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Witness: Frank L. Kartmann
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Sponsoring Party: Missouri-American Water Company
Case No.: WR-2008-XXXX
SR-2008-XXX
Date: March 31, 2008

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WR-2008-XXXX
CASE NO. SR-2008-XXX

DIRECT TESTIMONY

OF

FRANK L. KARTMANN

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

IN THE MATTER OF MISSOURI-AMERICAN WATER COMPANY FOR AUTHORITY TO FILE TARIFFS REFLECTING INCREASED RATES FOR WATER AND SEWER SERVICE	)))))	CASE NO. WR-2008-XXXX CASE NO. SR-2008-XXX

AFFIDAVIT OF FRANK L. KARTMANN

Frank L. Kartmann, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Direct Testimony of Frank L. Kartmann"; that said testimony and schedules were prepared by him and/or under his direction and supervision; that if inquires were made as to the facts in said testimony and schedules, he would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of his knowledge.

Frank L. Kartmann

State of Missouri
County of St. Louis
SUBSCRIBED and sworn to
Before me this 19th day of March 2008.

Notary Public

My commission expires:

Staci A. Olsen
Notary Public - Notary Seal
State of Missouri
St. Charles County
Commission # 05519210
My Commission Expires: March 20, 2009

DIRECT TESTIMONY
FRANK L. KARTMANN
MISSOURI-AMERICAN WATER COMPANY
CASE NO.WR.2008.XXXX
CASE NO.SR.2008.XXXX

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DIRECT TESTIMONY

Frank L. Kartmann

WITNESS INTRODUCTION

Q. Please state your name and business address.

A. My name is Frank L. Kartmann and my business address is 727 Craig Road, St. Louis, Missouri 63141.

Q. What position do you hold with Missouri-American Water Company?

A. I am the Vice President of Operations for Missouri-American Water Company ("MAWC" or the "Company").

Q. What do your job responsibilities include?

A. I am responsible for the day-to-day development, management and operations of the Company's 10 water and 3 wastewater operations, which include the treating and furnishing of potable water; collection, treating and discharging of waste water; the provision of customer service; the safety and continuity of the Company's operations; and the upkeep and maintenance of the Company's facilities. I am responsible for the personnel employed within the Operations function as well as the development and maintenance of harmonious and productive personnel

relations within Operations and between Operations and the other functions with which it interacts. I am responsible for maintaining contact with local government officials, business representatives, and civic organizations. I also supervise the annual budgets covering capital investments and operation and maintenance expenditures and the construction of facilities occurring under the management of Operations employees. Additionally, I have the responsibility of controlling such expenditures upon their authorization by the Board of Directors. Finally, it is my responsibility to supervise water quality, production, distribution, and customer service activities, and procedures and their effectiveness.

Q. Please describe your educational background.

A. I received a Bachelors of Science degree in Secondary Education in 1986 from the University of Illinois – Champaign-Urbana, a Bachelors of Science degree in Civil Engineering in 1989 from the University of Missouri – Rolla and a Masters degree in Business Administration from Washington University, St. Louis, Missouri in 1999.

Q. Please outline your business experience.

A. 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, in 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 Vice President-Operations. In 2004 I became the Director-Network for the Central Region Service Company of American Water Works Company. In 2008 I returned to Missouri-American Water Company after being elected its Vice President-Operations.

Q. Are you a member of any professional organizations?

A. Yes, I am a member of the American Water Works Association. I am a registered Professional Engineer in the state of Missouri and hold my Class A and DS III Water Licenses from the Missouri Department of Natural Resources.

Q. Have you testified before any regulatory Commissions?

A. Yes. I have testified before the Missouri Public Service Commission in two prior rate cases and in a security costs AAO case.

Q. What are the subjects for which you will be providing testimony?

A. I will discuss the following subjects:

1. Description of MAWC and its operating facilities.

2. Employee headcount adjustment.

3. St. Louis County Operation main break expense adjustment.

4. Joplin and St. Louis County treatment plant improvements-related operating expense adjustment.

5. Tank Painting Tracker adjustment.

6. St. Louis County fire hydrant lead based paint abatement and repainting project.

DESCRIPTION OF MAWC AND OPERATING FACILITIES

Q. Please describe MAWC.

A. MAWC provides water utility service to over 450,000 customers in and around 121 communities throughout the State of Missouri. We provide water service to districts ranging in size from St. Louis County (largest) to Brunswick (smallest). We also provide sewer utility service in our Parkville, Warren County, and Cedar Hill operations.

