Exhibit No.:	
Issues:	Waste Disposal, Jefferson City Fire Suppression Issues, St. Joseph Excess Treatment Plant Capacity
Witness:	Frank Kartmann
Exhibit Type:	Rebuttal
Sponsoring Party:	Missouri-American Water Company
Case No.:	WR-2003-0500
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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WR-2003-0500

REBUTTAL TESTIMONY

OF

FRANK KARTMANN

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

JEFFERSON CITY, MISSOURI

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the General Rate Increase for Water and Sewer Service provided by Missouri-American Water Company	)	Case No. WR-2003-0500
Staff of the Missouri Public Service Commission, Complainant, v. Missouri-American Water Company, Respondent	)	Case No. WC-2004-0168

AFFIDAVIT OF Frank L. Kartmann

STATE OF Missouri)
) SS
COUNTY OF St. Louis)

On this 3rd day of November, 2003, before me appeared Frank L. Kartmann, to me personally known, and who being duly sworn upon his oath did state that the Rebuttal Testimony attached hereto consisting of ____ pages and _____ Schedules was prepared by him or under his direction and supervision, and that the answers to the questions posed therein are true to the best of his knowledge, information and belief.

Subscribed and sworn to before me on this 3rd day of November, 2003

Sharon K Lee
Notary

SHARON K. LEE
Notary Public-Notary Seal
State of Missouri
St Louis County
My Commission Expires Feb 21, 2007

REBUTTAL TESTIMONY
FRANK KARTMANN
MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2003-0500

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WITNESS INTRODUCTION

Q. STATE YOUR NAME AND BUSINESS ADDRESS?

A. Frank Kartmann, 535 N. New Ballas Rd., St. Louis, Missouri, 63141.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am Vice President of Operations for Missouri-American Water Company.

Q. STATE YOUR QUALIFICATIONS AND EXPERIENCE IN THE FIELD OF ENGINEERING?

A. I obtained a BS Degree in Civil Engineering from the University of Missouri – Rolla, Missouri in 1989. I joined the St. Louis County Water Company in 1989 as a System Engineer designing and managing the construction of water main and mechanical piping projects. In 1994, I became the Plant Engineer for the St. Louis County Water Company's Meramec Plant. In 1998, I became the Plant Superintendent for the St. Louis County Water Company's Meramec and South County Plants. In 1999, I became the Director-Engineering for St. Louis County Water Company, Missouri-American Water Company, and 2000 for the Jefferson City Water Works Company. In 2000, I was elected Vice President-Engineering for the same three companies. In 2001, I was elected to my current position of Vice President-Operations.

These positions have provided me with design, project/construction management, and operational management qualifications in the areas of source of supply, treatment, and pumping/storage/distribution of potable water. While heading up Engineering I had direct responsibility for short and long term planning,

managing, and executing the companies' capital budgets. As Vice President-Operations it is my role, among other responsibilities, to direct the identification, planning, design and execution of engineering and capital improvement projects required by our ten systems in Missouri and integrate those improvements with the source of supply, treatment, and pumping/storage/distribution operations of these ten systems. These improvements span from projects required by environmental regulation to rehabilitation or replacement of existing facilities to relocations of facilities that physically conflict with proposed improvements desired by other entities to facility expansions required by growth.

WASTE DISPOSAL

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY ON THIS ISSUE?

A. My rebuttal testimony will address Staff witness Lisa K. Hanneken's Direct Testimony regarding Waste Disposal Expense.

Q. ON PAGE 12 OF THE DIRECT TESTIMONY OF LISA K. HANNEKEN, STAFF PROPOSES THAT THE WASTE DISPOSAL EXPENSE FOR ST. JOSEPH DISTRICT BE SET AT ZERO. IS THIS A REASONABLE EXPENSE FOR WASTE DISPOSAL?

A. No.

Q. WHAT WASTE DISPOSAL FACILITIES DOES MAWC OPERATE IN THE ST. JOSEPH DISTRICT?

A. The Company operates two residue collection ponds with associated piping and pumping equipment.

Q. WHY IS SETTING THE WASTE DISPOSAL EXPENSE FOR THE ST. JOSEPH DISTRICT TO ZERO NOT APPROPRIATE?

A. Setting the waste disposal expense to zero is not appropriate because the Company has known and measurable rates of residue generation and costs of removal. The ponds mentioned previously have been in service since fall 2001 and the accumulation of settled water treatment residue was surveyed and quantified at the end of summer 2003. On an annualized basis the St. Joseph operation generates 9,337 cu.yds. of residue.

Q. HOW OFTEN IS RESIDUE DEPOSITED IN THE PONDS?

A. Several times each day, day in and day out, year after year. It is a continuous process of residue generation resulting from the treatment of water, which is also a continuous process.

Q. WHY IS IT IMPORTANT TO KNOW THAT THE GENERATION OF RESIDUE IS A CONTINUOUS PROCESS?

A. Recognizing in rates the cost of waste disposal requires an understanding that residue generation is a continuous cost causing activity and as such it is only through the leveling of such an expense over time that it can be recognized in rates. Therefore, the appropriate manner in which to establish this leveling of expense is to recognize the expense in rates at the same rate the residue is being generated.

Q. WHAT IS YOUR RECOMMENDATION REGARDING ST. JOSEPH WASTE DISPOSAL EXPENSE?

A. As Staff, in its same Direct Testimony, is recommending the residue disposal expense be annualized in St. Louis, Parkville, Mexico, Brunswick and Joplin, and has done so for quite some time, it would appear appropriate that St. Joseph's residue disposal also be annualized and collected in rates through a monthly accrual. By accruing the disposal expense, intergenerational equity will be preserved with the actual cost of residue disposal being charged to the ratepayers causing the cost of residue disposal resulting from the treatment of water consumed by them. In addition, by virtue of the rate making process, the only way to recognize this expense in rates is to establish an accrual for it.

