Exhibit No.:	
Issues:	Rate Design
Witness:	Ernest Harwig
Type of Exhibit:	Direct Testimony and Schedules
Sponsoring Party:	Multiple Intervenors
Company:	Missouri-American Water Company
Case Nos.:	WR-2000-281/SR-2000-282 (Consolidated)

Before the

Missouri Public Service Commission

In the matter of Missouri-American Water Company's Tariff Sheets Designed to Implement General Rate Increases for Water and Sewer Service Provided to Customers in the Missouri Service Area of the Company	)))))	Case Nos. WR-2000-281/SR-2000-282 (Consolidated)

FILED[3]

APR 07 2000

Missouri ... Service Commission

Direct Testimony and Schedules of

Ernest Harwig

On behalf of

City of Warrensburg, Missouri
City of Joplin, Missouri
City of St. Peters, Missouri
City of O'Fallon, Missouri
City of Weldon Spring, Missouri
St. Charles County, Missouri
Central Missouri State University
Hawker Energy Products, Inc.
Harmon Industries, Inc.
Stahl Specialty Company
Swisher Mower and Machine Company
Missouri Industrial Energy Consumers
and
St. Joseph Industrial Water Users

Project 7265
April 2000

BAI
Brubaker & Associates, Inc.

Before the

Missouri Public Service Commission

In the Matter of Missouri-American Water	)	
Company's Tariff Sheets Designed to Implement	)	Case Nos. WR-2000-281
General Rate Increases for Water and Sewer	)	SR-2000-282
Service Provided to Customers in the Missouri	)	(Consolidated)
Service Area of the Company.	)	

Affidavit of Ernest Harwig

State of Missouri)
) SS
County of St. Louis)

Ernest Harwig, being first duly sworn on his oath, states:

1. My name is Ernest Harwig. My business address is 1215 Fern Ridge Parkway, Suite 208, St. Louis, Missouri 63141-2000. I am a consultant in the field of public utility regulation with the firm of Brubaker & Associates, Inc.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony and Schedules which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Ernest Harwig

Ernest Harwig

Subscribed and sworn to before me this 6th day of April 2000.

CAROL SCHULZ
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires: Feb. 26, 2004

Carol Schulz

Carol Schulz

My Commission expires on February 26, 2004.

Before the

Missouri Public Service Commission

In the matter of Missouri-American Water Company's Tariff Sheets Designed to Implement General Rate Increases for Water and Sewer Service Provided to Customers in the Missouri Service Area of the Company	)))))	Case Nos.: WR-2000-281/SR-2000-282 (Consolidated)

<u>Direct Testimony of Ernest Harwig</u>

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A Ernest Harwig; 1215 Fern Ridge Parkway, Suite 208; St. Louis, MO 63141.

Q PLEASE STATE YOUR OCCUPATION.

A I am a consultant in the field of public utility regulation and employed by Brubaker & Associates, Inc., energy, regulatory and economic consultants.

Q PLEASE STATE YOUR EDUCATION AND QUALIFICATIONS.

A These are stated in Appendix A attached to this testimony.

Q ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A Section I of my testimony is presented on behalf of the St. Joseph Industrial Water Users on the subject of rate design. I have calculated rates for the St. Joseph District on a district-specific basis to reflect the costs of the first phase of treatment plant improvements supported by Dr. Charles Morris.

Section II of my testimony is presented on behalf of the City of Warrensburg, Missouri; City of Joplin, Missouri; City of St. Peters, Missouri; City of O'Fallon, Missouri; City of Weldon Spring, Missouri; St. Charles County, Missouri; Central Missouri State University; Hawker Energy Products, Inc.; Harmon Industries, Inc.; Stahl Specialty Company; Swisher Mower and Machine Company; the Missouri Industrial Energy Consumers; and St. Joseph Industrial Water Users.

The direct customers, as well as the residents and businesses located in the cities joining this group, would experience an unprecedented increase in their cost of water if the rates proposed by Missouri-American Water Company (MAWC or Company) were approved in this proceeding. In particular, these customers are quite alarmed at the prospect of increases in their water rates ranging between 50% and 66%, requested in large part to finance the costs of the new water treatment plant in the Company's St. Joseph District.

Q WHAT IS THE SUBJECT OF YOUR TESTIMONY?

A My testimony may be summarized as follows:

- As discussed in my prior testimony, water rates for the St. Joseph District should be calculated on a district-specific basis to reflect the costs associated with the first phase of treatment plant construction recommended by Dr. Charles Morris. These rates would collect an additional $3.451 million from St. Joseph ratepayers, and they would place the cost burden of the additional treatment facilities and improvements exclusively within the St. Joseph District.

- I disagree with the arguments put forth by Company Witness William Stout in support of Single Tariff Pricing (STP). First, there is very little probability that the costs of investments required in the various districts served by MAWC will ever produce parity in terms of unit cost levels. Second, the regulatory requirements pertaining to mandatory levels of water treatment are not specified by Mr. Stout, nor does he attach any costs to meeting these requirements. Moreover, he has provided no analysis showing which of MAWC's districts, if any, would be required to expend funds to meet these requirements. Third, Mr. Stout acknowledges that the cost differentials created by economies of scale will persist indefinitely. However, his argument that the advantages of scale economies, namely, lower rates, should apply to small water systems, is irrelevant in this case. Because all of these arguments fail, there is no philosophical basis for the application of STP in this case.

- STP is a means for forcing existing ratepayers in low cost districts to finance either the acquisition of new districts or significant investment in higher-cost districts. Customers in low-cost districts thus provide inordinately large returns on the Company's investment in their districts.

- STP is inherently unfair because it imposes the realization of a regulatory goal, namely affordable water rates, upon a small number of customers who have absolutely no voice in which properties the Company acquires or the amount of investment in any of its districts.

- The Commission should order MAWC to return to District-Specific Pricing (DSP) in this case. Under DSP, the cost-causer is the cost-payer. DSP also advances the cause of fiscal discipline.

- Mr. Stout's customer class cost of service study is not a sound basis for the design of rates in this case. The study lumps together like customer classes together despite their different usage patterns. By treating all customers in one class identically, costs may be either over-allocated or under-allocated to a class in a particular district, making it impossible to know whether rates over-recover or under-recover costs from those customers. Rates should be based upon cost of service studies performed for each individual district.

My decision to utilize the Company's revenue and expense figures in my exhibits should not be construed as an endorsement of its positions. I have used the Company's figures only for ease of comparison. In particular, I have not adjusted the Company's figures to reflect the cost of construction recommended by Dr. Morris.

SECTION I

DISTRICT-SPECIFIC RATES FOR THE ST. JOSEPH DISTRICT

Q **PLEASE STATE WHAT YOU MEAN WITH THE TERM "DISTRICT-SPECIFIC" RATE.**

A A "district-specific" rate refers to the design of rates based on costs incurred in one district alone, as opposed to cost-averaging over several districts.

Q **HAVE YOU PREVIOUSLY CALCULATED A REVENUE REQUIREMENT FOR THE ST. JOSEPH DISTRICT IN THIS CASE?**

A Yes, I have. I calculated a revenue requirement for the St. Joseph District based on the treatment facility construction plan recommended by Dr. Charles Morris. This testimony has already been filed with the Commission.