Q. Please generally describe MAWC's plant and property, as of December 31, 2007.

A. As of December 31, 2007, the Company's utility plant accounts included land and land rights, structures and improvements, collecting and impounding reservoirs, wells, pumping equipment and associated facilities, purification plant and equipment, sludge disposal facilities, transmission and distribution mains, distribution storage facilities, service

lines (excepting the St. Louis County Operation), meters, hydrants and other facilities, including materials and supplies.

Q. Please generally describe MAWC's sources of water supply, treatment facilities, pumping equipment and distribution system property.

A. MAWC draws water for our 10 water districts from surface supplies, wells and/or infiltration galleries. About 83% of the total source of supply comes from surface supply and 12% comes from wells and infiltration galleries. The remaining 5% is purchased water. Eleven water treatment facilities produced an average of over 231 million gallons daily in 2007 or approximately 84 billion gallons annually. These plants provide various types of treatment appropriate for each supply. The treatment processes include sedimentation and filtration, clarification, disinfection, taste and odor removal, organic chemical absorption, iron and manganese removal or sequestering, pH adjustment, corrosion control, and fluoridation for dental prophylaxis, all in order to meet or exceed the standards of the drinking water regulations of the Drinking Water Branch of the Missouri Department of Natural Resources (MoDNR), the United States Environmental Protection Agency (EPA), municipal and county fluoridation ordinances, and a municipal water softening franchise requirement. The Company has in excess of 5,660 miles of transmission and distribution mains ranging in size from 1-inch to 42-inch diameter. The Company has 42,327 fire hydrants available for public fire service. Seventy-one potable

water storage tanks (not including plant wash water tanks), with total capacity of approximately 145 million gallons, are strategically located in the service areas for drawdown during peak demand periods and for fire protection services.

Q. Please generally describe MAWC's waste water operations.

A. Missouri–American operates a waste water collection system in the Platte County Operation and waste water collection and treatment systems in the Cedar Hill and Warren County Operations. The waste water system facilities consist of approximately 19.5 miles of collection mains ranging in size from 2-inch to 10-inch diameter. There are approximately 582 manholes and 10 lift stations in these systems. In 2007, these collection mains collected an average of over 276,000 gallons of waste water daily. There exists a total of 3 mechanical waste water treatment plants in the Cedar Hill and Warren County Operations. The average daily volume of waste water treated by these plants in 2007 was over 255,000 gallons for an annual total of over 93 million gallons.

Q. What is the condition of MAWC's utility property?

A. MAWC maintains its water and waste water utility properties in a good state of operating condition for the rendering of water and waste water utility service. The reports of inspections conducted by the MoDNR confirm the Company's operations are in compliance with state and federal drinking water and waste water laws and regulations. Kevin

Dunn's Direct Testimony contains information regarding the Company's capital investment activities that, in addition to utility property maintenance and operation, are critical to the provision of safe and adequate water utility service.

Q. Are all of the facilities that are included in the utility plant accounts of MAWC in service and reasonably necessary for the provision of safe and adequate water and waste water service?

A. Yes. All of MAWC's property is necessary for and is being used to fulfill the Company's responsibility to provide safe and adequate water and waste water utility service.

Employee Headcount Adjustment

Q. Were there any significant changes in MAWC's employee levels between the last rate case and the current rate case?

A. Yes, 35 employees have been reassigned to MAWC from American Water Works Company's Central Region Service Company (Service Company).

Q. What is the nature of these employee reassignments?

A. Previously these 35 Service Company employees performed all or a significant portion of their work for MAWC. Of these 35 employees, 27 worked nearly exclusively for MAWC providing engineering design and project delivery, cross connection control, SCADA system maintenance,

and external affairs services. As MAWC employees they are performing the same services.

The other 8 of these 35 Service Company employees devoted a large fraction of their time and effort serving MAWC across a range of responsibilities including operations management, engineering planning and management, water quality and environmental management, and administrative support. As MAWC employees they have these same, similar, and/or expanded responsibilities.

Q. How has the employee cost accounting changed with respect to these reassigned employees?

A. With respect to the 35 reassigned employees, there will be an increase in the labor and labor related expenses and employee expenses associated with MAWC employees. This is partially offset by a decrease in Central Region Service Company management fees charged to MAWC.

Q. Are all the costs of these employees expensed?

A. No. Twenty-seven of these 35 employee positions are occupied by employees that now provide the engineering services received by MAWC. Until recently these positions were part of the Central Region Service Company Engineering Department, which no longer exists. Nearly all costs associated with these employees are capitalized. As such, the

shifting of these employees from the Service Company to MAWC results in only a small reduction in Central Region Service Company management fees charged to MAWC.

Q. Will the costs of the remaining 8 of the 35 employees being reassigned to MAWC be similarly capitalized?

A. No. These employees, to varying degrees, are less directly associated with the Company's capital investment activity. Therefore, greater portions, and in some cases perhaps all, of their costs are expensed. In these instances, the corresponding decrease in Central Region Service Company management fees is greater than in the case of the Engineering Department employees described above.

