (Sewer)	$ 2,231,282														
Amortization of CIAC (Sewer)	$ (179,482)														
Total Depreciation Expense	**$ 72,363,422**														
Amortization Expense															
Lead Service Replacement	$ 2,388,118	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,388,118	$ -	$ -	$ 2,388,118	$ -
Amortization - Reg Asset AFUDC	$ 206,949	6	Rate Base	$ 5,569	$ 13,795	$ 29,666	$ 39,324	$ 79,927	$ 3,044	$ 20,861	$ 3,859	$ 2,762	$ 8,141	$ 206,949	$ -
Amortization - Property Losses	$ 154,047	6	Rate Base	$ 4,146	$ 10,269	$ 22,083	$ 29,272	$ 59,495	$ 2,266	$ 15,528	$ 2,872	$ 2,056	$ 6,060	$ 154,047	$ -
Amortization - Reg Asset	$ 6,419	6	Rate Base	$ 173	$ 428	$ 920	$ 1,220	$ 2,479	$ 94	$ 647	$ 120	$ 86	$ 253	$ 6,419	$ -
Hollister Pipeline	$ 6,466	6	Rate Base	$ 174	$ 431	$ 927	$ 1,229	$ 2,497	$ 95	$ 652	$ 121	$ 86	$ 254	$ 6,466	$ -
Low Income Costs	$ 6,937	6	Rate Base	$ 187	$ 462	$ 994	$ 1,318	$ 2,679	$ 102	$ 699	$ 129	$ 93	$ 273	$ 6,937	$ -
Rogue Creek Water	$ 36,486	6	Rate Base	$ 982	$ 2,432	$ 5,230	$ 6,933	$ 14,091	$ 537	$ 3,678	$ 680	$ 487	$ 1,435	$ 36,486	$ -
Total Amortization Expense (Water)	$ 2,805,420			$ 11,230	$ 27,818	$ 59,821	$ 79,295	$ 161,169	$ 6,138	$ 42,065	$ 2,395,898	$ 5,570	$ 16,417	$ 2,805,420	$ -
Amortization Expense (Sewer)	$ 951,307														
Total Amortization Expense	**$ 3,756,727**			**$ 11,230**	**$ 27,818**	**$ 59,821**	**$ 79,295**	**$ 161,169**	**$ 6,138**	**$ 42,065**	**$ 2,395,898**	**$ 5,570**	**$ 16,417**	**$ 2,805,420**	**$ -**

Missouri-American Water Company
Class Cost of Service Study - Account Detail
Case No: WR-2020-0344, SR-2020-0345

	Post Test Year	Alloc	Description	Source of Supply	Pumping	Water Treatment	Transmission	Distribution	Storage	Meters	Services	Customers	Hydrants	Total	Variance
Income Taxes															
Federal Income Tax	$ 20,708,358	6	Rate Base	$ 557,277	$ 1,380,427	$ 2,968,565	$ 3,934,973	$ 7,997,886	$ 304,613	$ 2,087,442	$ 386,123	$ 276,389	$ 814,663	$ 20,708,358	$ -
State Income Tax	$ 3,285,627	6	Rate Base	$ 88,419	$ 219,021	$ 470,998	$ 624,330	$ 1,268,960	$ 48,331	$ 331,198	$ 61,263	$ 43,852	$ 129,256	$ 3,285,627	
ITC Restored	$ (103,615)	6	Rate Base	$ (2,788)	$ (6,907)	$ (14,853)	$ (19,689)	$ (40,018)	$ (1,524)	$ (10,445)	$ (1,932)	$ (1,383)	$ (4,076)	$ (103,615)	$ -
Total Income Taxes (Water)	$ 23,890,370			$ 642,907	$ 1,592,542	$ 3,424,709	$ 4,539,615	$ 9,226,828	$ 351,420	$ 2,408,195	$ 445,453	$ 318,858	$ 939,843	$ 23,890,370	$ -
Income Taxes (Sewer)	866,538														
Total Income Tax Expense	**$ 24,756,908**			**$ 642,907**	**$ 1,592,542**	**$ 3,424,709**	**$ 4,539,615**	**$ 9,226,828**	**$ 351,420**	**$ 2,408,195**	**$ 445,453**	**$ 318,858**	**$ 939,843**	**$ 23,890,370**	
Required Net Operating Income (Water)	$ 137,613,523	6	Rate Base	$ 3,703,278	$ 9,173,372	$ 19,727,041	$ 26,149,128	$ 53,148,457	$ 2,024,251	$ 13,871,707	$ 2,565,905	$ 1,836,690	$ 5,413,694	$ 137,613,523	$ -
Required Net Operating Income (Sewer)	$ 4,205,627														
Required Net Operating Income	$ 141,819,150														
Total Revenue Requirement (Water)	**$ 407,424,789**			**$ 17,525,906**	**$ 31,264,964**	**$ 75,673,016**	**$ 51,689,644**	**$ 119,371,475**	**$ 5,310,721**	**$ 52,186,447**	**$ 16,781,634**	**$ 20,451,697**	**$ 17,169,285**	**$ 407,424,789**	**$ -**
Other Operating Revenue (Water)	$ (6,180,214)	6	Rate Base	$ (166,314)	$ (411,976)	$ (885,940)	$ (1,174,355)	$ (2,386,893)	$ (90,909)	$ (622,977)	$ (115,235)	$ (82,486)	$ (243,129)	$ (6,180,214)	$ -
Total Retail Revenue Requirement (Water)	**$ 401,244,575**			**$ 17,359,592**	**$ 30,852,988**	**$ 74,787,076**	**$ 50,515,288**	**$ 116,984,581**	**$ 5,219,812**	**$ 51,563,470**	**$ 16,666,400**	**$ 20,369,212**	**$ 16,926,156**	**$ 401,244,575**	**$ -**
Total Retail Revenue Requirement (Sewer)	**$ 13,746,920**														
	$ 421,171,708														
check	$ (10)														

Missouri-American Water Company
Class Cost of Service Study - Account Detail
Case No: WR-2020-0344, SR-2020-0345