Q **WOULD YOU BRIEFLY SUMMARIZE YOUR CONCLUSIONS IN THE REVENUE REQUIREMENTS TESTIMONY?**

A Based on Dr. Morris' recommendations, I determined that the Company would require additional revenues of $3.451 million in St. Joseph to finance the first phase of construction. The overall revenue requirement for the first phase would be $13.293 million on a district-specific basis.

Q **HAVE YOU DESIGNED RATES TO RECOVER THIS LEVEL OF REVENUES IN ST. JOSEPH?**

A Yes, I have. These rates are shown on page 1 of Schedule 1-RD. The resulting revenues by class are shown on page 2.

Q HOW DID YOU CALCULATE THESE RATES?

A I increased the present customer and commodity charges by an equal percent across-the-board. Although the Company has sponsored a customer class cost of service study, I did not consider it a reliable guide for setting rates in the St. Joseph District because it was based on operations in all seven of MAWC's districts. I will make further comments regarding this cost study later in my testimony.

Q DO YOU RECOMMEND THAT THE COMMISSION APPROVE THE RATES FOR ST. JOSEPH SHOWN IN YOUR SCHEDULE 1-RD?

A I believe that whatever revenue requirement is found reasonable for St. Joseph on a district-specific basis should be recovered in rates applicable solely to water service in St. Joseph. If the Commission finds that additional adjustments to the Company's operating and capital expenses in St. Joseph are appropriate, these should be reflected in DSP rates as well.

SECTION II

SINGLE TARIFF PRICING

Q PLEASE DEFINE SINGLE TARIFF PRICING, AS IT PERTAINS TO THE WATER INDUSTRY.

A Simply, STP is the practice of charging identical tariffs for water service in multiple districts served by a common owner/operator. Customers in each of the districts are billed at the same rates regardless of the often substantial differences in the cost of providing service from one district to another. Thus, overall costs are spread among the districts, and the bills paid by customers in any one district are impacted by the costs not only in that district, but in all other districts as well. Rates are designed in this fashion even though each district has its own unique plant and costs, and is not physically connected to any other district. Thus, plant in one district cannot meet the water service needs of another district.

Age of Plant

Q WHAT ARE THE ARGUMENTS PUT FORTH BY MR. STOUT IN SUPPORT OF STP?

A Mr. Stout offers three arguments in his testimony. The first argument relates to the relative age of a district's plant-in-service, and holds, all other things being equal, that the unit cost of service decreases as the average age of the plant increases. In other words, an older plant is relatively less expensive than a newer plant on a unit cost basis.

Major plant additions in one district increase the rate base and revenue requirements, and correspondingly reduce the average age of plant. In future years as plant is added elsewhere at higher costs due to inflation, the unit cost in the first district decreases, relative to the others' unit costs.

At this point, Mr. Stout makes a leap of logic to conclude that, with the passage of time, the relative impact of these major additions lessens, and the unit cost of service in the district with the newest plant now will eventually decrease to an amount that is less than the statewide average. At such time, it would be "returning the favor" to the districts with even newer investment under STP.

Q DO YOU AGREE WITH MR. STOUT'S SCENARIO?

A No, I do not. It is simplistic and unsupported by fact. Mr. Stout states neither the length of time it would take, nor the rate at which the cost of these major additions would have to lessen to reach parity. During the interim, which could be a large number of years for any particular district, unit cost could be far higher than the statewide average, in which case a district paying STP rates would be subsidized by customers in other districts. Alternatively, the District's unit costs could be far below the statewide average for a number of years, in which case it would be forced to subsidize the higher-cost districts under STP. In either case, rates would not equal costs for the entire period (and the period could continue indefinitely), as there is no guarantee that a crossover point for unit costs would ever occur.

Q WOULD THE AGE OF A WATER PLANT IN A SINGLE DISTRICT, RELATIVE TO OTHER PLANTS IN A MULTI-DISTRICT COMPANY, BE A SIGNIFICANT FACTOR IN RATE DESIGN, ABSENT STP?

A No, it would not. Each district's rates would be based on costs in that district alone, as was formerly the case for St. Joseph and Joplin, prior to MAWC's merger with Missouri Cities Water Company. There would be no concern about if or when one district would be compensated for subsidies it had been forced to pay to another district.

Q CAN YOU PROVIDE AN ILLUSTRATION OF THE COST DIFFERENCES TO SERVE THE INDIVIDUAL MAWC DISTRICTS?

A Yes, I can. Schedule 2-RD develops the cost per thousand gallons of providing service in each district (excluding costs recovered via service charges). Columns 1, 2 and 3 develop revenues from water sales at MAWC's proposed rates. Column 4 shows annual pro forma water sales. The unit costs of water at proposed rates are shown in Column 5. With the exception of Brunswick, which is atypically small, the highest unit costs occur in the St. Joseph District, due to the claimed cost of the new treatment plant.

The difference between unit costs in St. Joseph and all other districts is shown in Column 6. Column 7 shows the total cost difference for each district. For example, costs in Joplin would have to be increased by $8.433 million to produce an average cost of $3.77 per thousand gallons, which is the unit cost of water in St. Joseph at the Company's proposed rates.

Column 8 shows the corresponding investment in rate base necessary to justify the total cost difference for each district. Finally, Column 10 shows the percent increase in rate base necessary just to equal the unit cost of water in the St. Joseph District. These investments would be over and above the investments already included in rate base by MAWC in this case.

Clearly, exceptionally large investments would be needed to achieve cost parity, let alone create a reversal in the relative level of unit costs. For example, increases in rate base of $56.2 million, or 277%, would be required in the Joplin District. Likewise, rate base investment of $31.3 million, or 115%, would be required in the St. Charles District, and investment of $7.6 million, or 75%, would be required in Warrensburg. Page 2 of Schedule 2-RD shows these results in graphic form.

However, investments of these magnitudes are highly unlikely in the near future according to MAWC's own Strategic Business Plan for 1999-2003. For the 2001-2003 period, plant investments are only $3.1 million in Joplin, $6.9 million in St. Charles, and $1.4 million in Warrensburg. During that same three-year period, Joplin ratepayers would be providing subsidies in excess of $12 million. Likewise, St. Charles ratepayers would be forced to provide subsidies in excess of $6.5 million, while Warrensburg ratepayers would pay subsidies in excess of $350,000.

Thus, while the relative ages of the plants in the several districts may change over time, there is no guarantee that the rates of change will cause the district-specific unit costs to approach a statewide average or change relative positions. In fact, it is just as conceivable that the relative changes in age may produce *wider* deviations from the statewide average in the short run.

Cost of Treatment Requirements

Q WHAT IS MR. STOUT'S SECOND ARGUMENT?

A The second argument relates to the degree of water treatment necessary to produce water which meets all applicable state and federal standards for health and safety. This argument assumes that increasing regulatory requirements will move all districts to significant levels of treatment, thus mitigating, if not eliminating, any unit cost variance that currently exists among the treatment processes in the various districts.

Q WHY DO YOU DISAGREE WITH THIS ARGUMENT?

A First, Mr. Stout does not specifically state what regulatory requirements he is referring to, nor does he provide any cost estimates for them. Second, it is far from a foregone conclusion that all seven districts will be required to install identical treatment processes to meet various regulatory requirements. Some use surface water and some use ground water. The St. Charles District purchases its water from two sources, so it will not make any investment in treatment equipment. As another example, the levels of arsenic and radon present in their water supply sources vary widely from one district to another. This calls into question the need to install the related removal equipment in all seven districts, at such time as the EPA's maximum containment levels are finalized.