St. Louis County Operation Main Break Expense Adjustment

Q. What is driving the Company's request for an adjustment of its main break repair expense in the St. Louis County Operation?

A. There are two main drivers:

1. Increases in the number of asphalt pavement repairs requiring a concrete base being performed; and,

2. Increases in the surface area of pavement excavated for the routine main break repair.

To help explain the impact of these drivers on the average cost per pavement repair, attached hereto and identified as Schedule FLK-1, is a schedule showing the average pavement repair cost per break per month per year for the years 2005 through 2007.

Q. What do you observe in the data shown in Schedule FLK-1?

A. I observe a modest increase in the annualized average cost per pavement repair from 2005 to 2006, wherein the average cost per pavement repair increased from $1,644 to $1,709 for a change of $65. In 2007, however, the annualized average cost per pavement repair increased sharply to $2,348. What is more, within 2007 there were sharp increases in the average cost per pavement repair from March to April from $1,483 to $2,221 and from June to July from $2,431 to $2,777.

Q. What are the explanations for intra-year changes in pavement repair cost per main break observed in 2007?

A. Prior to April 2007, a number of the Company's pavement repairs of asphalt only paved streets (i.e. no concrete underlayment as a layer in the stratification of the original street pavement) in the North and Central portions of the district did not include a layer of concrete as a base to an asphalt top coat. This type of pavement repair is required by pavement repair specifications of a number of the municipalities of St. Louis County. Attached to this testimony, as Schedules FLK-2.1 and FLK-2.2, are two

examples of municipal asphalt only paved street pavement repair specifications, which include a provision for a concrete base over which asphalt is to be placed. The April 2007 average pavement repair cost begins to show the impact of performing more asphalt only paved street pavement repairs that include a concrete base.

Q. Over a typical range of pavement depths and surface areas, what is the average difference in the unit price of asphalt only versus asphalt with concrete base pavement repairs?

A. Based on 2007 through 2008 contractual unit prices used by MAWC for pavement repair work for typical pavement surface areas (less than 44 sq. ft.) and depths (ranging from 4 inches to 14 inches), the average contractual unit price difference between these two types of pavement repair is $13.50 per sq. ft., with asphalt having a concrete base being the more expensive of the two types.

Q. Has the Company any additional explanation for intra-year changes in pavement repair cost per main break observed in 2007?

A. Yes, layered on the change in the construction of certain pavement repairs was the increase in the surface area of pavement excavated for the repair of a typical main break.

Q. What was the reason for this increase in excavated pavement surface area for the typical main break repair?

A. In the spring of 2007, the Company performed inspections of its excavations to evaluate their compliance with the Occupational Health and Safety Administration's (OSHA) excavation standard. Those inspections revealed the need for refresher training on proper trench sloping and shoring requirements and shoring techniques as well as the purchase of several additional trench boxes. Being more cognizant of, and taking additional actions necessary for, proper sloping and shoring, including the use of the recently purchased trench boxes, resulted in an increase in the size of many of the Company's routine main break excavations. This was necessitated by the larger excavation opening required to accommodate these trench boxes and to improve the sloping and shoring quality of the Company's excavations generally. This June to July change in average pavement repair cost from $2,431 to $2,777, is largely attributable to the increase in size of the routine main break excavation and subsequent pavement surface area requiring repair.

Q. Are these two sources of additional pavement repair cost of a continuing nature?

A. Yes,

Q. What then has the Company filed in this rate case as a proforma level of expense recovery for main break related pavement repairs in its St. Louis County District?

A. The combined impact of these two additional sources of pavement repair cost was not fully embedded in the Company's operations until July 2007. Therefore, the period of the historical test year that captures the average cost per pavement repair, as the Company has measured that cost to be, is the months of July through December 2007. Based on this information the Company has filed in this rate case a proforma level of main break related pavement repair expense of $2,670 per main break. As shown in Schedule FLK-1, this value is the average of the monthly average pavement repair cost per main break for the months of July 2007 through December 2007.

Joplin and St. Louis County Treatment Plant Improvements-Related Operating Expense Adjustment

Q. What is the cause of the Company's proforma adjustment of expense related to the operation of the Joplin District's Blendville Water Treatment Plant?

A. The Joplin District's Blendville Water Treatment Plant is currently undergoing an expansion and rehabilitation project. All new processes will

be in service prior to the true-up date in this case. Improvements include the addition of Ultra Violate (UV) disinfection, onsite generation of sodium hypochlorite for chlorine disinfection, the change from dry to liquid alum and lime feed processes, and the change from a 40 pound to 1,000 pound bag carbon feed process.