Q. HOW DOES THE COMPANY BELIEVE ANNUALIZED DISPOSAL EXPENSE SHOULD BE CALCULATED FOR THE ST. JOSEPH OPERATION?

A. In the fall of this year the Company had 4,200 cu.yds. of residue removed from one of the ponds at the St. Joseph plant for a total cost of $76,266.18. This cost included a mobilization/demobilization/General Condition (m/d/GC) cost of $2,073.75. This leaves a direct unit cost paid per cu.yd. of residue removed of $17.66. Applying this direct unit cost and the m/d/GC cost to a full pond of residue (the largest pond at 31, 552 cu.yds.) yields an all in cost per cu. yd. of residue removed from a full pond of $17.72. At the annual residue generation rate described above of 9,337 cu.yds., this equates to an annualized expense level of approximately $165,452. The Company requests that the average residue accumulation of 9,337 cubic yards and the commensurate annualized residue disposal expense of $165,452 be approved in the rates resulting from this filing.

Q. WILL AGRICULTURAL UTILIZATION OF THE DISPOSED OF RESIDUE PRODUCE OFF SETTING REVENUES AS ALLEGED BY MS. HANNEKEN?

A. The Company has not to date located an agricultural facility willing to purchase water treatment residue. The Commission should not consider that Company will receive

payment for the material used in the agricultural disposal of water treatment waste, until such time as a source of such payments has been found .

Q. ARE THERE OTHER ISSUES THAT SHOULD BE CONSIDERED IN ALLOWING FOR AN ACCRUAL OF THE RESIDUE DISPOSAL COST?

A. Yes. The Company's decision to install the pebble lime softening system and reduce hardness levels below 270 mg/l was based not only on a savings in chemical cost, but also an increase in waste disposal expense. In the Company's rate filing for this rate case, it proposed a reduction in annual chemical expense at St. Joseph of approximately $350,000, while it is requesting recovery of residue disposal expense in the amount stated above of $165,452. Staff's proposal accepts the reduction in chemical expense, even though the savings are not known and measurable, but does not recognize the Company's request for recognition of the known and measurable waste disposal expense level. The Company believes that it is not appropriate for Staff to accept the cost savings in chemical expense without recognizing the commensurate residue expense level. If the residue expense is not allowed, then the chemical savings should not be accepted either. There is no logic for accepting the one without the other.

JEFFERSON CITY FIRE SUPPRESSION ISSUE

Q. ON PAGE 3 OF HIS DIRECT TESTIMONY, CHIEF ROBERT F. RENNICK STATES THAT DURING A POWER OUTAGE ON SEPTEMBER 7, 2003, THE ON DUTY ASSISTANT FIRE CHIEF CALLED MISSOURI-AMERICAN'S OFFICES IN JEFFERSON CITY, BUT WAS CONNECTED TO AN EMPLOYEE IN ST. LOUIS, MO, WHO HAD NO KNOWLEDGE OF THE PUMPING SYSTEM AT JEFFERSON CITY AND HAD NO MEANS OF INVESTIGATING THE LOSS IN PRESSURE. DID THE ON DUTY ASSISTANT FIRE CHIEF USE THE MOST EFFICIENT AND EFFECTIVE MEANS MADE AVAILABLE BY

THE JEFFERSON CITY WATER SYSTEM FOR COMMUNICATING WITH THE WATER SYSTEM?

A. No. The Jefferson City Fire Department, Police Department, LEPC, and other local public services possess phone numbers that will directly connect those public service agencies to the Manager of our Jefferson City Operation or the Plant Operator on duty at our water treatment facility, which is a 24 hour per day, 7 day per week, and 365 day per year attended facility. In fact, the Manager of our Jefferson City water system has been contacted on his home and cellular telephones by fire department officials previously. We have made these contact telephone numbers available for the very purpose of continually being accessible to the public service agencies with which we are inextricably linked in carrying out our on going public service responsibilities.

Q. DOES IT SURPRISE YOU THAT THE EMPLOYEE IN ST. LOUIS, MO WITH WHOM THE ON DUTY ASSISTANT FIRE CHIEF WAS CONNECTED WHEN HE MADE THE DESCRIBED TELEPHONE CALL HAD NO KNOWLEDGE OF THE PUMPING SYSTEM AT JEFFERSON CITY AND HAD NO MEANS OF INVESTIGATING THE LOSS IN PRESSURE CHIEF RENNICK DESCRIBES IN HIS DIRECT TESTIMONY?

A. No. If the on duty Assistant Fire Chief called our Jefferson City office after normal "office" working hours he would be routed, by design, to our St. Louis Dispatching Center for a situation such as that Chief Rennick describes in his Direct Testimony. The employees attending this dispatching center are not trained to have detailed knowledge of the physical operation of our water systems or the ability to trouble shoot physical operational issues in these systems. In circumstances such as those addressed in Chief Rennick's Direct Testimony, these employees are trained to take information from the caller, including a call back number, and then contact the "On Call" employee of the subject water system. For whatever reasons, if the employee working in our St. Louis

Dispatching Center is unable to contact the "On Call" employee he/she has a series of other employee contacts within the subject water system he/she is to attempt calling until one such employee can be reached and that employee is then to address the physical operational issue that exists.

It is our belief that it makes the best sense for our local employees in charge of and providing the day to day operation of our physical systems to address immediate water system specific physical operational issues, as they are our employees with the expert, most up to date, and immediate knowledge of the condition of the water systems they operate.

Q. BEGINNING ON PAGE 3, LINE 7 OF CHIEF RENNICK'S DIRECT TESTIMONY, HE IMPLIES THE JEFFERSON CITY WATER SYSTEM'S PUMPING FACILITIES LOST ELECTRICAL POWER ON SEPTEMBER 7, 2003. DO THE JEFFERSON CITY WATER SYSTEM'S RECORDS INDICATE ANY LOSS OF POWER TO THE WATER SYSTEM ON SEPTEMBER 7, 2003?

A. No. There are no records of any operational events or customer calls, on September 7, 2003, or employee recollections that would indicate there was a power loss on that date. We are not aware of any such power loss occurring on this date.