Third, the treatment requirements argument is totally irrelevant to this case, as the requirements invoked by Mr. Stout are not yet in force and the Company has not incurred any costs to implement them. Rates must be set in this case on the basis of treatment regulations and associated costs which are in effect right now, not on speculation with regard to future requirements. Thus, the conclusion that pricing policy should recognize that treatment cost variances will be lessened or eliminated is unsupported and utterly irrelevant for purposes of setting rates in this case. If the situation ever arise that additional funds must be spent to meet regulatory standards in any one district, then the costs should be reflected only in the rates charged in that district.

Economies of Scale

Q **WHAT IS MR. STOUT'S THIRD ARGUMENT?**

A The third argument has to do with economies of scale. This argument holds that the unit cost of providing service in a small district is greater than the unit cost of providing service in a large district. This occurs because a given percent increase in the amount of capacity can be provided with a smaller corresponding percent increase in its cost. I note that Mr. Stout acknowledges the unit cost differentials produced by economies of scale are not temporal, and they will not be significantly lessened or eliminated with increased regulations. Thus, the unit cost differentials among districts caused by scale economies will persist indefinitely. This fact by itself undercuts the two prior arguments put forth for STP, as these cost differentials are substantial. These differences are shown in my Schedule 2-RD, Column 6.

Mr. Stout further argues that the spreading of costs over multiple districts will not have a significant impact on the average unit cost of service for the combined system. This conclusion is directly contradicted by the magnitude of the increase proposed by

MAWC in this case. Under the Company's proposal, customers in *all* districts would see increases in their cost of water ranging from 50% to 66% simply due to the application of single tariff pricing. Such rate impacts are certainly significant, contrary to Mr. Stout's assertion.

Q WHAT IS THE IMPACT ON PROPOSED REVENUE INCREASES IF ONE WERE TO INCREASE RATES ON A DISTRICT-SPECIFIC BASIS AS OPPOSED TO A STP BASIS?

A The impacts are shown on page 1 of Schedule 3-RD. Current revenues are shown in Column 1 and district-specific revenue requirements (as calculated by MAWC at the proposed overall revenue level) are shown in Column 2. Columns 3 and 4 show that, on a district-specific basis, the Joplin district should receive a *rate decrease* of $442,000, or (5.9%) in this case. In other words, Joplin's rates are *already* above cost, and have been so at least since MAWC's last rate case. Under STP, however, Joplin ratepayers would be forced to bear an additional increase of $4.089 million, or 55%, above present rates, even though a rate decrease is clearly in order on a cost basis. When all is said and done, Joplin's rates would be $4.531 million above the district-specific revenue level, as shown in Column 8.

Likewise, the district-specific increases for the St. Charles and Warrensburg districts would be $1.042 million and $715,000, respectively. The corresponding percent increases are 13.4% and 37.9%. However, under STP, both districts would bear increases in excess of 54%, and revenues would be $3.190 million and $319,000 above the district-specific levels in St. Charles and Warrensburg, respectively. Page 2 of Schedule 3-RD shows these results in graphic form.

Q IF JOPLIN, ST. CHARLES AND WARRENSBURG ARE FORCED TO PROVIDE REVENUES ABOVE THEIR RESPECTIVE DISTRICT-SPECIFIC COST LEVELS, WHERE DO THESE REVENUES GO?

A They go to the Company to compensate for the shortfall in revenues from the other districts. In particular, rates in St. Joseph, which would have to increase by over $12 million, or 122%, to reach cost of service (as alleged by the Company) would be $6.614 million below the revenue levels necessary to finance the new treatment facilities constructed by MAWC, if they were included without the disallowances proposed elsewhere in this case. Parkville, Mexico, and Brunswick operational losses would also have to be offset by the amounts shown in Column 8 under STP rates.

STP and Rate Base Expansion

Q WHY HAS MAWC ADVOCATED STP BEFORE THIS COMMISSION IN THIS CASE AND IN PRIOR CASES?

A MAWC advocates STP because it facilitates the expansion of the Company's rate base, which benefits the shareholder of the Company, American Water Works Company (AWWC).

Q PLEASE EXPLAIN.

A MAWC is owned by AWWC, the largest water utility holding company in the United States. One of AWWC's corporate policies is to increase its holdings of operating water utilities through merger or purchase. As an operating subsidiary of the parent company, MAWC also follows the expansion policy of its parent.

Q WHAT EVIDENCE CAN YOU CITE TO DEMONSTRATE AWWC'S EXPANSION POLICY?

A In recent months, AWWC has merged with National Enterprises, Inc., the parent of the holding company that owned St. Louis County Water Company, among others. It has also acquired or is in the process of acquiring California-based SJW Corporation and Connecticut-based Citizens Utilities Company. In addition, AWWC bought numerous individual water systems in 1999, including the water utility in Jefferson City.

Q WHAT EXPANSION ACTIVITIES HAS MAWC UNDERTAKEN RECENTLY?

A In 1999, MAWC agreed to acquire three water utilities from Empire District Electric Company.

Q WHY DOES EXPANSION PROVIDE A FINANCIAL BENEFIT TO THE SHAREHOLDER?

A More utility properties translate into a larger absolute rate base and a larger absolute level of earnings on that rate base.

Q HOW DOES STP FIGURE INTO THIS PICTURE?

A On the acquisition side, STP allows MAWC to acquire water utilities characterized by dilapidated plant or high unit costs that would otherwise be unattractive to operate, and charge rates that are below the cost of service in the acquired districts. Thus, for example, MAWC could acquire a system in need of extensive renovation and keep rates constant, or even decrease them under STP. To avoid losing money on the operation, MAWC would charge part of the associated costs to its ratepayers in other regions of the state. Or, as is the situation in this case, MAWC can make a substantial investment in plant in a district it already owns. The attendant capital costs, thanks to STP, are partially or mostly absorbed by ratepayers in other districts. This approach should be rejected.

Fairness Issue

Q DOES STP HAVE AN IMPACT ON THE RETURN THE COMPANY REALIZES ON ITS INVESTMENTS IN THE VARIOUS DISTRICTS?

A It most certainly does. As shown on Schedule 4-RD, page 1 of 2, the Company's STP proposal produces an after-tax return of *negative* 15.53% in Brunswick, corresponding to a *negative* 47% return on common equity. Equity returns would also be negative in Mexico, Parkville and St. Joseph. In other words, MAWC would be *paying* customers to take water service from it in those districts. Obviously, this is not a profitable situation for the Company. It offsets these losses through STP rates which produce equity returns of 65% in Joplin, 39% in St. Charles and 19% in Warrensburg. Thus, STP enables MAWC to incur a below average or even a negative return in the high cost districts, but still earn an average overall profit on its total rate base investment. These results are shown in graphic form on page 2 of Schedule 4-RD.

Q DO THE COMPANY'S RATEPAYERS HAVE ANY VOICE IN THE COMPANY'S DECISIONS AS TO WHICH OTHER UTILITIES IT MAY ACQUIRE?

A No, they do not. For example, I am unaware of any opportunity afforded to ratepayers to voice their opinion in the decision of MAWC to acquire Missouri Cities Water Company or the recent merger of AWWC and New Enterprises, Inc., St. Louis County Water's parent company.