	Post Test Year	Alloc	Description	Source of Supply	Pumping	Water Treatment	Transmission	Distribution	Storage	Meters	Services	Customers	Hydrants	Total	Variance
Plant Account															
Intangible Plant															
Organization	$ 240,798	5	Net Plant (less gen. ar	$ 5,390	$ 13,409	$ 28,886	$ 45,401	$ 106,383	$ 2,936	$ 21,054	$ 5,737	$ 2,806	$ 8,796	$ 240,798	$ -
Franchises	$ 43,698	5	Net Plant (less gen. ar	$ 978	$ 2,433	$ 5,242	$ 8,239	$ 19,306	$ 533	$ 3,821	$ 1,041	$ 509	$ 1,596	$ 43,698	$ -
Other P/E-Intangible	$ 1,671,242	5	Net Plant (less gen. ar	$ 37,408	$ 93,064	$ 200,483	$ 315,106	$ 738,347	$ 20,375	$ 146,122	$ 39,814	$ 19,472	$ 61,051	$ 1,671,242	$ -
Source of Supply															
Land & Land Rights	$ 2,541,422	A	Source of Supply	$ 2,541,422	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,541,422	$ -
Structures & Improvements	$ 18,884,358	A	Source of Supply	$ 18,884,358	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,884,358	$ -
Collection & Impound Reservoirs	$ 19,318	A	Source of Supply	$ 19,318	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 19,318	$ -
Lake, River, & Other Intakes	$ 5,685,757	A	Source of Supply	$ 5,685,757	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,685,757	$ -
Wells & Springs	$ 10,453,885	A	Source of Supply	$ 10,453,885	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,453,885	$ -
Infiltration Galleries & Tunnels	$ 1,328	A	Source of Supply	$ 1,328	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,328	$ -
Supply Mains	$ 12,625,287	A	Source of Supply	$ 12,625,287	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,625,287	$ -
Other P/E-Supply	$ 131,785	A	Source of Supply	$ 131,785	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 131,785	$ -
Water Pumping															
Pumping Land & Land Rights	$ 472,039	B	Pumping	$ -	$ 472,039	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 472,039	$ -
Pumping Structures & Improvements	$ 19,021,321	B	Pumping	$ -	$ 19,021,321	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 19,021,321	$ -
Boiler Plant Equipment	$ -	B	Pumping	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Power Generation Equipment	$ 11,165,222	B	Pumping	$ -	$ 11,165,222	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,165,222	$ -
Steam Pumping Equipment	$ 4,628,501	B	Pumping	$ -	$ 4,628,501	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,628,501	$ -
Electric Pumping Equipment	$ 86,048,039	B	Pumping	$ -	$ 86,048,039	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 86,048,039	$ -
Diesel Pumping Equipment	$ 528,007	B	Pumping	$ -	$ 528,007	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 528,007	$ -
Pump Equip Hydraulic	$ 535,714	B	Pumping	$ -	$ 535,714	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 535,714	$ -
Other Pumping Equipment	$ 5,493,334	B	Pumping	$ -	$ 5,493,334	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,493,334	$ -
Water Treatment														$ -	$ -
Water Treatment Land & land Rights	$ 3,348,989	C	Water Treatment	$ -	$ -	$ 3,348,989	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,348,989	$ -
Water Treatment Structures & Improvements	$ 97,285,879	C	Water Treatment	$ -	$ -	$ 97,285,879	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 97,285,879	$ -
Water Treatment Equipment	$ 163,532,428	C	Water Treatment	$ -	$ -	$ 163,532,428	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 163,532,428	$ -
Water Treatment - Other	$ 797,765	C	Water Treatment	$ -	$ -	$ 797,765	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 797,765	$ -
														$ -	$ -
T&D														$ -	$ -
Transmission & Distribution Land	$ 5,351,759	K	Mains	$ -	$ -	$ -	$ 1,099,602	$ 4,252,157	$ -	$ -	$ -	$ -	$ -	$ 5,351,759	$ -
Transmission & Distribution Structures & Impr	$ 8,620,208	K	Mains	$ -	$ -	$ -	$ 1,771,155	$ 6,849,053	$ -	$ -	$ -	$ -	$ -	$ 8,620,208	$ -
TD Mains 4in & Less	$ 24,650,994	E	Distribution	$ -	$ -	$ -	$ -	$ 24,650,994	$ -	$ -	$ -	$ -	$ -	$ 24,650,994	$ -
TD Mains 6in to 8in	$ 1,037,908,750	E	Distribution	$ -	$ -	$ -	$ -	$ 1,037,908,750	$ -	$ -	$ -	$ -	$ -	$ 1,037,908,750	$ -
TD Mains 10in to 16in	$ 256,483,124	D	Transmission	$ -	$ -	$ -	$ 256,483,124	$ -	$ -	$ -	$ -	$ -	$ -	$ 256,483,124	$ -
TD Mains 18in & Grtr	$ 204,022,020	D	Transmission	$ -	$ -	$ -	$ 204,022,020	$ -	$ -	$ -	$ -	$ -	$ -	$ 204,022,020	$ -
Other Transmission & Distribution Plant	$ 21,228	K	Mains	$ -	$ -	$ -	$ 4,362	$ 16,866	$ -	$ -	$ -	$ -	$ -	$ 21,228	$ -
														$ -	$ -
Storage														$ -	$ -
Distribution Reservoirs & Standpipes	$ 23,399,212	F	Storage	$ -	$ -	$ -	$ -	$ -	$ 23,399,212	$ -	$ -	$ -	$ -	$ 23,399,212	$ -
Distribution Reservoirs & Standpipes - Tank Coating	$ 4,729,559	F	Storage	$ -	$ -	$ -	$ -	$ -	$ 4,729,559	$ -	$ -	$ -	$ -	$ 4,729,559	$ -
Meters														$ -	$ -
Meters	$ 176,675,687	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ 176,675,687	$ -	$ -	$ -	$ 176,675,687	$ -
Meter Installation	$ 15,994,388	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,994,388	$ -	$ -	$ -	$ 15,994,388	$ -
Meter Vaults	$ -	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
														$ -	$ -
Services														$ -	$ -
Services	$ 47,570,751	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 47,570,751	$ -	$ -	$ 47,570,751	$ -
Hydrants														$ -	$ -
Hydrants	$ 81,426,615	J	Hydrants	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 81,426,615	$ 81,426,615	$ -
Fire Mains	$ 392,124	J	Mains	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 392,124	$ 392,124	$ -
														$ -	$ -

Missouri-American Water Company
Class Cost of Service Study - Account Detail
Case No: WR-2020-0344, SR-2020-0345