Q. Generally, why are these processes being constructed?

A. These processes are being constructed to improve and increase the reliability of the water treatment process.

Q. More specifically, why is the UV disinfection improvement being constructed?

A. UV disinfection will lower the risk of public health concerns from Cryptosporidium in the source water. Testing has found cryptosporidium in Shoal Creek, which is the source water for the Blendville Plant. Cryptosporidium is resistant to chlorine disinfection, so another treatment technique was required to provide inactivation of this pathogen.

Q. What are the sources of operating expense associated with the UV process and what are their values?

A. The addition of UV disinfection will increase electrical and maintenance expense. The additional power usage required by the UV process is 20.16 Kwh/million gallons treated, per the manufacturer's data sheet. This corresponds to an electrical energy cost of $1.61/million gallons of water treated or $7,288 per year of additional electrical energy expense. Additional maintenance expense includes replacing UV lamps at a cost of

$250 each. Approximately 50 lamps will be required to be replaced each year for a total expected annual expense of $12,500. The total annual expense increase expected as a result of this process is $19,788.

Q. Why are the chemical feed improvements being constructed?

A. The feeding of alum is being converted from a dry chemical to liquid chemical process, which will slightly lower the cost of this chemical and will make the feeding of this chemical more consistent and more reliable. Similarly the feeding of lime is being converted from a dry to a liquid chemical process, which will slightly raise the cost, but provide the benefit of a feed process of greater consistency and reliability. Both of these chemicals are currently purchased in 50 pound bags and loaded into their respective chemical feeders manually. The new processes will include bulk delivery and storage of these liquid chemicals.

Q. What is the expected change in expense associated with these improvements?

A. The expense change will be a $2.71 per million gallons or $12,277 annual decrease for liquid alum and $0.66 per million gallons or $2,969 annual increase for liquid lime. The combined expense change associated with these chemical feed process improvements will be a $267.63 per million gallons or $9,308 annual decrease.

Q. Why is the Company changing from a 40 lb to 1,000 lb bag carbon feed process?

A. Changing to 1000 lb bags of carbon instead of the current 40 lb bags will reduce the cost of carbon and increase the reliability of the carbon feed process. The current process is to manually fill the feeder with 40 pound bags of carbon. The new system will use 1000 pound bulk bags which are fed into 1000 gallons of water.

Q. What is the expected change in expense associated with this improvement?

A. The savings will be $0.036 per million gallons or $165 annually.

Q. Why is the Company changing its chlorine disinfection process from liquified chlorine gas fed from one ton chlorine containers to a liquid solution of sodium hypochlorite generated from dry sodium chloride stored in bulk?

A. The Blendville Plant is located in and completely surrounded by a residential neighborhood. The elimination of liquid chlorine in ton containers will eliminate the risk of off-site consequences to the surrounding neighborhood in the event of a chlorine gas leak from a chlorine ton container or anywhere along the chlorine feed process. The onsite generation of sodium hypochlorite will require the use of bulk sodium chloride instead of liquid chlorine.

Q. How does the sodium hypochlorite process work?

A. Dry sodium chloride is delivered in bulk trucks and pneumatically unloaded into brine tanks. The brine tanks contain the sodium chloride and water. These produce a saturated salt solution which is pumped

between two electrodes whereupon the bonds between the sodium and the chloride ions are broken.

Q. What is the expected change in expense associated with this improvement?

A. Costs of sodium chloride will offset the cost of liquid chlorine. The additional cost will be in the electrical power required for the chemical bond breaking process described above. The additional power usage is for generation and heating of the water to increase efficiency during periods of cold water. The cost of power will be $7.94/million gallons or $35,955 annually.

Q. Were there any assumptions used in arriving at the numerous expense changes articulated above?

A. Yes, all these expense calculations are based on 2008 chemical prices found in the Company's chemical supply contracts, a system delivery of 4,528 million gallons per year for Joplin and the current unit cost of power to the Blendville Plant.

Q. What is driving the Company's proforma adjustment of expense related to the operation of the St. Louis County District's South County and Meramec Water Treatment Plants?

A. The reasons described above for the change from feeding liquid chlorine to onsite generation of sodium hypochlorite at the Joplin District's Blendville Plant are nearly identical to the reasons for its application at the St. Louis County's South County and Meramec Plants. The South County

and Meramec Plants are located near residential neighborhoods. When these plants were constructed, they were in rural areas. The areas around the plants have now been developed and the use of liquid chlorine poses the same concern as that described for the Blendville Plant

Q. What is the expected change in expense associated with this improvement?

A. Like the Blendville Plant, the additional cost of this process will be associated with electrical power for generation and heating of the water to increase efficiency during periods of cold water. The only differences in the expense calculation at the South County and Meramec Plants versus the Blendville Plant is the electrical power cost per million gallons of treated water. The cost of electrical power will be $3.59/million gallons or $24,062 annually at the South County Plant and $5.75/million gallons or $38,572 annually at the Meramec Plant.