Q. IN THE SAME SECTION OF CHIEF RENNICK'S DIRECT TESTIMONY, DESCRIBED ABOVE, CHIEF RENNICK STATES THAT AT SEVERAL JEFFERSON CITY FIRE STATIONS THERE WAS LITTLE OR NO WATER PRESSURE FOR A PERIOD ON THE EVENING OF SEPTEMBER 7, 2003 AND THAT IT TOOK NEARLY 2 HOURS TO BRING THE SYSTEM TO ADEQUATE OPERATING PRESSURE. DO THE JEFFERSON CITY WATER SYSTEM'S RECORDS INDICATE ANY PRESSURE ISSUES OCCURRING ON SEPTEMBER 7, 2003?

A. No. There were no operational events or customer calls on September 7, 2003 or employee recollections that would indicate there were any water pressure issues on that date. We are not aware of any such water pressure issues occurring on this date.

Q. DO ALL THE JEFFERSON CITY FIRE STATIONS RECEIVE WATER SERVICE FROM MAWC'S JEFFERSON CITY WATER SYSTEM?

A. No. To my knowledge there are 5 fire stations serving Jefferson City and the surrounding areas. Our customer records and knowledge of the geographic boundaries of our system indicate that three of these fire stations receive water service from the Jefferson City water system while the other two fire stations are served by one or another neighboring public water supply district.

Q. DO YOU BELIEVE IT IS POSSIBLE THAT THERE COULD BE SOME CONFUSION REGARDING WHICH FIRE STATIONS WERE EXPERIENCING LOSSES IN WATER PRESSURE?

A. Yes, I believe this is possible for two reasons. First, the fact that our operating records, records of customer inquiry, and recollections of our employees indicate there was no power or water pressure loss in the Jefferson City water system on September 7, 2003, could be explained by a power and water pressure loss that occurred in one or both of the neighboring water districts and it was actually those fire stations receiving water service from those water districts that experienced the loss of water pressure.

Second, Chief Rennick specifically mentions by name Fire Station No.4, located at 820 Ellis Boulevard as a station that experienced a loss in water pressure on the evening of September 7, 2003. This seems strange because Fire Station No.4 is very near our new 1.5MG storage tank and tank pump station. Our personnel in the Jefferson City water

system know of no operational abnormalities having occurred on September 7, 2003, at or in the vicinity of the new tank and tank pump station. Furthermore, we have no record of pressure or flow related customer inquiries on this date. What is more, our operational records from this date indicate that operations were normal in the system generally, and at the new tank site specifically, on this date.

Q. WAS THERE ANY DATE NEAR SEPTEMBER 7, 2003, THAT FACILITIES OF THE JEFFERSON CITY WATER SYSTEM LOST ELECTRICAL POWER?

A. Yes. Our operational records indicate that at 8:25 p.m. on September 14, 2003, the treatment plant lost electrical power for a period of approximately 4 minutes.

Q. DO YOUR RECORDS INDICATE ANY CHANGES IN PRESSURE IN THE WATER SYSTEM DURING THE PERIOD OF THIS ELECTRICAL POWER OUTAGE?

A. Yes. There are three locations within the distribution system that we are able to monitor continuously during a power interruption at the treatment plant. Those locations are identified as follows:

1. Southwest Suction;
2. Southwest Discharge;
3. Ellis Discharge (the new tank and tank pump station site).

Q. DURING THE PERIOD OF TIME OF THE ELECTRICAL POWER OUTAGE ON SEPTEMBER 14, 2003, WHAT WERE THE PRESSURES AT THESE LOCATIONS AND WHAT ARE THE NORMAL OPERATING PRESSURES OBSERVED AT THESE LOCATIONS?

A. Below is a table indicating the pressures at these locations during the electrical power outage and the normal operating pressures at these locations.

Pressure Monitoring Location	Recorded Pressure during Power Outage (psi)	Pressure Observed Under Normal Operating Conditions (psi)
Southwest Suction	62.9	66
Southwest Discharge	106.9	106
Ellis Discharge	62.7	62

Q. HOW WOULD YOU DESCRIBE THE PRESSURES RECORDED AT THESE LOCATIONS DURING THE DESCRIBED POWER OUTAGE?

A. Not significantly different than normal, and certainly safe and adequate.

Q. ON PAGE 3 OF HIS DIRECT TESTIMONY, CHIEF RENNICK STATES THAT THE BACK UP POWER SYSTEM IN PLACE IN THE JEFFERSON CITY WATER SYSTEM LACKS RELIABILITY. DOES THE COMPANY HAVE A RELIABLE BACK UP POWER SYSTEM IN PLACE?

A. Yes. The Jefferson City water system's treatment plant has a reliable and redundant electrical power supply provided by the power company. There are two electrical feeds from the power company coming from two separate power company substations that serve our treatment plant. Only one of these feeds at a time is providing power to our plant, yet they are both energized up to their point of entry into our internal electrical distribution system. If the feed normally providing power to our equipment should be interrupted, the Jefferson City water system has a switching mechanism located at its treatment plant that automatically transfers our source of power supply from the interrupted power feed to the redundant power feed. This equipment is in place to minimize the duration of such a power interruption. During such a power feed switching event our treatment plant equipment stop operating and require restarting due to the momentary interruption of power. There are a few steps undertaken by our on duty

operator that involve the resetting of electrical distribution equipment within our facility that must occur before the redundant power feed from the power company can transmit power to our treatment plant equipment. As evidenced by the 4-minute typical duration of the September 14, 2003 power interruption event described previously in this testimony, such power interruptions are short lived.

Q. BEYOND HAVING REDUNDANT POWER FEEDS, REDUNDANT ELECTRICAL SUBSTATIONS, AND AN AUTOMATIC TRANSFER SWITCH, WHAT OTHER ACTIONS HAS THE JEFFERSON CITY WATER SYSTEM TAKEN TO MITIGATE THE IMPACT OF ANY POWER INTERRUPTION EVENT?