	Post Test Year	Alloc	Description	Source of Supply	Pumping	Water Treatment	Transmission	Distribution	Storage	Meters	Services	Customers	Hydrants	Total	Variance
General Plant															
General Land & Land Rights	$ 616,875	3	Fixed O&M	$ 20,570	$ 41,473	$ 123,963	$ 29,122	$ 112,613	$ 8,606	$ 94,952	$ 43,937	$ 106,805	$ 34,835	$ 616,875	$ -
Stores Shops Equipment Structures	$ 16,330,971	3	Fixed O&M	$ 544,566	$ 1,097,940	$ 3,281,751	$ 770,959	$ 2,981,296	$ 227,829	$ 2,513,744	$ 1,163,165	$ 2,827,520	$ 922,202	$ 16,330,971	$ -
Office Structures	$ 7,074,708	3	Fixed O&M	$ 235,910	$ 475,636	$ 1,421,681	$ 333,985	$ 1,291,521	$ 98,697	$ 1,088,974	$ 503,892	$ 1,224,904	$ 399,505	$ 7,074,708	$ -
General Structures - HVAC	$ 306,897	3	Fixed O&M	$ 10,234	$ 20,633	$ 61,672	$ 14,488	$ 56,026	$ 4,281	$ 47,239	$ 21,859	$ 53,136	$ 17,330	$ 306,897	$ -
Miscellaneous Structures	$ 1,794,099	3	Fixed O&M	$ 59,825	$ 120,618	$ 360,529	$ 84,697	$ 327,521	$ 25,029	$ 276,157	$ 127,784	$ 310,628	$ 101,312	$ 1,794,099	$ -
Structures & Improvements - Leasehold	$ (118,100)	3	Fixed O&M	$ (3,938)	$ (7,940)	$ (23,733)	$ (5,575)	$ (21,560)	$ (1,648)	$ (18,179)	$ (8,412)	$ (20,448)	$ (6,669)	$ (118,100)	$ -
Office Furniture and Equipment	$ 3,701,017	3	Fixed O&M	$ 123,413	$ 248,821	$ 743,729	$ 174,719	$ 675,638	$ 51,632	$ 569,679	$ 263,603	$ 640,789	$ 208,995	$ 3,701,017	$ -
Computers & Peripheral Equipment	$ 5,155,523	3	Fixed O&M	$ 171,914	$ 346,609	$ 1,036,016	$ 243,384	$ 941,165	$ 71,923	$ 793,564	$ 367,199	$ 892,620	$ 291,130	$ 5,155,523	$ -
Computer Hardware & Software	$ 2,564,209	3	Fixed O&M	$ 85,505	$ 172,393	$ 515,284	$ 121,052	$ 468,109	$ 35,773	$ 394,696	$ 182,634	$ 443,963	$ 144,800	$ 2,564,209	$ -
Computer Software	$ 44,075,592	3	Fixed O&M	$ 1,469,727	$ 2,963,225	$ 8,857,105	$ 2,080,737	$ 8,046,209	$ 614,886	$ 6,784,334	$ 3,139,261	$ 7,631,182	$ 2,488,927	$ 44,075,592	$ -
Personal Computer Software	$ -	3	Fixed O&M	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Office Equipment	$ 532,960	3	Fixed O&M	$ 17,772	$ 35,831	$ 107,100	$ 25,160	$ 97,294	$ 7,435	$ 82,036	$ 37,960	$ 92,276	$ 30,096	$ 532,960	$ -
BTS Initial Investment	$ 24,404,206	3	Fixed O&M	$ 813,773	$ 1,640,707	$ 4,904,088	$ 1,152,083	$ 4,455,104	$ 340,456	$ 3,756,416	$ 1,738,177	$ 4,225,308	$ 1,378,094	$ 24,404,206	$ -
Transportation Equipment - Light Trucks	$ 14,222,538	3	Fixed O&M	$ 474,259	$ 956,189	$ 2,858,056	$ 671,423	$ 2,596,392	$ 198,415	$ 2,189,204	$ 1,012,993	$ 2,462,469	$ 803,140	$ 14,222,538	$ -
Transportation Equipment - Heavy Trucks	$ 20,491,421	3	Fixed O&M	$ 683,299	$ 1,377,649	$ 4,117,804	$ 967,367	$ 3,740,806	$ 285,870	$ 3,154,141	$ 1,459,491	$ 3,547,854	$ 1,157,141	$ 20,491,421	$ -
Transportation Equipment - Cars	$ (1,198,732)	3	Fixed O&M	$ (39,972)	$ (80,591)	$ (240,888)	$ (56,590)	$ (218,834)	$ (16,723)	$ (184,515)	$ (85,379)	$ (207,547)	$ (67,692)	$ (1,198,732)	$ -
Transportation Equipment - Other	$ 8,563,417	3	Fixed O&M	$ 285,552	$ 575,723	$ 1,720,841	$ 404,265	$ 1,563,292	$ 119,466	$ 1,318,124	$ 609,925	$ 1,482,657	$ 483,572	$ 8,563,417	$ -
Stores Equipment	$ 849,029	3	Fixed O&M	$ 28,311	$ 57,081	$ 170,615	$ 40,081	$ 154,994	$ 11,845	$ 130,687	$ 60,472	$ 147,000	$ 47,944	$ 849,029	$ -
Tools, Shop, & Garage Equipment	$ 7,427,855	3	Fixed O&M	$ 247,686	$ 499,379	$ 1,492,647	$ 350,657	$ 1,355,990	$ 103,624	$ 1,143,332	$ 529,045	$ 1,286,048	$ 419,447	$ 7,427,855	$ -
Laboratory Equipment	$ 1,103,853	C	Water Treatment	$ -	$ -	$ 1,103,853	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,103,853	$ -
Power Operated Equipment	$ (71,178)	3	Fixed O&M	$ (2,373)	$ (4,785)	$ (14,303)	$ (3,360)	$ (12,994)	$ (993)	$ (10,956)	$ (5,070)	$ (12,324)	$ (4,019)	$ (71,178)	$ -
Communication Equipment	$ 162,731	3	Fixed O&M	$ 5,426	$ 10,940	$ 32,701	$ 7,682	$ 29,707	$ 2,270	$ 25,048	$ 11,590	$ 28,175	$ 9,189	$ 162,731	$ -
Communication Equipment (non telephone)	$ 7,072,508	3	Fixed O&M	$ 235,837	$ 475,488	$ 1,421,239	$ 333,882	$ 1,291,120	$ 98,667	$ 1,088,636	$ 503,736	$ 1,224,524	$ 399,381	$ 7,072,508	$ -
Telephone Equipment	$ (35,307)	3	Fixed O&M	$ (1,177)	$ (2,374)	$ (7,095)	$ (1,667)	$ (6,445)	$ (493)	$ (5,435)	$ (2,515)	$ (6,113)	$ (1,994)	$ (35,307)	$ -
Miscellaneous Equipment	$ 3,902,570	3	Fixed O&M	$ 130,134	$ 262,372	$ 784,232	$ 184,234	$ 712,433	$ 54,444	$ 600,703	$ 277,958	$ 675,685	$ 220,376	$ 3,902,570	$ -
Other Tangible Property	$ 392,950	3	Fixed O&M	$ 13,103	$ 26,418	$ 78,964	$ 18,551	$ 71,735	$ 5,482	$ 60,485	$ 27,988	$ 68,035	$ 22,190	$ 392,950	$ -
Net Utility Plant	$ 2,501,725,147			$ 55,996,269	$ 139,310,519	$ 300,107,520	$ 471,690,344	$ 1,105,250,990	$ 30,499,385	$ 218,734,138	$ 59,598,635	$ 29,147,932	$ 91,389,415	$ 2,501,725,147	$ -
Additions to Rate Base															
Cash Working Capital(Water)	$ (4,029,100)	3	Fixed O&M	$ (134,353)	$ (270,878)	$ (809,658)	$ (190,207)	$ (735,531)	$ (56,209)	$ (620,179)	$ (286,971)	$ (697,592)	$ (227,521)	$ (4,029,100)	$ -