This is not to say that mergers and acquisitions are wrong per se, but STP certainly spreads the economic impact of these mergers beyond the acquired districts. Further, these transactions are made without informing existing ratepayers of all the ratemaking implications or gaining their acquiescence. Notification belatedly occurs through bill inserts or the filing of a rate case.

Q **IS THE BURDEN OF STP FAIRLY DISTRIBUTED AMONG ALL WATER CUSTOMERS?**

A No, it is unfair to ratepayers. STP is promoted as a means to achieve affordable rates for ratepayers in general. However, the burden of this goal is arbitrarily placed on the shoulders of a relative few who, by mere chance, also happen to live in a district served by MAWC. Water customers served by other private or municipal suppliers are exempt from this burden. Thus, the subsidy is unequally and haphazardly distributed among ratepayers, even in the same geographic area. It is ironic that STP forces less affordable rates on distant customers in the name of affordability, as is certainly the case here.

Q **DID YOU REVIEW THE PUBLICITY MATERIALS UTILIZED BY THE COMPANY TO PROMOTE THE CONSTRUCTION OF THE NEW TREATMENT PLANT IN ST. JOSEPH?**

A Yes, I did. In addition to stating the reasons why the Company believed the treatment plant would be necessary, it also emphasized the "advantages" of STP to groups and individuals in St. Joseph as an integral part of its campaign. Thus, the notion was presented that the entire expense of the plant would not have to be borne by St. Joseph ratepayers alone. This made the plant more palatable from an economic point of view.

Q DID YOU SEE ANY EVIDENCE OF STP AND THE ST. JOSEPH PLANT BEING PROMOTED IN THE COMPANY'S OTHER OPERATING DISTRICTS?

A No, I did not, although it was mentioned in some of the materials prepared by the Company's New Jersey-based Public Relations consultant. I suspect the argument that ratepayers in Joplin, Mexico, St. Charles, Warrensburg, Parkville and Brunswick should incur a rate increase in large part to pay for the St. Joseph plant would have met with a chilly reception. The businesses and cities on whose behalf I am testifying are certainly not enamored of the concept.

Q IS STP GOOD RATEMAKING POLICY?

A No. STP is an example of undesirable ratemaking policy, and I recommend that the Commission return to a policy of DSP for MAWC.

Advantages of District-Specific Pricing

Q WHY SHOULD THE COMMISSION ORDER MAWC TO RETURN TO DSP IN THIS CASE?

A There are many advantages to DSP. First and foremost, the cost-causer should be the cost-payer. Preservation of this relationship is a fundamental principle of public utility regulation, which is respected and promoted by DSP. Thus, a customer receives an accurate price signal and can adjust the use of water accordingly. This enhances the probability that a customer will make wise economic decision with regard to the use of water. Additionally, it is simply a situation of basic fairness for someone to pay for the resource costs of the water that they use.

Second, DSP also advances the cause of fiscal discipline. If customers pay only for the cost of providing water in their own district, they will not be tempted to push for or acquiesce in the most expensive supply or treatment solutions for the sake of "getting even" with other districts whose costs they have been burdened with in the past. In this regard, the Commission simply does not have the resources to monitor every individual investment decision for prudence before it is made and executed. A DSP system would encourage economy and the least cost solution to providing safe, reliable and adequate water service.

In conjunction with DSP, I would also recommend that the Commission encourage MAWC to meet with local representatives in a district whenever an unusually large investment is anticipated. For example, Warrensburg's water has had for a long time a bad taste and odor due to the high content of hydrogen sulfide in Warrensburg's ground water. In Case No. WR-97-237, Warrensburg requested that the Commission order MAWC to investigate the hardness, odor and taste of its water and propose a solution. In its Report and Order dated November 6, 1997, in WR-97-237, the Commission ordered the opening of a new case styled "In the Matter of The Investigation into Water Quality for Missouri American Water Company's Warrensburg's District" and docketed the new case as Case No. WO-98-203. On February 20, 1998, Staff filed a Preliminary Report that reviewed six possible solutions and set out their costs to the Warrensburg ratepayers.

Throughout 1998 and 1999, the Company met with the Warrensburg Citizens Advisory Group[1] and Staff to review various alternative solutions and their costs to improve Warrensburg's water quality.

[1]The Citizens Advisory Group was composed of residential ratepayers, large commercial and industrial users, and City and County officials.

The Company's proposed solution was the construction of an ozonation system. Even though the ozonation plant was an expensive solution (estimated to cost $5,200,000), Warrensburg was agreeable to this solution and stands prepared to pay higher water rates for the new plant when it goes into service. Warrensburg does not want ratepayers in other districts to have to pay for this new plant.

This, or a like procedure, is what the Commission should require the MAWC to utilize for major new plant construction in conjunction with District Specific Pricing. I would characterize major plant construction to be additions totaling more than 20% of existing rate base. This procedure will allow the Company to inform the ratepayers and local officials of the need for the new plant construction, to make them aware of various options available and to allow them to have some input on the best and most cost-effective solution. Utilization of DSP and this procedure will necessarily provide fiscal discipline and accountability to the Company's decision-making process.

Transition to DSP Rates

Q YOU HAVE RECOMMENDED TO THE COMMISSION THAT IT ORDER MAWC TO RETURN TO DISTRICT-SPECIFIC RATES. HOW SHOULD THIS BE ACCOMPLISHED?

A Over the years, since STP was first implemented, it has greatly distorted the relationship between costs and rates in several of the districts. This is most evident in Brunswick, Mexico and Parkville, where rates tend to be lower than costs. Thus, in order to bring these three districts to full cost of service without creating undue rate impacts, I am recommending that parity between costs and rates be achieved over a three-year period.

Q ARE YOU IN EFFECT RECOMMENDING THAT THE PRINCIPLE OF GRADUALISM BE APPLIED IN THIS SITUATION?

A Yes, I am. However, I would emphasize that I am employing gradualism for the purpose of moving *towards* the goal of achieving parity between rates and district-specific costs.

Q HAVE YOU PREPARED AN ILLUSTRATION SHOWING HOW RATES IN THE INDIVIDUAL DISTRICTS CAN BE EQUATED TO COSTS OVER THE THREE-YEAR PERIOD?

A Yes, I have. This is shown in Schedule 5-RD. My illustration assumes a 10% return on equity to be consistent with my rate design proposal for the St. Joseph District. Consistent with my recommendation for the St. Joseph District, I have capped the annual increases at 35% above present revenues for Brunswick, Mexico and Parkville. Because the necessary increases in St. Charles and Warrensburg are less than 35%, they are brought to full cost of service in the first year. The Joplin District, which is entitled to a 10% rate decrease, would receive half of that decrease in the first year.

In the second year, Brunswick and Mexico would continue to receive 35% increases on a cumulative basis. Parkville would require a 32% increase to reach cost of service, while Joplin would receive the remaining half of its decrease.

In the third year, Brunswick would still require a 35% increase, while Mexico would require a 4% increase to reach full cost of service. At the conclusion of the three-year period, all districts, with the exception of Brunswick, will have reached full cost of service. Thus, Brunswick would be the only district requiring additional rate increases beyond the three-year period.