A. There is additional treated water storage and pumping capability in the distribution system (outside the treatment plant) that is powered independently from the treatment plant. What is more, as part of the new water storage tank construction project recently completed in our Jefferson City system, a generator is being installed this year that will provide power to either the new tank site booster pumps or the Southwest Booster Station should the power supply be interrupted at either of those locations.

Q. WAS THERE ANY BENEFIT TO THE JEFFERSON CITY WATER SYSTEM FROM THE ABOVE DESCRIBED DISTRIBUTION SYSTEM WATER STORAGE AND PUMPING FACILITIES DURING THE SEPTEMBER 14, 2003 POWER INTERRUPTION?

A. Yes. As evidenced in the table of water pressures referred to above. The pressures at the locations monitored varied little between condition normal and the power interruption because while the treatment plant was unable to pump water into the distribution system and thereby create pressure, the distribution water storage and pumping facilities were able to pump water into and throughout the distribution system.

Q. ARE THERE ANY OTHER ACTIONS THE JEFFERSON CITY WATER SYSTEM HAS TAKEN TO MITIGATE THE IMPACT OF ANY POWER INTERRUPTION EVENT?

A. Yes. The Jefferson City water system has distribution system interconnections with the adjacent water systems for utilization by one of our systems in the event either of the other of our systems has an emergency need. Like the distribution storage described above, these interconnections can be viewed analogously as alternative sources of supply.

Q. ON PAGES 3 AND 4 OF HIS DIRECT TESTIMONY, CHIEF RENNICK EXPRESSES CONCERN ABOUT POPULATION GROWTH AND BUILDING CONSTRUCTION IN JEFFERSON CITY. PLEASE DESCRIBE THE PLANNING PROCESS FOR ADDRESSING ADDITIONAL PRODUCTION CAPACITY AND DISTRIBUTION FACILITIES NEEDS AS IT RELATES TO GROWTH WITHIN THE BOUNDARIES OF THE COMPANY'S WATER SYSTEM.

A. The Company addresses the need for additional plant and distribution facilities in an incremental approach based on what can be identified as a future demand on the system. The Jefferson City water system works closely with Developers and the Missouri-American Engineering staff to identify specific needs, which allows the Company the ability to properly plan for future expansion. The system is modeled hydraulically and the model is used to assist in the determination of appropriate system upgrades. The Company reviews system records for water main break histories and customer concerns to determine candidates for main replacement and/or other system improvements. This information provides a source for determining priorities for future projects.

Q. IS IT TRUE, AS CHIEF RENNICK HAS STATED ON PAGE 4 HIS DIRECT TESTIMONY, THAT UPON THE EXPIRATION OF AN AGREEMENT THE JEFFERSON CITY WATER SYSTEM HAD WITH COLE COUNTY PUBLIC WATER SUPPLY DISTRICT NO.2 (CCPWSD NO.2), THE JEFFERSON CITY WATER SYSTEM LOST 3MG OF STORAGE CAPACITY?

A. No. While the tank lease agreement the Jefferson City water system had with CCPWSD No.2 required CCPWSD No.2 to share the use of its tanks with the Jefferson City water system, because of hydraulic limitations within the CCPWSD No.2 distribution system, there were only two CCPWSD No.2 tanks that could be utilized by the Jefferson City water system. These tanks are identified as Christy and Veath and they have a total combined storage capacity of 2MG.

Q. WAS THE CAPACITY OF THESE TANKS DEDICATED TO THE JEFFERSON CITY WATER SYSTEM?

A. No. As I stated previously CCPWSD No.2 shared these tanks with the Jefferson City water system. In other words, the 2MG of storage capacity contained by the Christy and Veath tanks was shared among the customers of both CCPWSD No.2 and the Jefferson City water system.

Q. REGARDING CUSTOMER DEMAND AND FIRE PROTECTION, DOES THE NEW TANK CONSTRUCTED BY MISSOURI-AMERICAN WATER COMPANY IN THE JEFFERSON CITY WATER SYSTEM PROVIDE ADVANTAGES FOR THE COMPANY'S CUSTOMERS?

A. Yes, the new tank constructed in the Jefferson City water system has a capacity of 1.5MGD and is dedicated to only the customers of the Jefferson City water system. As I stated previously, the CCPWSD No.2 tank storage capacity of 2MG that was available to

the Jefferson City water system customers was not dedicated to their use only, but rather was shared with the customers of CCPWSD No.2.

The decision to construct a 1.5MG capacity potable water storage tank resulted from a thorough engineering analysis of the potable water storage needs of the Jefferson City water system. This analysis was enabled by distribution system hydraulic analyses that modeled various operational scenarios as extreme as the simultaneous occurrence of fire fighting water demands with expected diurnal peak demands. Beyond the decision to construct a 1.5MG capacity storage tank these analyses resulted in decisions to construct a 16" water main joining the tank to the rest of the distribution system at various points of connection to better enable the filling and drawing of the tank at flow rates expected to be required by fire fighting and diurnal peak demands. What is more, these analyses also resulted in the proper sizing of a new booster station, tank pump station, and emergency generator, which were also constructed to facilitate the effective integration of the new tank into the distribution system.

Q. IS THERE ANY STORAGE IN THE JEFFERSON CITY WATER SYSTEM IN ADDITION TO THE NEWLY CONSTRUCTED 1.5MG TANK?

A. Yes, at the treatment facility there reside two potable water clear wells each with a capacity of 1MG. In total, the Jefferson City water system has three separate potable water storage vessels with a total storage volume of 3.5MG. The water contained in all three of these storage vessels is available for fire fighting and diurnal peak demands.

Q. AS PART OF CHIEF RENNICK'S DIRECT TESTIMONY REGARDING HIS CONCERNS OF REDUCED POTABLE WATER STORAGE WITHIN THE JEFFERSON CITY WATER SYSTEM, BEGINNING ON PAGE 4, LINE 6 OF HIS DIRECT TESTIMONY, CHIEF RENNICK STATES THAT HE HAS BEEN ADVISED THAT THE JEFFERSON CITY WATER SYSTEM INTENDS TO

REMOVE A CLEAR WELL STORAGE TANK FROM ITS PLANT FACILITY AND THEREBY ALSO AFFECT ITS STORAGE CAPACITY. DOES MISOURI-AMERICAN PLAN TO REMOVE SUCH A STORAGE TANK?