Materials and Supplies(Water)	$ 6,144,662	5	Net Plant (less gen. ar	$ 137,536	$ 342,170	$ 737,115	$ 1,158,552	$ 2,714,684	$ 74,912	$ 537,248	$ 146,384	$ 71,592	$ 224,468	$ 6,144,662	$ -
Pension Asset(Water)	$ 7,947,677	5	Net Plant (less gen. ar	$ 177,893	$ 442,573	$ 953,405	$ 1,498,503	$ 3,511,248	$ 96,893	$ 694,892	$ 189,338	$ 92,599	$ 290,333	$ 7,947,677	$ -
Regulatory Deferrals(Water)	$ 19,008,248	5	Net Plant (less gen. ar	$ 425,463	$ 1,058,489	$ 2,280,234	$ 3,583,930	$ 8,397,759	$ 231,736	$ 1,661,954	$ 452,834	$ 221,468	$ 694,382	$ 19,008,248	$ -
Tank Painting Tracker(Water)	$ 1,059	F	Storage	$ -	$ -	$ -	$ -	$ -	$ 1,059	$ -	$ -	$ -	$ -	$ 1,059	$ -
Total Additions	$ 29,072,546			$ 606,540	$ 1,572,354	$ 3,161,096	$ 6,050,777	$ 13,888,160	$ 348,391	$ 2,273,915	$ 501,585	$ (311,933)	$ 981,662	$ 29,072,546	$ -
Reductions to Rate Base															
Customer Advances for Construction															
Advances for Construction - NT Mains	$ 341,105	K	Mains	$ -	$ -	$ -	$ 70,085	$ 271,020	$ -	$ -	$ -	$ -	$ -	$ 341,105	$ -
Advances for Construction - NT Extension Deposits	$ (6,936,819)	K	Mains	$ -	$ -	$ -	$ (1,425,277)	$ (5,511,542)	$ -	$ -	$ -	$ -	$ -	$ (6,936,819)	$ -
Advances for Construction - NT Hydrants	$ (44,155)	J	Hydrants	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (44,155)	$ (44,155)	$ -
Advances for Construction - NT WIP	$ -	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Advances for Construction - TAX Mains	$ -	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Advances for Construction - Reclassed to Current	$ -	K	Mains	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Allocated MAWC Corporate - Customer Advances	$ 1,358	K	Mains	$ -	$ -	$ -	$ 279	$ 1,079	$ -	$ -	$ -	$ -	$ -	$ 1,358	$ -
CIAC															
CIAC-Non Taxable - Mains	$ (181,948,846)	K	Mains	$ -	$ -	$ -	$ (37,384,200)	$ (144,564,646)	$ -	$ -	$ -	$ -	$ -	$ (181,948,846)	$ -
CIAC-Non Taxable - Ext Dep	$ (68,971,199)	K	Mains	$ -	$ -	$ -	$ (14,171,198)	$ (54,800,001)	$ -	$ -	$ -	$ -	$ -	$ (68,971,199)	$ -
CIAC-Non Taxable - Services	$ (207,497)	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (207,497)	$ -	$ -	$ (207,497)	$ -
CIAC-Non Taxable - Meters	$ (5,738,601)	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ (5,738,601)	$ -	$ -	$ -	$ (5,738,601)	$ -
CIAC-Non Taxable - Hydrants	$ (7,239,516)	J	Hydrants	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (7,239,516)	$ (7,239,516)	$ -
CIAC-Non Taxable - Other	$ (4,954,437)	K	Mains	$ -	$ -	$ -	$ (1,017,966)	$ (3,936,471)	$ -	$ -	$ -	$ -	$ -	$ (4,954,437)	$ -
CIAC-Non Taxable - WIP	$ -	K	Mains	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CIAC-Taxable - Mains	$ (49,006,673)	K	Mains	$ -	$ -	$ -	$ (10,069,178)	$ (38,937,495)	$ -	$ -	$ -	$ -	$ -	$ (49,006,673)	$ -
CIAC-Taxable - Extension Deposits	$ (10,494,025)	K	Mains	$ -	$ -	$ -	$ (2,156,159)	$ (8,337,866)	$ -	$ -	$ -	$ -	$ -	$ (10,494,025)	$ -
CIAC-Taxable - Services	$ (16,924,536)	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (16,924,536)	$ -	$ -	$ (16,924,536)	$ -
CIAC-Taxable - Meters	$ (1,010,794)	G	Meters	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,010,794)	$ -	$ -	$ -	$ (1,010,794)	$ -
CIAC-Taxable - Hydrants	$ (726,292)	J	Hydrants	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (726,292)	$ (726,292)	$ -
CIAC-Taxable - Other	$ (183,528)	K	Mains	$ -	$ -	$ -	$ (37,709)	$ (145,819)	$ -	$ -	$ -	$ -	$ -	$ (183,528)	$ -
CIAC-Taxable - WIP	$ -	K	Mains	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CIAC-Taxable - Services SIT	$ -	H	Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Accum Amort CIAC	$ 86,421,458	5	Net Plant (less gen. ar	$ 1,934,377	$ 4,812,446	$ 10,367,138	$ 16,294,423	$ 38,180,614	$ 1,053,593	$ 7,556,115	$ 2,058,820	$ 1,006,908	$ 3,157,024	$ 86,421,458	$ -
Allocated MAWC Corporate - CIAC	$ (7,286,278)	K	Mains	$ -	$ -	$ -	$ (1,497,078)	$ (5,789,200)	$ -	$ -	$ -	$ -	$ -	$ (7,286,278)	$ -
Deferred Income Tax (Water)	$ (475,203,868)	5	Net Plant (less gen. ar	$ (10,636,518)	$ (26,462,099)	$ (57,005,565)	$ (89,597,803)	$ (209,942,945)	$ (5,793,373)	$ (41,548,652)	$ (11,320,789)	$ (5,536,663)	$ (17,359,462)	$ (475,203,868)	$ -
Pension/OPEB Tracker (Water)	$ (11,873,201)	4	Labor	$ (300,691)	$ (1,323,548)	$ (3,069,252)	$ (642,297)	$ (2,483,761)	$ (89,349)	$ (1,966,539)	$ (725,434)	$ (698,407)	$ (573,923)	$ (11,873,201)	$ -
Total Reductions	$ (761,986,344)			$ (9,002,832)	$ (22,973,201)	$ (49,707,679)	$ (141,634,076)	$ (435,997,035)	$ (4,829,128)	$ (42,708,472)	$ (27,119,436)	$ (5,228,162)	$ (22,786,324)	$ (761,986,344)	$ -
TOTAL RATE BASE (Water)	**$ 1,768,811,349**			**$ 47,599,977**	**$ 117,909,672**	**$ 253,560,938**	**$ 336,107,045**	**$ 683,142,115**	**$ 26,018,648**	**$ 178,299,581**	**$ 32,980,785**	**$ 23,607,837**	**$ 69,584,753**	**$ 1,768,811,349**	**$ -**
TOTAL RATE BASE (Sewer)	**$ 54,056,903**														
TOTAL MO RATE BASE	**$ 1,822,868,252**														