Q **ARE YOU RECOMMENDING THAT MAWC BE GRANTED INCREASES IN THE AMOUNTS SHOWN IN YOUR EXHIBIT?**

A No, I am not. I am simply using these amounts for illustrative purposes. Any increases granted to MAWC to recover the costs of operations in its individual districts should reflect all adjustments found appropriate by the Commission in this case.

Class Cost of Service Study

Q **HAVE YOU REVIEWED MR. STOUT'S CUSTOMER CLASS COST OF SERVICE STUDY?**

A Yes, I have. Mr. Stout's study provides a basis for evaluating the rates recommended by the Company in this case.

Q **DO YOU BELIEVE THAT THIS STUDY PROVIDES A SOUND BASIS FOR THE DESIGN OF RATES IN THIS CASE?**

A No, I do not. The study lumps together like customer classes from seven districts for cost allocation purposes; but usage patterns of like classes can be very different from one district to another. For example, the St. Charles District is overwhelmingly residential, and imposes a high irrigation load in the summer. Residentials in other districts may impose relatively smaller summer peak loads on their systems. Thus, the same customer classes in different districts may have maximum day and maximum hour load ratios which differ significantly from one another. Yet, only one maximum day and maximum hour ratio is applied to the residential class in the study. Thus, the cost allocations cannot be considered to be representative for residential customers in all districts.

It is also ironic that the Company acknowledges the existence of cost differentials in serving different customer classes, but at the same time proposes rates which do not reflect cost differentials among its operating districts. Failure to recognize the latter distorts the results of the cost study, and renders it useless for designing cost-based rates.

I would, therefore, recommend that revenue requirements be determined on a DSP basis, and that cost of service studies be performed with the DSP revenue requirements and load ratios appropriate for the customer classes in each district.

Q DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A Yes, it does.

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Qualifications of Ernest Harwig

Q **PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A Ernest Harwig. My business mailing address is PO Box 412000; 1215 Fern Ridge Parkway, Suite 208; St. Louis, Missouri 63141-2000.

Q **WHAT IS YOUR OCCUPATION?**

A I am a consultant in the field of public utility regulation and am employed by Brubaker & Associates, Inc., energy, economic and regulatory consultants.

Q **PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

A I graduated from Austin College with a Bachelor of Arts Degree in Economics. Subsequently, I received a Master of Arts Degree in International Economics from Texas Tech University. I later attended seminars in Economics at the University of Cologne, West Germany. I also received a Master of Arts Degree in Economic Theory while completing all course work towards the Ph.D. at Southern Methodist University. My major field was Industrial Organization.

Prior to joining Drazen-Brubaker & Associates, Inc., I was employed as a utility rate analyst with the Public Service Commission of Wisconsin, where I designed rates for private and municipal electric utilities and analyzed testimony and exhibits presented by the utilities in rate cases. I also prepared exhibits for presentation in major electric utility rate cases.

I joined the firm of Drazen-Brubaker & Associates, Inc., in September 1975. In April 1995, the firm of Brubaker & Associates, Inc. was formed. It includes most of the former DBA principals and staff. At the firm, I have been engaged in the preparation of testimony and exhibits relating to electric, gas, water, wastewater and steam utilities. These included determinations of rate base, operating income and depreciation rates; the performance of cost of service studies; and the design of rates for utility services. I have also provided technical assistance in the negotiation of contracts for water and wastewater services between municipal suppliers and industrial customers. I am also a member of the American Water Works Association. In addition to our main office in St. Louis, the firm also has branch offices in Kerrville, Texas; Plano, Texas; Denver, Colorado; Chicago, Illinois; and Washington, DC.

Q ARE YOU THE AUTHOR OF ANY PUBLICATIONS?

A Yes. I am the co-author of two articles: "Municipal Electric Utility Pricing," which appeared in the February 1976 issue of Governmental Finance, and "Water Rates: An Industrial User's View," which appeared in the May 1986 issue of the American Water Works Association Journal.

Q HAVE YOU PREVIOUSLY APPEARED BEFORE A REGULATORY COMMISSION?

A Yes. I have testified before the public utility regulatory commissions of Alabama, Delaware, Illinois, Indiana, Kentucky, Minnesota, Missouri, New Hampshire, Pennsylvania, Rhode Island, Tennessee, West Virginia and Wisconsin. In addition, I have assisted both utility customers and suppliers in local rate proceedings and contract negotiations for water and wastewater services in about twenty states.

MISSOURI-AMERICAN WATER COMPANY
MPSC Case No. WR-2000-281

Present and Recommended DSP Rates for St. Joseph District

Line	Rate Class	Present Revenue (1)	Recommended Revenue (2)	Increase Amount (3)	Increase Percent (4)
	Minimum Charge:				
1	5/8" Monthly	$5.94	$8.02	$2.08	35.02%
2	3/4" Monthly	$7.60	$10.27	$2.67	35.13%
3	1" Monthly	$10.77	$14.55	$3.78	35.10%
4	1 1/2" Mthly	$18.73	$25.30	$6.57	35.08%
5	2" Monthly	$28.28	$38.21	$9.93	35.11%
6	3" Monthly	$50.54	$68.28	$17.74	35.10%
7	4" Monthly	$82.34	$111.24	$28.90	35.10%
8	6" Monthly	$161.85	$218.66	$56.81	35.10%
9	8" Monthly	$257.26	$347.56	$90.30	35.10%
	Volumetric Charges				
10	First Block	$ 1.9548	$2.6410	$ 0.6862	35.10%
11	Second Block	$ 1.0951	$1.4795	$ 0.3844	35.10%
12	Third Block	$ 0.8451	$1.1417	$ 0.2966	35.10%
13	Fourth Block	$ 0.5691	$0.7689	$ 0.1998	35.11%

MISSOURI-AMERICAN WATER COMPANY
MPSC Case No. WR-2000-281

Present and Recommended DSP Revenues by Class for the St. Joseph District

Line	Rate Class	Present Revenue (1)	Recommended Revenue (2)	Increase Amount (3)	Increase Percent (4)
1	Residential	$5,645,813	$7,626,050	$1,980,237	35.07%
2	Commercial	1,850,971	$2,500,565	649,594	35.09%
3	Industrial	1,226,660	$1,657,245	430,585	35.10%
4	Other Public Authority	279,760	$377,959	98,199	35.10%
5	Other Water Utilities	647,466	$874,738	227,272	35.10%
6	Miscellaneous	9,639	$9,639	-	0.00%
7	Private Fire	181,203	$244,805	63,602	35.10%
8	Subtotal	9,841,512	13,291,001	3,449,489	35.05%
9	Other Miscellaneous Revenues	181,489	181,489	-	0.00%
10	Total	$10,023,001	$13,472,490	$3,449,489	34.42%

MISSOURI-AMERICAN WATER COMPANY
MPSC Case No. WR-2000-281
(Dollar Amounts in Thousands)