A. No. What is more, the Jefferson City water system has no intention of reducing its potable water storage capacity.

Q. BEGINNING ON PAGE 5, LINE 9 OF CHIEF RENNICK'S DIRECT TESTIMONY, HE STATES THAT ABOUT 20 OF THE 40 NEW HYDRANTS TO BE INSTALLED UNDER THE STIPULATION AND AGREEMENT IN CASE NO. WR-99-326, HAVE BEEN PLACED (INSTALLED). IS THIS AN ACCURATE APPROXIMATION OF THE CURRENT NUMBER OF NEW HYDRANTS THAT HAVE BEEN INSTALLED PURSUANT TO THE DESCRIBED STIPULATION AND AGREEMENT?

A. No. To date the Jefferson City water system has installed 33 of the required 40 hydrants and the remaining 7 to be installed will be completed by mid November 2003.

Q. ON PAGE 7 OF HIS DIRECT TESTIMONY, CHIEF RENNICK RECOMMENDS, "THE COMPANY UNDERTAKE AS SOON AS POSSIBLE A WATER MAIN REPLACEMENT PROGRAM IN CONJUNCTION [WITH THE FIRE DEPARTMENT] TO REMOVE THE THREE INCH AND FOUR INCH WATER LINES AND INSTALL LARGER DIAMETER LINES." HAS THE JEFFERSON CITY WATER SYSTEM RELOCATED ANY FIRE HYDRANTS FROM 4" MAINS TO 6"OR LARGER SIZE MAINS IN THE LAST FOUR YEARS IN AN EFFORT TO IMPROVE AVAILABLE FIRE FLOWS?

A. Yes. There have been 6 hydrants relocated to larger mains as part of a larger project that the City of Jefferson undertook on High Street. Additionally, the Jefferson City water system has replaced 11 fire hydrants throughout the system that were considered obsolete.

Q. PLEASE DESCRIBE THE CRITERIA THAT IS UTILIZED WHEN DETERMINING WATER PRESSURE AND FIRE FLOW PROTECTION WITHIN THE DISTRIBUTUION SYSTEMS OF MISSOURI-AMERICAN.

A. Missouri-American Water Company utilizes sound engineering practices, industry accepted design guidelines, and hydraulic modeling when designing improvements to its water systems. It is common practice for the Company to consult with local fire departments for input relating to fire protection needs.

Replacement of existing facilities is reviewed on a case by case basis and in the last four years the company has upgraded approximately 2100 feet of water mains and has installed approximately 9000 ft of new transmission/distribution mains to augment the new storage tank discussed previously in this rebuttal testimony and reinforce existing facilities fire flows within the system.

Q. WHAT IS THE WATER COMPANY'S APPROACH REGARDING THE REPLACEMENT OF MAINS SMALLER IN DIAMETER THAN 6"?

A. Assuming pressure and volume are available, larger diameter mains are able to provide greater fire protection than smaller diameter mains. We support the replacement of the small diameter mains Chief Rennick describes in his Direct Testimony, however, there are many factors to consider in the balance such as rate impact, competition with other capital improvement projects and/or synergies with related projects that allow for cost minimization.

Q. PLEASE ELABORATE ON THE SYNERGIES WITH RELATED PROJECTS.

A. When it comes to replacing water mains, we like to time those projects to occur with city street improvement projects, if possible. This minimizes the rate impact on the customer because under these circumstances the pavement repair cost our main installation would otherwise require is covered in the cost of the street project.

Q. DO YOU HAVE ANY CURRENT EXAMPLES OF HOW YOU HAVE BEEN ABLE TO TIE IMPROVEMENTS IN FIRE PROTECTION WITH THE SYNERGY OF COMBINING MUNICIPAL PUBLIC WORKS PROJECTS WITH WATER MAIN IMPROVEMENT PROJECTS?

A. Yes. For example, the company upgraded a 1 ¼" diameter water main on Hart Street, between High and West Main with an 8" main to reinforce the area for fire flows. On Lachant Ct. approximately 1400 feet of 8"main was installed that allowed the company to loop the system (join dead ended mains) and reinforce fire flows and enhance system reliability.

Q. DO YOU HAVE ANY PENDING EXAMPLES?

A. Yes. On Hyde Street we will shortly begin installing 1,300 feet of 8" main prior to installation of storm drainage and streets that will reinforce fire flows and system reliability by looping this portion of the distribution system.

Q. DO YOU BELIEVE IT IS NECESSARY FOR THE COMMISSION TO ORDER A WATER MAIN REPLACEMENT PROGRAM FOR JEFFERSON CITY AS SUGGESTED BY CHIEF RENNICK?

A. No.

Q. BEGINNING ON PAGE 7, LINE 16 OF CHIEF RENNICK'S DIRECT TESTIMONY, HE DISCUSSES HIS CONCERNS REGARDING LOW FLOW CONDITIONS ON THE MISSOURI RIVER IN THE LAST WEEK OF AUGUST 2003 RESULTING FROM A COURT BATTLE OVER THE MISSOURI RIVER OPERATING PLAN AND THE IMPACT OF THAT PLAN ON THE JEFFERSON CITY WATER SYSTEM'S SOURCE WATER PUMPING CAPABILITIES. DOES THE JEFFERSON CITY WATER SYSTEM HAVE PLANS AND PROCEDURES IN PLACE TO ADDRESS EXTREME LOW RIVER LEVELS AND THEIR IMPACT ON SOURCE WATER PUMPING CAPABILITIES?

A. Yes. The Company has emergency procedures for such an event that consist of utilizing submersible pumping units to augment the capacity of the permanent source water pumping facility during periods of extreme low flow conditions on the Missouri River. In addition, emergency interconnects with two neighboring public water supply districts exist as back up sources of supply. Furthermore, as stated previously the Jefferson City water system has dedicated potable water storage capacity of 3.5 million gallons.