Missouri-American Water Company
Class Cost of Service Study - Account Detail
Case No: WR-2020-0344, SR-2020-0345

	Post Test Year	Alloc	Description		Source of Supply	Pumping	Water Treatment	Transmission	Distribution	Storage	Meters	Services	Customers	Hydrants	Total	Variance
Miscellaneous T&D Operating Expense	$ 2,430,718	1	$	-	$ -	$ -	$ -	$ 331,410	$ 1,281,561	$ (362)	$ 818,109	$ -	$ -	$ -	$ 2,430,718	
					-	-	-	0.13634	0.52724	(0.00015)	0.33657	-	-	-	1.00000	
Miscellaneous T&D Maintenance Expense	$ 1,877,713	2			$ -	$ -	$ -	$ 84,312	$ 326,032	$ 98,373	$ 471,042	$ 500,856	$ -	$ 397,098	$ 1,877,713	
					-	-	-	0.04490	0.17363	0.05239	0.25086	0.26674	-	0.21148	1.00000	
Fixed O&M	$ 40,810,944	3			$ 1,360,865	$ 2,743,741	$ 8,201,065	$ 1,926,619	$ 7,450,231	$ 569,342	$ 6,281,823	$ 2,906,738	$ 7,065,946	$ 2,304,574	$ 40,810,944	
					0.03335	0.06723	0.20095	0.04721	0.18255	0.01395	0.15392	0.07122	0.17314	0.05647	1.00000	
Labor	$ 17,287,994	4			$ 559,731	$ 2,463,759	$ 5,713,351	$ 1,195,623	$ 4,623,471	$ 166,322	$ 3,660,673	$ 1,350,380	$ 1,300,070	$ 1,068,346	$ 22,101,726	
					0.02533	0.11147	0.25850	0.05410	0.20919	0.00753	0.16563	0.06110	0.05882	0.04834	1.00000	
Net Plant	$ 2,499,769,410	5			$ 55,952,494	$ 139,201,612	$ 299,872,910	$ 471,321,598	$ 1,104,386,954	$ 30,475,542	$ 218,563,141	$ 59,552,043	$ 29,125,145	$ 91,317,971	$ 2,499,769,410	
					0.02238	0.05569	0.11996	0.18855	0.44180	0.01219	0.08743	0.02382	0.01165	0.03653	1.00000	
Rate Base	$ 1,768,811,349	6			$ 47,599,977	$ 117,909,672	$ 253,560,938	$ 336,107,045	$ 683,142,115	$ 26,018,648	$ 178,299,581	$ 32,980,785	$ 23,607,837	$ 69,584,753	$ 1,768,811,349	
					0.02691	0.06666	0.14335	0.19002	0.38622	0.01471	0.10080	0.01865	0.01335	0.03934	1.00000	
Variable Cost	$ 22,761,469				$ 7,075,251	$ 4,467,538	$ 11,218,680	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22,761,469	

Missouri-American Water Company
Cost of Service Study - Usage Statistics
Case No: WR-2020-0344, SR-2020-0345

	Residential	Non Residential	Rate L	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	
Total Usage	291,309,808	131,404,921	41,727,665	27,994,628	33,834,696	1,543,240	459,979	528,274,938	hundred gallons
Average Day Usage	798,109	360,013	114,322	76,698	92,698	4,228	1,260	1,447,329	hundred gallons
Max Day Capacity Factor	1.63	1.59	1.35	1.18	1.19			---	
Max Day Usage	1,300,918	572,421	154,335	90,503	110,310	138,672	41,328	2,408,488	hundred gallons
Extra Capacity	502,809	212,408	40,013	13,806	17,613	134,444	40,068	961,159	hundred gallons
Fire Allocator						0.7704	0.2296	1.0000	30,000 gpm for 10 hours
Distribution Multiplier	1.00	0.93	0.20	-		1.00	1.00	N/A	
Average Hourly Usage	33,255	13,951	953	-	-	176	53	48,386	hundred gallons
Max Hour Capacity Factor	3.72	2.11	1.74	1.18	1.19			---	
Max Hour Usage	123,707	29,436	1,658	-	-	13,867	4,133	172,800	hundred gallons
Extra Capacity	90,452	15,485	705	-	-	13,691	4,080	124,414	hundred gallons
Customers	433,753	28,470	47	24	5		9,990	472,288	
Hydrants						43,255	299	43,554	
Revenue	$ 198,537,066	$ 70,731,737	$ 9,732,893	$ 7,403,831	$ 4,907,675		$ 5,051,555	$ 296,364,756	

	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Meter Weighting	Service Weighting
5/8-METER	395,930	13,188	4	-	1		-	1.0	1.0
3/4-METER	25,639	3,303	-	-	-		-	1.5	1.0
1-METER	13,492	4,211	3	1	1		-	2.5	2.9
1.5-METER	483	1,465	-	-	-		-	5.0	4.0
2-METER	1,152	5,302	6	16	2		206	8.0	5.6
3-METER	25	426	3	4	-		4	16.0	5.6
4-METER	22	373	19	7	-		897	25.0	6.4
6-METER	25	255	20	5	-		2,996	50.0	9.9
8-METER	44	277	9	2	3		1,738	80.0	9.9
10-METER	3	67	7	-	-		96	115.0	9.9
12-METER	-	-	-	-	-		104	215.0	12.2
16-METER	-	-	-	-	-		-	320.0	12.2

Missouri-American Water Company
Cost of Service Study - Usage Statistics
Case No: WR-2020-0344, SR-2020-0345

System Load Factor:	0.6300	2,297,347	max day - thousand gallons per day	Average system hourly flow on max day
System Load Factor (fire):	0.5855	2,471,859	max day with fire - thousand gallons per day	Average system hourly flow on max day
System Load Factor (Hourly)	0.4200	115,206	max hour - thousand gallons per day	
System Load Factor (Hourly fire)	0.3639	132,977	max hour with fire - thousand gallons per day	

Mains Statistics

Type	Miles	Pct
10-Inch and Larger	1,406	0.2055
Under 10-inch	5,437	0.7945
Total	6,843	1.0000

Storage Statistics

Total Capacity	3,036,600	hundred gallons
Fire Allocation	0.0575	percentage of storage needed for maximum fire protection day
Non-Fire Allocation	0.9425	

Missouri-American Water Company
Cost of Service Study - Class Allocators
Case No: WR-2020-0344, SR-2020-0345

1. VARIABLE COST

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	Units
Total Usage	291,309,808	131,404,921	41,727,665	27,994,628	33,834,696	1,543,240	459,979	528,274,938	hundred gallons
Allocator	**0.5514**	**0.2487**	**0.0790**	**0.0530**	**0.0640**	**0.0029**	**0.0009**	**1.0000**	

2. BASE/EXTRA DAILY

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	Units
Average Daily Use	798,109	360,013	114,322	76,698	92,698	4,228	1,260	1,447,329	hundred gallons
Extra Capacity	502,809	212,408	40,013	13,806	17,613			786,648	hundred gallons
System Capacity Factor	0.6300								
Average Day Allocator	0.3474	0.1567	0.0498	0.0334	0.0403	0.0018	0.0005	0.6300	
Extra Capacity Allocator	0.2365	0.0999	0.0188	0.0065	0.0083	-	-	0.3700	
Allocator	**0.5839**	**0.2566**	**0.0686**	**0.0399**	**0.0486**	**0.0018**	**0.0005**	**1.0000**	

3. BASE/EXTRA DAILY (w FIRE PROTECTION)

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	Units
Average Daily Use	798,109	360,013	114,322	76,698	92,698	4,228	1,260	1,447,329	hundred gallons
Extra Capacity	502,809	212,408	40,013	13,806	17,613	134,444	40,068	961,159	hundred gallons
System Capacity Factor	0.5855	assuming fire protection							
Average Day Allocator	0.3229	0.1456	0.0462	0.0310	0.0375	0.0017	0.0005	0.5855	
Extra Capacity Allocator	0.2168	0.0916	0.0173	0.0060	0.0076	0.0580	0.0173	0.4145	
Combined Allocator	**0.5397**	**0.2372**	**0.0635**	**0.0370**	**0.0451**	**0.0597**	**0.0178**	**1.0000**	