Rate Base Investment Required to Achieve Equal Unit Cost Among Districts

Line	District	District Specific Rev. Req't. (1)	Customer Charge Revenues (2)	Revenues From Wtr. Sales (Col. 1 - Col. 2) (3)	Annual Water Sales (Thou. Gal.) (4)	Non-Customer Cost Per Thou. Gal (5)	Unit Cost Difference From St. Joseph (6)	Total Cost Difference (Col. 4 * Col. 6) (7)	Corresponding Rate Base Investment (Col. 7 / 15%) (8)	District-Specific Rate Base per MAWC (9)	Percent Increase/(Decrease in Proposed Rate Base (10)
1	Joplin	$6,996	$2,167	$4,829	3,521,419	$1.37	$2.39	$8,433	$56,220	$20,276	277.28%
2	St. Charles	$8,827	$2,305	$6,522	2,977,061	$2.19	$1.58	$4,690	$31,268	$27,214	114.90%
3	Warrensburg	$2,602	$559	$2,043	845,383	$2.42	$1.35	$1,141	$7,605	$10,105	75.26%
4	Mexico	$3,119	$468	$2,651	762,101	$3.48	$0.29	$219	$1,462	$11,733	12.46%
5	Parkville	$2,769	$412	$2,357	627,049	$3.76	$0.01	$5	$32	$9,013	0.35%
6	St. Joseph	$21,863	$2,823	$19,040	5,055,758	$3.77	$0.00	$0	$0	$97,917	0.00%
7	Brunswick	$396	$44	$352	47,187	$7.45	($3.69)	($174)	($1,160)	$905	-128.26%
8	Total	$46,572	$8,779	$37,793	13,835,958	$2.73	$1.03	$14,314	$95,427	$177,163	53.86%

Sources: Company Exhibits JMW and WMS-1, Table 1-C, Page 8 of 9.

MISSOURI-AMERICAN WATER COMPANY
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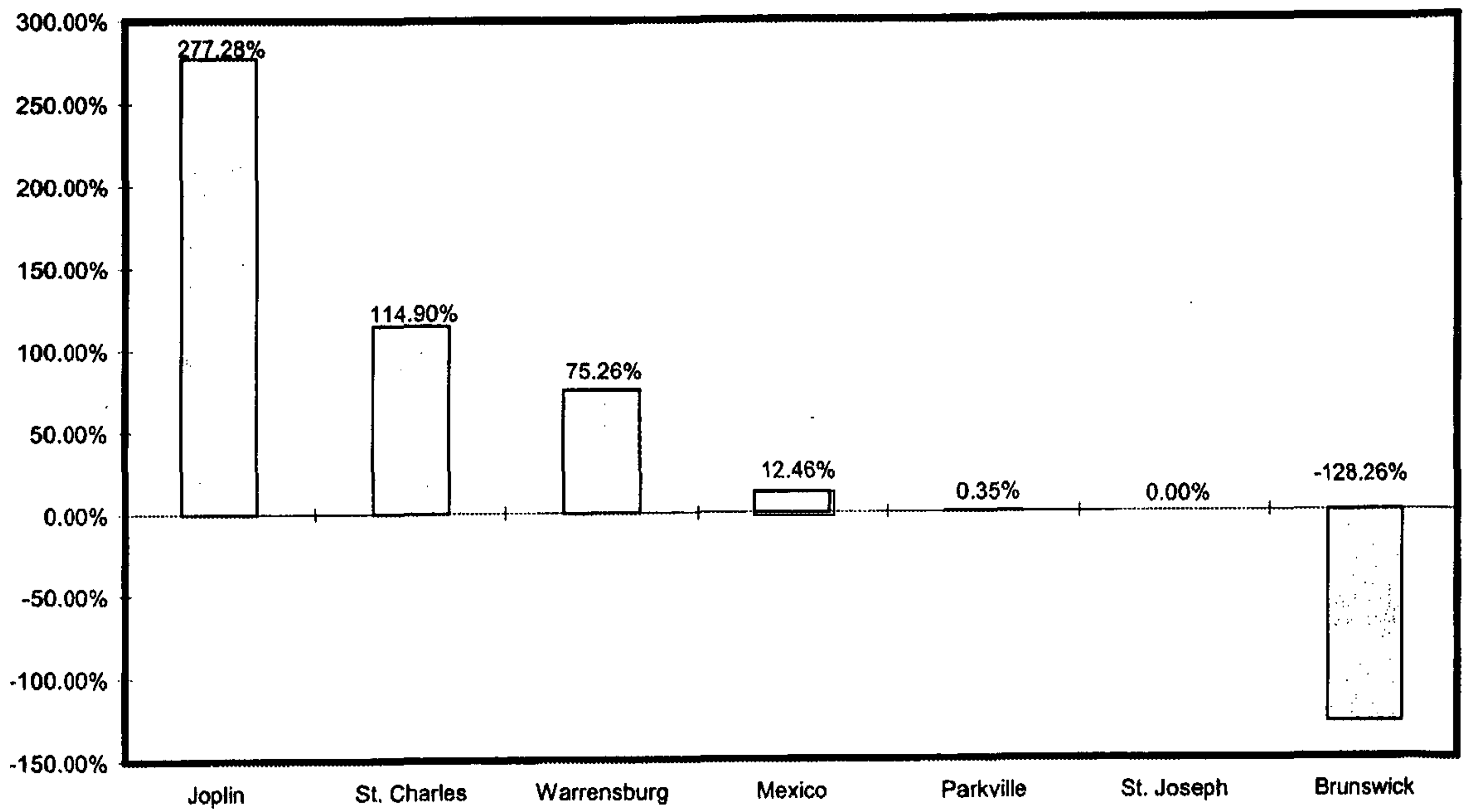
Percent Increase or (Decrease) in Proposed Rate Base
Necessary to Reach Unit Cost Parity



MISSOURI-AMERICAN WATER COMPANY
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Comparison of District-Specific and
Single Tariff Pricing Revenue Increases
(Dollar Amounts in Thousands)

Line	District	Current Revenues (1)	District Specific Rev. Req't. (2)	Increase Amount (3)	Increase Percent (4)	Revenues Under STP (5)	Increase Amount (6)	Increase Percent (7)	Revenues Above (Below) District Specific Level (8)
1	Joplin	$7,438	$6,996	($442)	-5.9%	$11,528	$4,089	55.0%	$4,531
2	St. Charles	$7,785	$8,827	$1,042	13.4%	$12,016	$4,232	54.4%	$3,190
3	Warrensburg	$1,888	$2,602	$715	37.9%	$2,921	$1,033	54.7%	$319
4	Parkville	$1,475	$2,769	$1,294	87.7%	$2,288	$813	55.1%	($481)
5	Mexico	$1,550	$3,119	$1,570	101.3%	$2,397	$848	54.7%	($722)
6	St. Joseph	$9,842	$21,863	$12,022	122.2%	$15,249	$5,408	54.9%	($6,614)
7	Brunswick	$115	$396	$281	243.5%	$174	$59	51.0%	($222)
8	**Total**	**$30,091**	**$46,572**	**$16,481**	**54.8%**	**$46,572**	**$16,481**	**54.8%**	**($0)**