Q. IS MISSOURI-AMERICAN WATER COMPANY TAKING ANY OTHER ACTIONS REGARDING THIS MATTER?

A. Yes. Missouri-American Water Company continues to monitor the ongoing court cases concerning the Missouri River operating plan. Simultaneously, Missouri-American Water Company's Engineering Department is reviewing what permanent improvements to the Jefferson City water system's source water pumping facility would be prudent should the ultimate operating plan for the Missouri River be incompatible with the operating parameters of that source water pumping facility, as currently configured.

ST JOSPEH EXCESS TREATMENT CAPACITY

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY ON THIS ISSUE?

A. I'm testifying with respect to the issue of the treatment capacity of the St. Joseph water treatment plant ("SJTP") that was the subject of Mr. Merceil's recommended disallowance at pages 4 through 6 of his Direct Testimony.

Q. WHAT IS MR. MERCEIL'S RECOMMENDED ADJUSTMENT?

A. His adjustment is based on his testimony in this case and in the Company's most recent rate case, WR-2000-281, that of the 30 million gallons per day ("MGD") treatment capacity at the SJTP, a capacity of 23 MGD "would have been adequate." He then recommended there, and again in this case, that $2,271,756 be deducted from the Company's rate base. He states that since "water production in St. Joseph on peak days has not increased" that the "disallowance should stand.

Q. DID THE COMMISSION ACCEPT HIS ADJUSTMENT IN CASE WR-2000-281?

A. Yes.

Q. WHY THEN DOES THE COMPANY WANT TO RE-LITIGATE THE ISSUE IN THIS CASE?

A. Four reasons: First, Commission's decision was not appropriate at the time in WR-2000-281; second, the punitive reduction in rate base has exhausted its purpose and is even less appropriate these four years later; third, the Company is

faced with planning decisions again in Joplin, and the Company does not understand the principles behind the disallowance as they should be applied to that planning; and fourth, it sets a dangerous and destructive precedent that this Company and others need to have Missouri policy confirmed or changed. Accordingly, I will discuss these reasons in the following order:

1. The adjustment was incorrect in WR-2000-281
2 The adjustment is even more inappropriate these four years later
3. The Company does not now know what to do in Joplin
4. The adjustment sets terrible precedent

Q. WHY WAS THE ADJUSTMENT WRONG IN WR-2000-281?

A. The Company explained all those reasons in that case, which were apparently not persuasive to the majority of the Commission. Those reasons were explained by Mr. Young, and I adopt his comments from that case here as my own:

Q. ON PAGE 16, LINE 9, OF HIS REBUTTAL TESTIMONY, MR. MERCIEL STATES THAT HE BELIEVES THERE IS SOME EXCESS CAPACITY AT THE NEW PLANT. HOW DID MR. MERCIEL ARRIVE AT THIS CONCLUSION?

A. Mr. Merciel explains that he did not explicitly perform demand projections. Rather, his analysis was limited to a review of historical peak day demands. On page 17, line 17 he states " However, since the filter capacity is not yet 30 MGD, and peak day demand has been relatively consistent for a number of years at approximately 23 MGD, I think it would have been reasonable to size certain other plant components similar to the filter limitation, where practical."

Q. DID YOUR OFFICE PERFORM THE ANALYSIS DIFFERENTLY?

A. Yes, we undertook a rigorous analysis of system demands to arrive at the decision that the treatment plant needed to have a 30 mgd capacity. One of the important functions of the Company's planning process is a detailed review of system demands. The analysis includes a breakdown of demands into six categories including residential, commercial, industrial, other, non-revenue, and unaccounted for water. Based on a historical analysis of system demands and usage trends, projections of future water demands are made. The analysis of demands for the St. Joseph system is provided in the Demand Projection chapter in the 1994 Comprehensive Planning Study (CPS). The Demand Projection chapter was provided in my Rebuttal Testimony as Schedule JSY-16.

Q. IT SEEMS DIFFICULT TO ACCURATELY PROJECT A MAXIMUM DAY DEMAND SEVERAL YEARS INTO THE FUTURE. PLEASE BRIEFLY EXPLAIN HOW PEAK DAY PROJECTIONS ARE MADE.

A. Yes, it is difficult to project future peak day demands, but it is essential for proper planning of large capital projects like the St. Joseph Water Treatment Plant. The American Water System employs a methodology based on accepted water utility industry practice. First, average day demands are projected based on a number of factors including historical trends, population projections, input from large users, and local and regional trends. Then, a statistical analysis of historic peak day to average day demands is performed over a 20-year period. A maximum to average day ratio is selected using a 95% confidence level. Said another way, the selected maximum to average day ratio allows for a 5% chance of actually

exceeding the projected demand in any one year. The selected maximum to average day demand ratio is then multiplied by the average day demands to produce a "design" peak day demand.

In this way, the water system will be prepared to meet system demands during most hot, dry summers, which can occur in any year. The maximum day projection using this methodology must not be thought of as the prediction of maximum day demand in a given year. Rather, it represents the demand for which there is a 5% chance that it will be exceeded in that year. Therefore, a direct comparison of maximum day projections to actual maximum day demands in any year has little significance. This is a crucial concept because the Company's facilities must be adequate to meet customer's needs not only in the average year, but also in a hot, dry summer.

Q. WHAT MAXIMUM DAY TO AVERAGE DAY RATIO WAS DERIVED FOR THE ST. JOSEPH SYSTEM IN THE DEMAND PROJECTIONS?

A. A maximum day to average day ratio of 1.60 was determined for St. Joseph in the 1994 CPS. This value is further validated by subsequent analysis of data through 1998 which produces a 95% confidence level peak to average day value of 1.57. These values agree within two percent. External support for the 1.60 maximum to average day ratio is provided by Mr. Gary M. Lee's absolute agreement with the 1.60 value in his review of the Company's demand projections in Case No. WA-97-46 and Case No. WF-97-241 (the Certificate Case) in 1997 for the Office of Public Counsel. Mr. Lee also explicitly agreed with the Company's 2009 demand projection.