4. BASE/EXTRA HOURLY (w FIRE PROTECTION)

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	Units
Average Hourly Use	33,255	13,951	953	-	-	176	53	48,386	hundred gallons
Extra Capacity	90,452	15,485	705	-	-	13,691	4,080	124,414	hundred gallons
System Capacity Factor	0.3639	assuming fire protection							
Average Day Allocator	0.2501	0.1049	0.0072	-	-	0.0013	0.0004	0.3639	
Extra Capacity Allocator	0.4625	0.0792	0.0036	-	-	0.0700	0.0209	0.6361	
Combined Allocator	**0.7126**	**0.1841**	**0.0108**	**-**	**-**	**0.0713**	**0.0213**	**1.0000**	

Missouri-American Water Company
Cost of Service Study - Class Allocators
Case No: WR-2020-0344, SR-2020-0345

5. STORAGE

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	Units
Average Hourly Use	33,255	15,001	4,763	3,196	3,862		53	60,129	
Extra Capacity	90,452	16,651	3,525	575	734		----	111,937	
Fire Allocator							1.00000	1.00000	
System Capacity Factor	0.3639	assuming fire protection							
Average Day Allocator	0.2012	0.0908	0.0288	0.0193	0.0234		0.0003	0.3639	
Extra Capacity Allocator	0.5140	0.0946	0.0200	0.0033	0.0042			0.6361	
Allocator	0.7153	0.1854	0.0489	0.0226	0.0275		0.0003	1.0000	
Non-Fire Allocation of Storage	0.94253								
Fire Allocaton of Storage	0.05747								
Non-Fire Allocator	0.6742	0.1747	0.0460	0.0213	0.0260	-	0.0003	0.9425	
Fire Allocator	-	-	-	-	-	-	0.0575	0.0575	
Combined Allocator	**0.6742**	**0.1747**	**0.0460**	**0.0213**	**0.0260**	**-**	**0.0578**	**1.0000**	

6. MAINS

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	Units
Factor 4	0.5397	0.2372	0.0635	0.0370	0.0451	0.0597	0.0178	1.0000	hundred gallons
Factor 5	0.7126	0.1841	0.0108	-	-	0.0713	0.0213	1.0000	hundred gallons
Tranmission Weighting	0.2055		Average system hourly load						
Distribution Weighting	0.7945		Average system hourly load - max day with fire protection (incremental)						
Combined Allocator	**0.6770**	**0.1950**	**0.0216**	**0.0076**	**0.0093**	**0.0689**	**0.0205**	**1.0000**	

7. HYDRANTS

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	Units
Total Hydrants	-	-	-	-	-	43,255	299	43,554	
Allocator	**-**	**-**	**-**	**-**	**-**	**0.99314**	**0.00686**	**1.00000**	

Missouri-American Water Company
Cost of Service Study - Class Allocators
Case No: WR-2020-0344, SR-2020-0345

8. METERS

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	Weighting
5/8-METER	395,930	13,188	4	-	1			409,123	1.0
3/4-METER	25,639	3,303	-	-	-			28,942	1.5
1-METER	13,492	4,211	3	1	1			17,708	2.5
1.5-METER	483	1,465	-	-	-			1,948	5.0
2-METER	1,152	5,302	6	16	2			6,478	8.0
3-METER	25	426	3	4	-			458	16.0
4-METER	22	373	19	7	-			421	25.0
6-METER	25	255	20	5	-			305	50.0
8-METER	44	277	9	2	3			334	80.0
10-METER	3	67	7	-	-			77	115.0
12-METER	-	-	-	-	-			-	215.0
16-METER	-	-	-	-	-			-	320.0
Total	485,804	137,112	3,108	788	260		-	627,071	-----
Allocator	**0.77472**	**0.21865**	**0.00496**	**0.00126**	**0.00041**		**-**	**1.00000**	

9. SERVICES

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total	Weighting
5/8-METER	395,930	13,188	4	-	1		-	409,123	1.0
3/4-METER	25,639	3,303	-	-	-		-	28,942	1.0
1-METER	13,492	4,211	3	1	1		-	17,708	2.9
1.5-METER	483	1,465	-	-	-		-	1,948	4.0
2-METER	1,152	5,302	6	16	2		206	6,683	5.6
3-METER	25	426	3	4	-		4	462	5.6
4-METER	22	373	19	7	-		897	1,318	6.4
6-METER	25	255	20	5	-		2,996	3,301	9.9
8-METER	44	277	9	2	3		1,738	2,072	9.9
10-METER	3	67	7	-	-		96	173	9.9
12-METER	-	-	-	-	-		104	104	12.2
16-METER	-	-	-	-	-		-	-	12.2
Total	470,564	74,860	541	230	45		56,051	602,291	-----
Allocator	**0.78129**	**0.12429**	**0.00090**	**0.00038**	**0.00007**		**0.09306**	**1.00000**	

10. CUSTOMERS

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total
Total Customers	433,753	28,470	47	24	5		9,990	472,288
Allocator	**0.91841**	**0.06028**	**0.00010**	**0.00005**	**0.00001**		**0.02115**	**1.00000**

11. METERED CUSTOMERS

Missouri-American Water Company
Cost of Service Study - Class Allocators
Case No: WR-2020-0344, SR-2020-0345

Item	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total
Total Customers	433,537	28,470	47	24	5		9,990	472,073
Allocator	**0.91837**	**0.06031**	**0.00010**	**0.00005**	**0.00001**		**0.02116**	**1.00000**

Missouri-American Water Company
Cost of Service Study - Allocator Summary
Case No: WR-2020-0344, SR-2020-0345

Alloc	Description	Source of Supply	Pumping	Water Treatment	Transmission	Distribution	Storage	Meters	Services	Customers	Hydrants	Total	Notes
A	Source of Supply	1.00000	-	-	-	-	-	-	-	-	-	1.00000	
B	Pumping	-	1.00000	-	-	-	-	-	-	-	-	1.00000	
C	Water Treatment	-	-	1.00000	-	-	-	-	-	-	-	1.00000	
D	Transmission	-	-	-	1.00000	-	-	-	-	-	-	1.00000	
E	Distribution	-	-	-	-	1.00000	-	-	-	-	-	1.00000	
F	Storage	-	-	-	-	-	1.00000	-	-	-	-	1.00000	
G	Meters	-	-	-	-	-	-	1.00000	-	-	-	1.00000	
H	Services	-	-	-	-	-	-	-	1.00000	-	-	1.00000	
I	Customers	-	-	-	-	-	-	-	-	1.00000	-	1.00000	
J	Hydrants	-	-	-	-	-	-	-	-	-	1.00000	1.00000	
K	Mains	-	-	-	0.20547	0.79453	-	-	-	-	-	1.00000	
1	T/D Oper. Expense	-	-	-	0.13634	0.52724	(0.00015)	0.33657	-	-	-	1.00000	
2	T/D Maint.. Expense	-	-	-	0.04490	0.17363	0.05239	0.25086	0.26674	-	0.21148	1.00000	
3	Fixed O&M	0.03335	0.06723	0.20095	0.04721	0.18255	0.01395	0.15392	0.07122	0.17314	0.05647	1.00000	
4	Labor	0.02533	0.11147	0.25850	0.05410	0.20919	0.00753	0.16563	0.06110	0.05882	0.04834	1.00000	
5	Net Plant (less gen. and int.)	0.02238	0.05569	0.11996	0.18855	0.44180	0.01219	0.08743	0.02382	0.01165	0.03653	1.00000	
6	Rate Base	0.02691	0.06666	0.14335	0.19002	0.38622	0.01471	0.10080	0.01865	0.01335	0.03934	1.00000	
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Alloc	Description	Residential	Non Residential	Rate J	Rate B	Rate P	Public Fire	Rate F Private Fire	Total
1	Total Usage	0.55144	0.24874	0.07899	0.05299	0.06405	0.00292	0.00087	1.00000
2	Base/Extra Daily	0.58390	0.25661	0.06858	0.03988	0.04863	0.00184	0.00055	1.00000
3	Base/Extra Daily w/ Fire	0.53970	0.23724	0.06350	0.03698	0.04510	0.05969	0.01779	1.00000
4	Base/Extra Hourly w/ Fire	0.71256	0.18408	0.01077	-	-	0.07133	0.02126	1.00000
5	Storage	0.67417	0.17474	0.04605	0.02131	0.02596	-	0.05777	1.00000
7	Hydrants	-	-	-	-	-	0.99314	0.00686	1.00000
8	Meters	0.77472	0.21865	0.00496	0.00126	0.00041	-	-	1.00000
9	Services	0.78129	0.12429	0.00090	0.00038	0.00007	-	0.09306	1.00000
10	Customers	0.91841	0.06028	0.00010	0.00005	0.00001	-	0.02115	1.00000
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Missouri-American Water Company
Rate Design Summary
Case No: WR-2020-0344, SR-2020-0345