MISSOURI-AMERICAN WATER COMPANY
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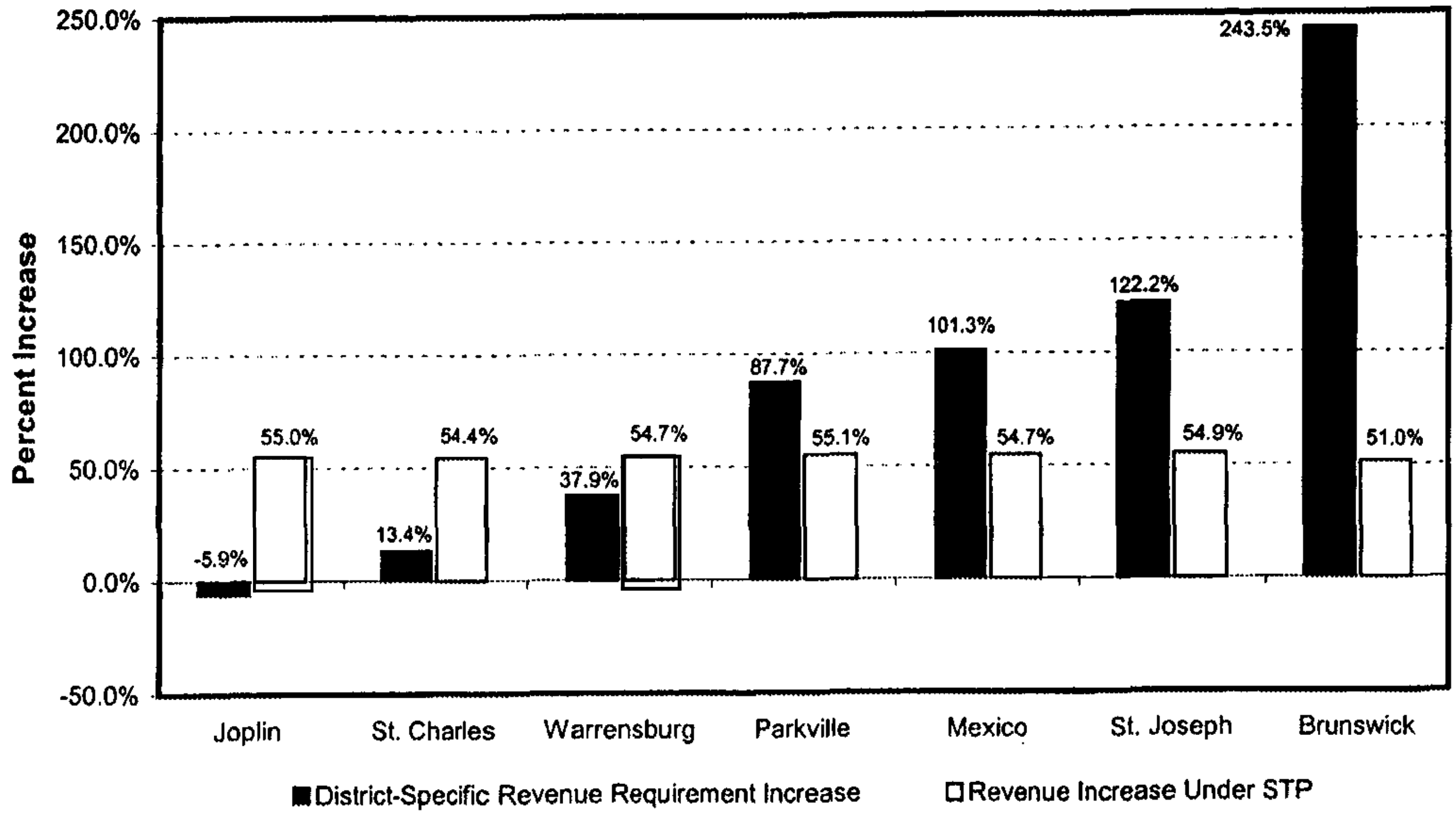
Comparison of District-Specific and
Single Tariff Pricing Revenue Increases



MISSOURI-AMERICAN WATER COMPANY
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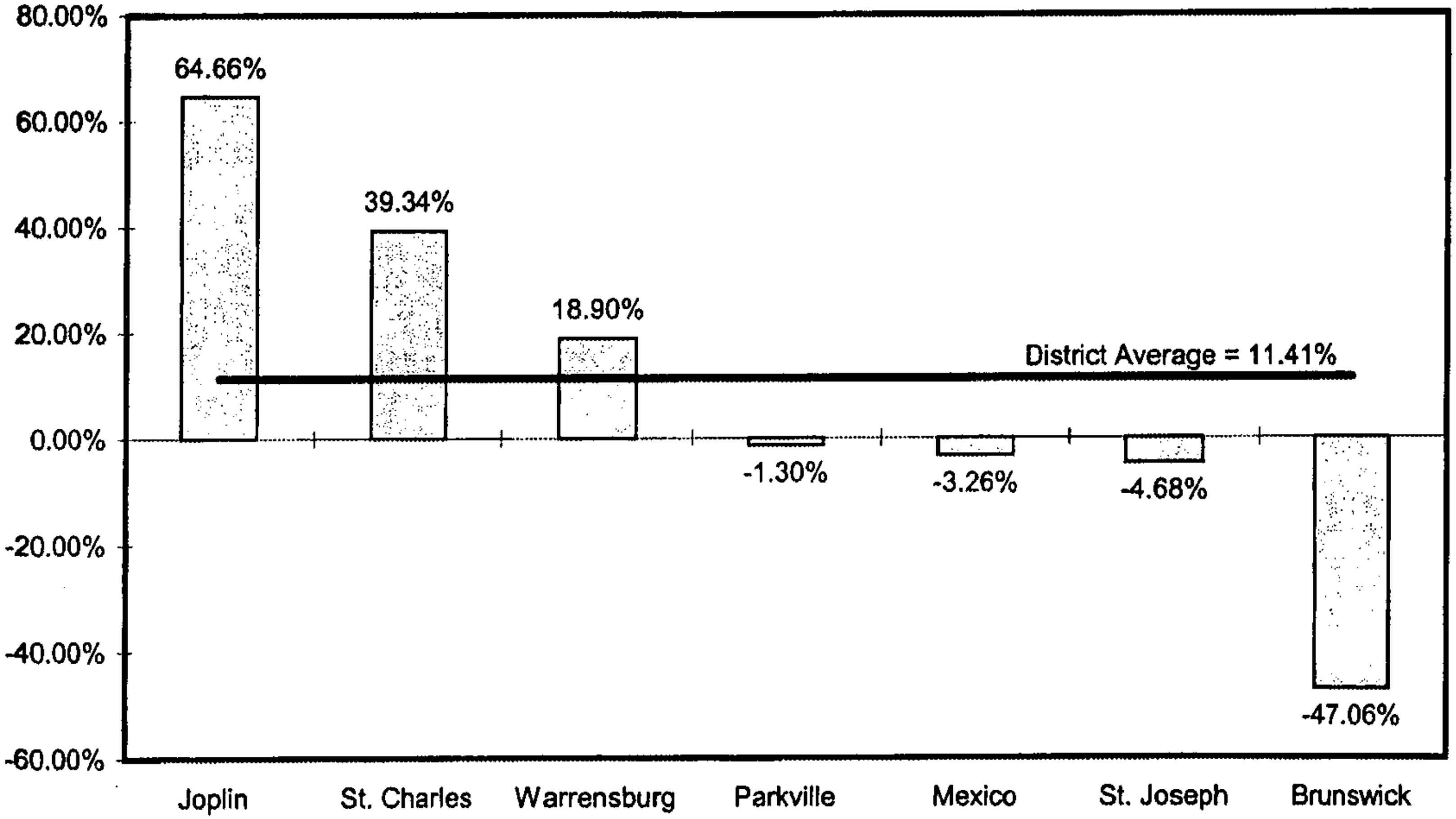
District-Specific Return on Rate Base and Common Equity
Under Single Tariff Pricing

Line	District	After-Tax Return on Rate Base (1)	Return on Common Equity (2)
1	Joplin	31.35%	64.66%
2	St. Charles	20.73%	39.34%
3	Warrensburg	12.15%	18.90%
4	Parkville	3.67%	-1.30%
5	Mexico	2.85%	-3.26%
6	St. Joseph	2.26%	-4.68%
7	Brunswick	-15.53%	-47.06%
8	Total Company	9.01%	11.41%

Source: Company Exhibit WMS-1.