Q. IN YOUR OPINION, IS IT APPROPRIATE TO USE ONLY RECENT DEMAND DATA TO CRITIQUE THE COMPANY'S DEMAND PROJECTIONS, AS MR. MERCIEL HAS DONE?

A. No, it is not, for several reasons.

Q. PLEASE ELABORATE ON THOSE REASONS.

A. First, it should be understood that data after the year 1994 was not available when the Company made the decision to initiate design of the project in December, 1995. But more importantly, using only the past few years of data is not an adequate representation of key variables, especially weather. For instance, in several years during the 1980's, in particular 1988, the summer weather pattern was hot and dry. In such a weather pattern, peak water usage generally increases. Since 1994, a different, more moderate weather pattern has predominated. Obviously, at some point, which we cannot predict with certainty, a hot, dry pattern will occur again. The 1994 CPS demand projections recognize this issue, stating that although average conditions are appropriate to estimate annual operational parameters, "these values are not adequate to base long term capital planning decisions on" (page 2-22). As I have stated previously, the Company facilities must be adequate to meet the customer's needs not only under moderate conditions, such as the last few years have been, but also under hot, dry conditions such as 1988.

Q. YOUR OBJECTIONS ASIDE, HOW HAVE RECENT DEMANDS COMPARED TO THE COMPANY'S 1994 PROJECTIONS?

A. A comparison of the 1999 average day demand to the Company's 1999 demand projection from the 1994 CPS is provided as Schedule JSY-21. The 1994 CPS projected an average day demand of 16.13 mgd for 1999. The actual average day demand for 1999

was 16.05 mgd. These values agree within one-half percent, which serves to validate the Company's projections.

Ironically, to the extent that recent demands have been below the 1994 projections, by far the most significant deviation has been that unaccounted-for water (leakage, meter error, theft, etc.) and non-revenue usage have been successfully reduced by the Company, even beyond projections. The Water Company has been able to achieve an unaccounted-for water percentage of below 9 percent for the last several years. This is exceptional, especially for a water distribution system the age of St. Joseph's. To penalize the Company for having excess capacity would effectively penalize the Company for its outstanding progress in controlling unaccounted-for water (UAF).

Without the reduction in UAF, the actual average day demands in 1999 would have been approximately 16.7 mgd which is well above the Company's projections.

Q. HOW DOES THE TREATMENT PLANT CAPACITY COMPARE WITH THE DEMAND PROJECTION FOR 2009 ?

A. A peak day demand of 27.74 mgd was forecast for 2009 using the 95% confidence level methodology. This value agrees well with the 28.5 MGD effluent capacity of the treatment plant. The treatment plant has a filtered water treatment capacity of 30 mgd but with internal water use has a net system delivery capacity of 28.5 mgd. Mr. Merciel did not account for in-plant usage in his analysis of plant capacity.

The establishment of 2009 as a "design year" with the completion of construction

in 2000 is a reasonable criteria. Where unpredictable growth is occurring, it is important to stage the expansion of the water system, including the treatment plant, to avoid excessive reserve capacity. However, for a system like St. Joseph, where demands are relatively stable and predictable, it is reasonable to use a longer timeframe for the next stage of expansion.

Q. BUT WERE NOT THESE ARGUMENTS REJECTED BY THE COMMISSION IN WR-2000-281?

A. We don't know? All we know is that the Commission adopted the Staff recommendation for the reduction

Q. WHAT DISTINCTION ARE YOU DRAWING?

A. The Commission doesn't have to reject evidence in order to make a finding that is inconsistent with that evidence. All they need do is have some competent and substantial evidence that is consistent with their decision. It is the Company's belief, and frankly its hope, that the decision that was reached in that case to accept this rate base reduction was the result of an attempt of the Commission to balance the concerns of all parties in the case, at a time when it was faced with the delicate issue of the suitability of the rest of the plant.

Q. WHAT FACTORS LEAD YOU TO THAT BELIEF?

A. It is primarily the fact that the decision flies in the face of the accepted theories and realities of treatment plant planning, and puts the Company in an impossible position in the future, which I will discuss later herein.

It essentially endorses the principle that a Company should build plant for its

present maximum day only, and that it should assume that water needed for the internal treatment plant processes should be considered available for distribution on that maximum day. It makes no provision for reasonable growth and the practical economies of scale that arise in a major construction project comprised of huge increments.

But also, it is significant that two Commissioners wrote well reasoned dissents, that illustrate the problems with the majority conclusion.

Commissioner Murray, in her dissenting opinion in WR-2000-281, stated the following: "The Company was not imprudent in designing and sizing the St. Joseph plant to meet anticipated needs of the district until the year 2009. To the contrary, it would seem imprudent *not* to design and size a new plant to meet the needs of the district beyond the immediate time period."

Commissioner Drainer, in her dissenting opinion in WR-2000-281, stated the following: "The evidence in the record clearly showed that MAWC management has built in less than a 10 percent growth rate for the new plant and that it will reach full capacity in fewer than 10 years. MAWC management would have been imprudent had they not built in some minimum level of growth. It would indeed have been both imprudent and economically inefficient to construct two 750,000-gallon-clearwell units only to replace them in fewer than ten years with two 1,000,000-gallon-clearwell units as suggested by Staff."

It may well be that the conclusion was based on the difficulty that the Commission had to face with the highly contested issue of costs associated with the new plant as compared to costs of rebuilding the old river water treatment facility, and this led the majority to find a way to balance the concerns of the very vocal and well-represented detractors.

Q. IF THAT, OR SOME OTHER REASON, WAS PERSUASIVE TO THE MAJORITY DESPITE EVIDENCE TO THE CONTRARY THEN, WHY DOES IT NOT STILL APPLY TODAY?

A. First of all, the Company has paid a significant penalty by forfeiting a return on, and of, this plant for what will be nearly four years when rates become effective in this case. It has paid a serious price for not being able to foresee that Staff would endorse a design criteria for plant capacity that is unprecedented. No one builds a plant for the present maximum day experience and does not make an allowance for water needed for internal treatment purposes such as the 1.5 MGD in the SJTP. Furthermore, the St. Joseph area economy is not in good condition, and absent the capacity that the Company did, in fact, build into the plant, that being the disallowed capacity, it would be difficult to attract any economic development to the area.