Water Service Meter Rates

Meter Size	Current Meter Charge	Proposed Meter Charge	Lawson Current Meter Charge	Lawson Proposed Meter Charge
5/8" Monthly	$ 9.00	$ 12.00	$ 23.33	$ 12.00
3/4" Monthly	$ 12.25	$ 16.00	$ 23.33	$ 16.00
1" Monthly	$ 16.58	$ 25.00	$ 23.33	$ 25.00
1 1/2" Mthly	$ 27.42	$ 45.00	$ 23.33	$ 45.00
2" Monthly	$ 40.43	$ 65.00	$ 23.33	$ 65.00
3" Monthly	$ 71.10	$ 115.00	$ 23.33	$ 115.00
4" Monthly	$ 114.11	$ 180.00	$ 23.33	$ 180.00
6" Monthly	$ 222.47	$ 350.00	$ 23.33	$ 350.00
8" Monthly	$ 379.54	$ 560.00	$ 23.33	$ 560.00
10" Monthly	$ 637.71	$ 850.00	$ 23.33	$ 850.00
12" Monthly	$ 765.25	$ 1,375.00	$ 23.33	$ 1,375.00
Flat Rate	$ 48.40	$ 60.55		

Volumetric Rates		Current Volumetric Charge	Proposed Volumetric Charge
St. Louis County	Rate A	$ 0.4781	$ 0.6983
St. Louis County	Rate J	$ 0.1768	$ 0.3675
St. Louis County	Rate L - Base Use	$ 0.1768	$ 0.2845
St. Louis County	Rate L - Extra Use	$ 0.1768	$ 0.5690
St. Louis County	Rate B	$ 0.2619	$ 0.2611
Oustide St. Louis Cty.	Rate A	$ 0.6247	$ 0.6983
Oustide St. Louis Cty.	Rate J	$ 0.2827	$ 0.3675
Oustide St. Louis Cty.	Rate L - Base Use	$ 0.2827	$ 0.2845
Oustide St. Louis Cty.	Rate L - Extra Use	$ 0.2827	$ 0.5690
Oustide St. Louis Cty.	Rate B	$ 0.2619	$ 0.2611
Mexico	Residential 1st 3,000 g	$ 0.5889	$ 0.6205
Mexico	Residential Nxt 7,000 g	$ 0.6772	$ 0.8066
Mexico	Residential Over 10,000 g	$ 0.8465	$ 1.1168
Lawson	Residential 1st 1,000 g	$ -	$ 0.6983
Lawson	Residential Over 1,000 g	$ 1.0280	$ 0.6983
Oustide St. Louis Cty.	Triumph (Rate P)	$ 0.0628	$ 0.0704
Oustide St. Louis Cty.	Empire (Rate P)	$ 0.2515	$ 0.2211
St. Louis County	C-1 (Rate P)	$ 0.0913	$ 0.0989
St. Louis County	City Of Kirkwood (Rate P)	$ 0.0975	$ 0.1020
St. Louis County	Chariton (Rate P)	$ 0.4950	$ 0.6043

Private Fire Rates

Service Type	Present Rate	Proposed Rate
2" service	$ 6.00	$ 6.80
3" service	$ 19.36	$ 21.80
4" service	$ 23.85	$ 27.30
6" service	$ 53.70	$ 61.40
8" service	$ 95.55	$ 110.50
10" service	$ 149.25	$ 165.80
12" service	$ 214.94	$ 240.40
Private Hydrants	$ 53.70	$ 60.10

Missouri-American Water Company
Rate Design Summary
Case No: WR-2020-0344, SR-2020-0345

Wastewater Rates

District	Billing Unit		Present Rate		Proposed Rate
Arnold	Service Charge	$	32.64	$	37.54
Arnold	Usage 1st 5,000 g	$	-	$	-
Arnold	Usage Over 5,000 g	$	0.6259	$	0.7198
Arnold	Rock Creek Per Unit	$	32.64	$	37.54
Service Area 1	Residential	$	58.13	$	69.98
Service Area 1	Mobile Homes	$	58.13	$	69.98
Service Area 1	Multi Family Per Unit	$	58.13	$	69.98
Service Area 1	Non-Res. 5/8" Meter	$	58.13	$	69.98
Service Area 1	Non-Res. 3/4" Meter	$	75.62	$	91.04
Service Area 1	Non-Res. 1" Meter	$	110.52	$	133.05
Service Area 1	Non-Res. 1.5" Meter	$	197.84	$	238.17
Service Area 1	Non-Res. 2.0" Meter	$	302.62	$	364.31
Service Area 1	Non-Res. 3" Meter	$	533.16	$	641.85
Service Area 1	Non-Res. 4" Meter	$	873.55	$	1,051.63
Service Area 1	Non-Res Usage Over 6,000 g	$	0.9688	$	1.1669
Service Area 2	Residential	$	38.75	$	55.98
Service Area 2	Mobile Homes	$	38.75	$	55.98
Service Area 2	Multi Family Per Unit	$	38.75	$	55.98
Service Area 2	Non-Res. 5/8" Meter	$	38.75	$	55.98
Service Area 2	Non-Res. 3/4" Meter	$	50.42	$	72.83
Service Area 2	Non-Res. 1" Meter	$	73.68	$	106.44
Service Area 2	Non-Res. 1.5" Meter	$	131.89	$	190.54
Service Area 2	Non-Res. 2.0" Meter	$	201.75	$	291.45
Service Area 2	Non-Res. 3" Meter	$	355.44	$	513.48
Service Area 2	Non-Res. 4" Meter	$	582.37	$	841.30
Service Area 2	Non-Res Usage Over 6,000 g	$	0.6459	$	0.9335
Lawson	Residential Svc. Chg.	$	7.95	$	55.98
Lawson	Non-Residential Svc. Chg. - 5/8" Meter	$	7.95	$	55.98
Lawson	Non-Residential Svc. Chg. - 1" Meter	$	7.95	$	106.44
Lawson	Non-Residential Svc. Chg. - 1 1/2" Meter	$	7.95	$	190.54
Lawson	Non-Res Usage 1st 1,000g (Proposed 6,000g)	$	-	$	-
Lawson	Non-Res Usage Over 1,000g (Proposed 6,000g)	$	0.4200	$	0.9335