Q. Were there any assumptions used in arriving at the numerous expense changes articulated above?

A. All these costs assume the 2008 chemical prices found in the Company's chemical supply contracts, South County and Meramec Plant each having a system delivery of 6,706 million gallons per year and the current cost of power to these plants.

Tank Painting Tracker Adjustment

Q. What is the Tank Painting Tracker?

A. The Tank Painting Tracker (Tracker) is a form of accounting treatment that allows for tank painting expense to be tracked and identified separately from other forms of expense. More specifically, the Tracker facilitates direct auditing of Company financial records to determine its level of expenditure over time on the repainting of its tanks.

Q. How does the Tracker work?

A. The Tracker is currently set at an average level of expenditure by the Company on tank painting of $1,000,000 per year. If the Company is expending funds on tank painting at the average rate of $1,000,000 per year, this liability (or asset) has a value of zero at the end of the year. Upon inspection of the Company's financial records the Company's amount of expense on this category of maintenance can readily be determined from the value of the Tracker liability (asset) account.

Q. What is the purpose of this Tracker?

A. From one rate filing to the next there is the opportunity to inspect the balance in the Tracker liability (asset) account and determine how to address this amount. This acts as an incentive to the Company to make sure it expends the average of $1,000,000 per year on tank painting and protects the customer, if the Company spends less than $1,000,000 on tank painting.

Q. Does the Tracker encourage tank painting to occur?

A. Yes.

Q. Does the Tracker encourage an optimal level of tank painting activity?

A. Only if the current Tracker amount of $1,000,000 annually equates to the optimal level of tank painting activity.

Q. Does the Company believe there is a different value at which the Tracker should be set that better matches the value of annual tank painting expense with the optimal level of tank painting activity appropriate for the Company's tanks and if so what is that value?

A. Yes, as shown in Schedule FLK-3 of this testimony, the Company believes that based on 2007 pricing a value for the Tracker of $1,600,000 per year supports an optimal level of average annual tank painting activity.

Q. How was this amount calculated?

A. Schedule FLK-3 supports this conclusion by first calculating the total cost to paint all the Company's tanks. This was done by estimating the cost to paint the interior and exterior surfaces of each tank based on the unique features of each tank such as tank type (i.e. riveted or welded steel), tank surface area, and whether it is an elevated or ground tank. The tank

exterior cost estimates were added together to arrive at a total estimated cost to paint all tank exterior surfaces of $6,475,000. The tank interior surface cost estimates were added together to arrive at a total estimated cost to paint all tank interior surfaces of $11,634,000. These expense totals were then divided by the total number of tanks in the Company's districts (97) to arrive at an average per tank interior surface painting expense of $119,938 and exterior surface painting expense of $66,753.

Determining the average total annual level of expense to maintain the surfaces of the Company's tanks requires a determination of the average life expectancy per paint coating. Like the estimated cost to paint each tank's interior and exterior surfaces, each tank's unique aspects were considered, most importantly its existing coating type. For example, all other things being equal, if a tank's interior coating was epoxy paint it was assigned a different life expectancy from that of an exterior surface coated with acrylic paint. After assigning life expectancies to each tank's interior surface the sum of these life expectancies was divided by the Company's total number of tanks (97) to arrive at an average tank interior paint coating life expectancy of 13.7 years. Similarly, an average tank exterior paint coating life expectancy of 9 years was calculated.

By dividing the number of tanks in the Company's districts (97) by the calculated average life expectancy of a tank interior paint coating 13.7 years the Company calculated an average of 7 tank interiors per year to

be painted such that on average tank interior surfaces are being repainted on a frequency that equals their life expectancies. Similarly, with an average tank exterior paint coating life expectancy of 9 years the calculated average number of tank exterior surfaces per year to be painted is 11.

By multiplying the average tank interior surface painting expense ($119,938) by the average number of tank interior surfaces per year to be painted (7), an average total annual tank interior painting expense of $839,567 results. By applying this same calculation with respect to tank exterior surfaces, an average total annual tank exterior painting expense of $734,278 results.