MISSOURI-AMERICAN WATER COMPANY
MPSC Case No. WR-2000-281

After Tax Return on Common Equity by District
at Proposed STP Rates



MISSOURI-AMERICAN WATER COMPANY
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District-Specific Pricing to Achieve Parity Between Costs and Rates

I. Revenue Requirement

District	Revenue Requirement	Present Revenues	Increase Amount	Increase Percent
Brunswick	$382	$115	$267	232%
Joplin	$6,692	$7,438	-$746	-10%
Mexico	$2,943	$1,550	$1,394	90%
Parkville	$2,633	$1,475	$1,158	78%
St. Charles	$8,417	$7,785	$633	8%
Warrensburg	$2,451	$1,888	$564	30%
Total	**$23,518**	**$20,250**	**$3,268**	**16%**

II. Annual Increases

District	First Year Percent	First Year Amount	Second Year Percent	Second Year Amount	Third Year Percent	Third Year Amount
Brunswick	35%	$40	35%	$54	35%	$73
Joplin	-5%	-$373	-5%	-$373	0%	$0
Mexico	35%	$542	35%	$732	4%	$120
Parkville	35%	$516	32%	$642	0%	$0
St. Charles	8%	$633	0%	$0	0%	$0
Warrensburg	30%	$564	0%	$0	0%	$0
Total		**$1,922**		**$1,055**		**$193**

MISSOURI-AMERICAN WATER COMPANY
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Workpaper: District-Specific Revenues @ 10% Equity Return
(Excluding St. Jospeh District)
Workpaper for Schedule 5-RD)
1. Capital Structure and Cost Without JDITC

Line	Item	Amount	Percent	Cost	Wtd. Cost	GRCF	Pre-Tax Wtd. Cost	Inc.Tax Cost
1	LT Debt	$95,409,103	56.269%	7.217%	4.061%	1	4.061%	
2	Pref. Equity	253,734	0.150%	5.896%	0.009%	1.642819	0.014%	0.006%
3	Preference Eq.	2,540,782	1.498%	9.106%	0.136%	1.642819	0.224%	0.088%
4	Common	71,355,391	42.083%	10.000%	4.208%	1.642819	6.913%	2.705%
5	*Total*	*$169,559,010*	*100.000%*		*8.414%*		*11.213%*	*2.799%*

2. District-Specific O.I., Taxes and Expenses
and Calculation of Revenue Increases
(Dollars in 000)

	District	Dist.-Specif. Rate Base	Oper. Income	Income Taxes	All Other Expenses	Revenue Requirement	Present Revenues	Increase Amount	Percent
6	Brunswick	$905	$76	$25	$281	$382	$115	$267	231.79%
7	Joplin	$20,276	$1,706	$567	$4,419	$6,692	$7,438	-$746	-10.03%
8	Mexico	$11,733	$987	$328	$1,627	$2,943	$1,550	$1,394	89.93%
9	Parkville	$9,013	$758	$252	$1,622	$2,633	$1,475	$1,158	78.50%
10	St. Charles	$27,214	$2,290	$762	$5,366	$8,417	$7,785	$633	8.13%
11	Warrensburg	$10,105	$850	$283	$1,318	$2,451	$1,888	$564	29.86%
12	Total	$79,245	$6,668	$2,218	$14,632	$23,518	$20,250	$3,268	16.14%

Two Three

	District	Present Revenues	1st Yr Pct. Incr	1st Yr Amount	2nd Yr Pct. Incr.	2nd Yr Amount	3rd Yr Pct. Incr.	3rd Yr Amount
6	Brunswick	$115	35.00%	$40	35.00%	$54	35.00%	$73
7	Joplin	$7,438	-5.02%	-$373	-5.02%	-$355	0.00%	$0
8	Mexico	$1,550	35.00%	$542	35.00%	$732	4.23%	$120
9	Parkville	$1,475	35.00%	$516	32.23%	$642	0.00%	$0
10	St. Charles	$7,785	8.13%	$633	0.00%	$0	0.00%	$0
11	Warrensburg	$1,888	29.86%	$564	0.00%	$0	0.00%	$0
12	Total	$20,250		$1,922		$1,074		$193
13	Cumulative Ttl.					$2,996		$3,189

MISSOURI-AMERICAN WATER COMPANY
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Calculation of District-Specific Return on Equity Under STP
(Workpaper for Schedule 4-RD)

	Brunswick	Joplin	Mexico	Parkville	St. Charles	St. Joseph	Warrensburg	Total Company
Total Cost of Service-DSP	$395.7	$6,996.2	$3,119.0	$2,768.9	$8,826.5	$21,863.4	$2,602.3	$46,572.0
All Other Expense	$280.8	$4,418.5	$1,627.4	$1,622.0	$5,365.6	$9,407.7	$1,318.0	$24,040.0
Income Taxes	$33.5	$752.5	$435.4	$334.8	$1,010.3	$3,636.1	$374.9	$6,577.5
Operating Income	$81.4	$1,825.2	$1,056.2	$812.1	$2,450.6	$8,819.6	$909.4	$15,954.5
Rate Base	$904.6	$20,275.7	$11,733.1	$9,013.3	$27,213.8	$97,917.2	$10,104.9	$177,162.6
Proposed Revenues (STP)	$173.9	$11,527.6	$2,397.1	$2,287.5	$12,016.1	$15,249.0	$2,920.8	$46,572.0
Above/Below COS	*-$221.8*	$4,531.4	*-$721.9*	*-$481.4*	$3,189.6	*-$6,614.4*	$318.5	$0.0
Proposed Oper. Inc Before Taxes	*-$106.9*	$7,109.1	$769.7	$665.5	$6,650.5	$5,841.3	$1,602.8	$22,532.0
Pre-Tax Rate of Return	-11.82%	35.06%	6.56%	7.38%	24.44%	5.97%	15.86%	12.72%
Less: Income Tax	3.71%	3.71%	3.71%	3.71%	3.71%	3.71%	3.71%	3.71%
After-Tax Return	**-15.53%**	**31.35%**	**2.85%**	**3.67%**	**20.73%**	**2.26%**	**12.15%**	**9.01%**
Less: Wtd. Cost of Non-Equity Securities	4.22%	4.22%	4.22%	4.22%	4.22%	4.22%	4.22%	4.22%
Wtd.Equity Return	-19.75%	27.13%	-1.37%	-0.55%	16.51%	-1.96%	7.93%	4.79%
Common Equity Ratio	41.96%	41.96%	41.96%	41.96%	41.96%	41.96%	41.96%	41.96%
Return on Equity	**-47.06%**	**64.66%**	**-3.26%**	**-1.30%**	**39.34%**	**-4.68%**	**18.90%**	**11.41%**