Missouri-American Water Company
Analysis of Base and Extra Usage Trends by District

BASE USE

Year	St Louis County	St Joesph	Parkville	Warrensburg	Brunswick	St. Charles	Mexico	Joplin	Jefferson City
2007	76.48	54.74	64.50	51.60	39.22	69.52	51.45	57.20	49.52
2008	78.18	54.29	61.45	50.26	37.22	66.96	45.09	53.36	49.89
2009	74.33	51.98	60.79	49.03	36.63	64.61	46.84	51.84	48.56
2010	73.67	51.29	61.35	49.56	39.38	66.66	45.48	52.26	48.09
2011	74.96	50.30	58.32	48.10	34.94	64.08	43.96	50.58	45.92
2012	72.48	50.43	59.90	48.00	34.48	65.43	42.72	50.20	45.80
2013	69.18	49.33	53.29	46.75	36.32	63.22	48.49	47.33	43.74
2014	72.58	50.27	55.14	48.37	30.64	61.89	40.77	49.84	44.45
2015	68.58	47.60	55.20	44.75	31.16	60.52	41.97	45.38	43.48
2016	66.80	47.05	55.83	46.00	32.59	56.42	40.78	45.22	43.42
2017	66.16	45.65	54.93	43.34	33.53	55.42	40.36	44.34	42.24
2018	66.19	46.84	53.13	44.26	34.13	55.16	40.55	44.40	42.66
2019	61.91	44.22	52.09	42.61	32.26	54.20	38.38	44.04	41.08
2019 to 2018 Change	-6.5%	-5.6%	-2.0%	-3.7%	-5.5%	-1.7%	-5.3%	-0.8%	-3.7%

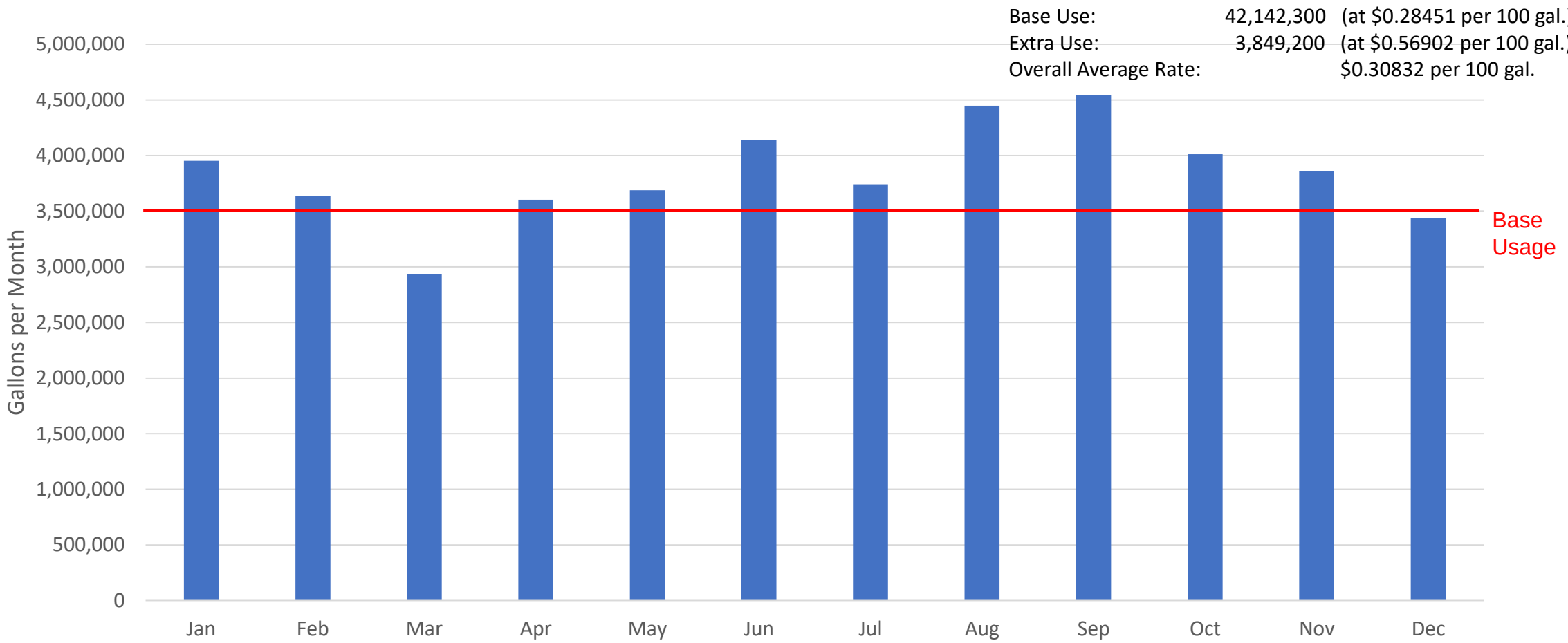
Base Use consists of usage for the billing months of January, February, March, April, May, and December plus use during the summer billing months (June through November) up to the level of the average usage for the winter billing months listed above.

EXTRA SUMMER USE

Year	St Louis County	St Joesph	Parkville	Warrensburg	Brunswick	St. Charles	Mexico	Joplin	Jefferson City
2007	21.15	6.32	32.83	8.34	0.60	32.48	2.87	10.54	8.88
2008	8.18	2.32	16.95	4.36	0.62	15.16	2.10	6.73	1.98
2009	10.13	3.13	13.80	2.42	1.06	13.81	1.29	8.48	3.74
2010	14.01	3.58	19.02	3.32	0.40	18.60	1.44	9.75	3.43
2011	14.90	4.33	26.99	6.27	1.34	24.32	1.78	15.84	6.32
2012	25.12	7.36	37.76	11.69	1.47	30.18	4.92	16.60	10.57
2013	15.98	5.29	25.45	6.71	0.11	15.49	1.14	9.64	5.48
2014	10.25	1.29	16.95	3.13	1.22	13.86	2.12	7.99	4.47
2015	11.22	2.73	19.41	5.74	0.91	12.60	2.87	9.15	4.68
2016	11.23	3.57	21.87	4.52	0.98	16.69	1.20	7.96	4.71
2017	16.33	5.30	21.31	5.01	1.58	22.45	1.87	7.91	5.47
2018	16.47	5.23	29.17	4.73	0.97	21.14	2.44	8.03	7.17
2019	10.39	3.94	20.43	2.87	0.78	10.85	2.01	4.12	4.89
2019 to 2018 Change	-36.9%	-24.7%	-30.0%	-39.4%	-19.5%	-48.7%	-17.7%	-48.7%	-31.8%

Extra Summer Use is all usage in the summer billing months of June, July, August, September, October, and November that exceeds the average winter use in the biling months of January, February, March, April, May, and December.

Missouri-American Water Company
Example #1 – Large Customer with Flat Usage



Missouri-American Water Company
Example #2 – Large Customer with Seasonal Usage