In addition to direct tank painting expense, there is the annual expense of what is termed as washout & inspection of the tank interior and visual inspection of tank exterior coatings not under warranty to determine their condition. As determined by the method described above, by multiplying the average annual number of tank interiors to be painted (7) by the warranty period in years (5) for each tank, as part of a continuous process of tank painting, this results in 35 tank interiors under warranty in any given year. By subtracting the number of tank interiors under warranty (35) from the total number of tanks in the Company's districts (97) this leaves an average of 62 tank interiors that each should receive inspection on a four year cycle. By dividing the number of tank interiors not under

warranty (62) by the period in years between interior tank inspections (4) this results in the need for an average of 16 washouts & inspections of tank interiors per year. By multiplying the cost per washout & inspection ($2,725) by the average number of washouts & inspections to be conducted each year (16) the average total annual washout & inspection expense is $43,600. A similar process was applied to the calculation of the visual tank exterior inspection expense to arrive at an average total annual visual tank exterior inspection expense of $8,240. Adding together these average total annual inspections and painting expenses produces an average grand total annual tank maintenance expense of $1,625,685, based on 2007 pricing.

Q. What annual Tracker value is included in MAWC's filing in this case?

A. $1,600,000.

Q. Does MAWC believe $1,600,000 per year of tank painting expense is representative of the level of expense it will incur going forward from the date of the order in this rate case for the same average annual volume of tank painting activity?

A. No. As mentioned previously in this testimony the figure of $1,600,000 is based on 2007 pricing. MAWC believes its pricing going forward from the order in this rate case will be higher owing to cost increases of inputs such as labor, materials, and fuel.

Q. Does MAWC have an estimate of what it expects the volume of tank painting activity described in this testimony to cost going forward from the date of the order in this rate case?

A. Yes, MAWC estimates the same volume of tank painting activity expressed as $1,600,000 in 2007 pricing will cost approximately $1,750,000 in 2009 pricing.

Q. Does MAWC expect the 2009 pricing to be known on or before the true-up date in this case?

A. Yes. What is more, MAWC expects to have executed contracts in place for its 2009 tank painting projects on or before the true-up date for this rate case.

Q. Does MAWC expect it will make a proforma adjustment to its filing in this rate case with respect to the value of the Tank Painting Tracker that is based on the prices specified in the tank painting contracts it expects to execute on or before the true-up date for this rate case?

A. Yes.

Q. What indications can the Company provide that going forward from the date of the order in this rate case it will complete an average total annual level of tank maintenance of $1,600,000 or some alternative

value resulting from a proforma adjustment based on the expectations described above?

A. First, the Company is currently developing contracts for its 2008 tank painting projects and plans to have those projects completed by the true-up date for this rate case. As the Tracker is currently set at a value of $1,000,000 annually, this is the level of tank painting expense the Company intends to complete in 2008 and it plans to do this by the true-up date in this case. Using this approach, Staff will be able to verify that the level of tank painting expense incurred by the Company in 2008 approximates the $1,000,000 currently assigned to the Tracker.

Second, as mentioned above, the Company is planning to execute a contract with a painting contractor for the performance of its 2009 tank painting projects on or before the true-up date in this case. In this contract the Company anticipates contracting for a volume of tank painting activity equivalent to that supported by the $1,600,000 at 2007 pricing, currently proposed in this rate case, contingent upon regulatory approval of a Tracker value equal to the dollar value of said 2009 tank painting contract (at the time of the submission of this testimony estimated to be approximately $1,750,000).

Third, as stated previously in this section of my testimony, by the very nature of the Tracker, the Company is encouraged to incur an average

annual tank painting expense equal to the value of the tracker, no more and no less.

Q. In summary, what does the Company believe to be an optimal value at which to set the Tracker?

A. The optimal value at which to set the Tracker is that value that supports an average tank painting frequency that matches the average life expectancy of a tank's paint coating. On average, for MAWC, that value is $1,600,000 at 2007 prices and may very well be a different value going forward from the date of the order in this rate case.

St. Louis County Fire Hydrant Lead Based Paint Abatement And Repainting Project

Q. What is the Company's proposed fire hydrant lead based paint abatement project?

A. This is a project designed to eliminate from the St. Louis County District the lead based paint (LBP) coatings existing on approximately 17,000 of its fire hydrants.

Q. Why is this project important to complete?

A. This project is important to complete for three fundamental reasons:

1. The LBP coatings on these fire hydrants are compromised (cracking, flaking, and peeling) to varying degrees and, as such, the chips and flakes of this LBP that fall to the ground around these fire hydrants pose a hazard to the environment.

2. The compromised state of these LBP coatings makes them poor candidates for over coating, as the overcoat would not remain in tact for very long.

3. These fire hydrants have a poor appearance. Even if they were candidates for over coating, an over coat would not significantly improve their appearance, as the old and compromised coating would remain visible through the over coat.