Q. IS THERE ANY REASON TO BELIEVE THAT ST. JOSEPH HAS POTENTIAL ECONOMIC GROWTH THAT WOULD BE DEPENDENT ON THIS PLANT CAPACITY BEING IN EXISTENCE?

A. Yes, Premium Pork, LLC has made commitments to open operations in St. Joseph pending PSC approval of a contract for the retail sale and delivery of potable water between Missouri-American Water Company and Premium Pork, LLC that incorporates an economic development rider tariff. Premium Pork, LLC is planning to begin construction of its facilities this fall. As provided in Schedule 1 attached hereto, Premium Pork Processing indicates it will use 2.7MGD in 2005. In addition, Premium Pork Processing plans to employee approximately 1000 people at its St. Joseph operation. So the "availability" of this capacity has been a benefit to the customers in the St. Joseph area to the same extent that those

customers will benefit from new industry in the area, and the money that such an enterprise will generate.

Q. YOU SAID THAT THE PRECEDENT IN THIS ADJUSTMENT IS PROBLEMATICAL, AND THAT IT WAS OF IMMEDIATE CONCERN DUE TO THE COMPANY'S PLANNING NEEDS IN JOPLIN. CAN YOU EXPLAIN THIS?

A. In Joplin, the Company is faced with the urgent need to expand its production capacity to meet the high population growth rates that have been and continue to be experienced in Joplin and the southwest region of the state generally. Joplin resides in parts of Jasper and Newton Counties. Between 1990 and 2000 Jasper County's population increased 15.7% from 90,481 to 104, 686. During this same time period Newton County's population increased 18.4% from 44,456 to 52,636. The Joplin Metropolitan Statistical Area increased 16.6% from 1990 to 2000. What is more, Joplin has and continues to annex areas adjacent to its boundaries. This further increases demands on the water system that we are obligated to serve.

In 2001 the Joplin system set a new historical peak day record of 18.7MGD. In 8 of 12 months in 2002 new historical peak days for those months were experienced. In 2003 a new historical peak day was set again at 19.7MGD (or a 5.3% increase over the 2001 peak day of record). In fact, there were four days in the week containing this new peak day that exceeded the previous historical peak day. Our recently completed growth study indicates we should expect, at the 95% confidence interval, a peak day of 28MGD in 2015. Potential interruptible obligations now under discussion could change this to some extent. Existing system capacity is 20.6MGD.

Q. HOW DOES THIS PROBLEM RELATE TO THE PRECEDENT FROM

THE COMMISSION'S PREVIOUS DISALLOWANCE OF SJTP CAPACITY?

A. We are told in this adjustment, that we must design for the present maximum day, and make no allowance for internal water usage, or investors will suffer. When applied to the situation in Joplin, this means that we would be making plant capacity expansions every year from now through 2015. And with each of these expansions there would be no available capacity for the community to count on in attracting industry such as is the case currently in St. Joseph, Missouri with its proven ability to attract and serve Premium Pork, LLC. An annual expansion approach to managing growth would essentially require continuous expansion projects from now through 2015. This hardly seems efficient from a construction economy of scale perspective, or is it practical for that matter.

With the depleting of ground water availability, that is so heavily relied on by all except one other community outside of Joplin in the southwest region of Missouri, combined with the MoDNR's concerns regarding increasing numbers of wells in the area running out of water, it is believed that increasing dependence of these communities on Missouri-American's Joplin system is likely. Without adequate planning horizons it will not be possible for these communities to count on our Joplin system for service as their wells fail. Eventualities such as these combined with a "build it for today only" mentality not only eliminates the possibility for lower rates for all in the area through greater economy of scale, but also limited if not eliminated economic growth in Joplin and the region. It is critical here to realize that the ground water supply is being depleted, and the incremental addition of wells in order to keep up with demand is not a responsible solution to the water needs of the area.

Q. IF THIS ADJUSTMENT IS NOT REVERSED, DOES IT SEND A

MESSAGE IN MISSOURI?

A. Of course. Such messages are clearly heard not only by the investors in this Company, but by investors in all regulated utilities in Missouri. The Company is not aware of any similar principle espoused by any other regulatory commission in the Country. If investment is punished when that investment is well-intentioned, well researched and planned, consistent with accepted engineering and industry practices, and intended to encourage growth and economic development, it will obviously change investment policy.

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes

Schedule 1

FACILITY ENGINEERS, INC.

October 16, 2003

Mr. Robert A. Amman
Manager
Missouri American Water
3901 Beck Road
St Joseph, Missouri 64506

RE: New Water Service
New Pork Processing Facility
Premium Pork. L.L.C.
Project #03032

Dear Mr. Amman,

We are currently working on the preliminary planning for the above facility to be located at 5302 Stockyards Expressway, St Joseph, Missouri 64504.

Based on preliminary "planning" loads, we estimate the service requirements as follows:

Peak Momentary Demand	=	3,000 gpm	(Planned)
Peak Momentary Demand	=	3,400 gpm	(Future)
Average Daily Usage	=	2.7 Million Gallons	
1st Peak and Duration	=	5:00 PM to 9:00 PM	
2nd Peak and Duration	=	12:00 Midnight to 4:00 AM	
Fire Protection Requirements	=	2,000 gpm	

We respectively request that this service be approved. Should this flow rate not be available, would you please advise the maximum peak water flow rate which will be available from the municipal water main at the site.

Thank you for your consideration and assistance.

Respectfully Submitted,

FACILITY ENGINEERS INC.

Lionel F. Grindstaff, CPD
Senior Designer

CC: Paul Grupe
Mike Davies
03032-5.4

2233 Lake Park Drive ▪ Smyrna, GA 30080
Tel: 770 437-2700 ▪ Fax: 770 437-3939 ▪ www.facilitygroup.com