Q. How would the Company perform this project?

A. This project would be undertaken by contracting the services of a painting contractor to sandblast each of these fire hydrants, in place, down to bare metal and repaint them with paint free of lead. Compliance with EPA regulation related to LBP abatement requires the contractor to install a structure around the fire hydrant to be sandblasted to ensure containment of the LBP particles released from the fire hydrant surface during the sandblasting process. In addition, the contractor would be required to measure the concentration of the lead and, based on that measurement,

transport and dispose of the spent material by means and methods and in a location in compliance with EPA and MoDNR regulations.

Q. What is the expected cost to perform the above process?

A. MAWC has a price quote from a contractor to complete this work for $250 per fire hydrant. At an estimated number of fire hydrants receiving this treatment of 17,000 this project would have a total cost of approximately $4,250,000 or $1,417,000 per year over the three year project life the Company is proposing.

Q. Why cannot the Company simply cycle these fire hydrants through its typical hydrant painting program?

A. The typical fire hydrant coating maintenance process involves manual scraping and wire brushing of the fire hydrant paint coating and/or the use of a motorized wire wheel to remove loose and peeling paint from the fire hydrant to prepare it for an over coat. Like sandblasting, even this process of LBP removal requires containment, transport, and disposal of the waste LBP chips and particles by means and methods and in a location in compliance with EPA and MoDNR regulations. What is more, as mentioned in reasons 2 and 3 regarding why this project is important to complete, these fire hydrants are poor candidates for this manual surface preparation process and follow-up over coating.

Q. How does the company propose recovery of these costs?

A. The company has included a proforma adjustment to its test-year filing of $1,417,000 of expense, which represents the annual estimated cost of this proposed three-year project.

Q. When does MAWC propose to begin this work?

A. Subject to receiving regulatory recovery of this expense in this rate case, MAWC plans to begin this work as early as January 2009.

Q. What indication can MAWC provide that it will perform this work?

A. The Company intends to execute a contract for this work on or before the true-up date in this rate case, contingent upon receiving regulatory recovery of this expense in this rate case.

Q. Does MAWC plan to undertake this work if it does not receive regulatory recovery of the associated expenses in this rate case?

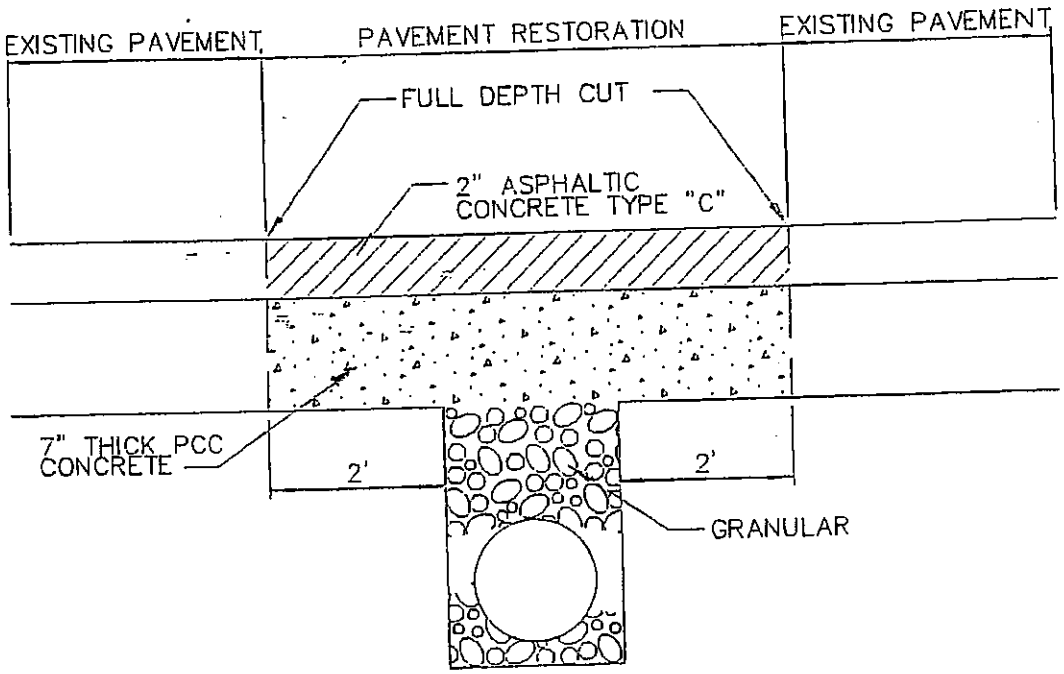
A. No, MAWC does not expect to perform this work if it does not receive recovery of these expenses in this rate case.

Q. Does that conclude your testimony?

A. Yes.

2007 Average Actual Paving Cost Per Main Break By Month

Month	Average Pavement Repair Cost Per Main Break By Month By Year		
	2005	2006	2007
January	1,382	1,468	1,647
February	1,169	1,840	1,469
March	1,338	1,577	1,483
April	1,586	1,851	2,221
May	1,843	1,728	2,275
June	1,403	1,627	2,431
July	1,939	1,875	2,777
August	2,122	1,895	2,757
September	3,293	1,956	2,699
October	1,590	2,040	2,450
November	1,954	1,543	3,038
December	1,826	1,470	2,297
Annual Average	**1,644**	**1,709**	**2,348**
July-Dec 2007 Average			**2,670**



CITY OF UNIVERSITY CITY	FULL DEPTH ASPHALT RESTORATION FULL DEPTH PAVEMENT REPLACEMENT	ATTACHMENT K

CITY OF CREVE COEUR
DEPARTMENT OF PUBLIC WORKS

EXCAVATION PERMIT APPLICATION INSTRUCTIONS AND REQUIREMENTS

The Following is Require to Apply:

1. Three (3) to scale copies of the site plan showing the location and size of the excavation.
2. ~~Signatures of trustees on all sets of plans (when applicable)~~
3. ~~Site coverage calculations (when applicable)~~
4. A complete application form stating the following:
    - Name, address, and phone number of the applicant.
    - Applicant contact name
    - Nature of the work
    - Location of the work
    - Date that the applicant is planning to start the work.
    - Dimension of the excavation

Permit Fee and Escrow Deposit:

1. A Permit and Inspection fee of **$55.00** will be collected when the permit is ready to be issued.
2. A separate check of **$1,000.00** for a refundable deposit is required. The check to be held in escrow by the City as assurance for completion of the work, repairs of damage to public property and compliance to the permit requirements.

The Following Requirements Will Become Part of the Excavation Permit:

1. All excavations along the public street where the edge of the trench is less than three (3) feet from existing edge of the roadway will require compacted granular backfill.
2. Road and street crossings to be bored.
3. Construction of driveway entrance will require removal of roadway curb to a saw cut edge located 1'-0" from gutter line (face of curb). Asphalt pavement to be min. of 8" thick for residential (6" type X and 2" type C) and 9.5" thick for commercial (7.5" type X and 2" type C) within public right-of-way. Concrete pavement to be min. of 6" thick for residential and 8" thick for commercial within public right-of-way.
4. All disturbed earth areas within the road right-of-way shall be prepared per the City specifications and sodded and/or seeded following completion of work per the City of Creve Coeur construction inspector instructions.

5. Following completion of construction, all temporary materials shall be removed and the roadway right-of-way restored to its original condition. Existing improvements damaged within the road right-of-way must be replaced as directed by this Department.
6. All grading shall be in conformance with this Department's standards, siltation devices shall be installed and shall be maintained by the applicant until approved by this Department.
7. All disturbed concrete driveways and sidewalks are to be full slab replacement joint to joint. Driveway minimum thickness 6" for residential, sidewalk minimum thickness 4".
8. Asphalt pavements shall be saw cut prior to final removals. Saw cuts shall extend 9" beyond final limits of all excavations as indicated by the review engineer in the field.
9. All excavations shall be backfilled with a granular material (1" minus) placed in layers no greater than 8" and shall be compacted to 95% of its modified proctor maximum dry density (ASTM D-1557).
10. Restoration of patch and perpendicular excavations in an asphalt pavement shall be made by leaving the granular fill 9" below finish grade, and installing a 6" concrete slab with a 28 day minimum strength of 4500 psi. The final restoration shall be made by placing 3" of Type "C" asphalt concrete to meet existing grades.
11. Restoration of longitudinal excavations in an asphalt pavement shall be made by leaving the granular fill 9" - 13" below finish grade (depending on the road designation), and placing 6" - 10" of Type "X" asphaltic concrete on the compacted fill. The final restoration shall be made by placing 3" of Type "C" asphalt concrete to meet existing grades.
12. All edges must be sealed with a hot pour sealer.
13. Concrete pavements shall be removed joint to joint as indicated by the review engineer in the field.
14. Restoration of concrete pavements shall be made by leaving the granular fill 8" below finish grade. Final restoration shall be made by installing an 8" non-reinforced concrete slab with a 28 day minimum strength of 4500 psi.
15. All joints shall be per St. Louis County standard.
16. All slabs damaged outside of the granular fill and the excavation area shall be removed and replaced.
17. Restoration of excavations in combination pavement shall be made by leaving the granular fill 9" below finish grade, and installing a 6" concrete slab with a 28 day minimum strength of 4500 psi on compacted fill. The final restoration shall be made by placing 3" of Type "C" asphaltic concrete to meet existing grades.
18. All materials must be pre-approved by the Department of Public Works.
19. The work outlined in the permit shall be completed within 30 days of the date of issuance. If this work is not completed within 30 days, then the applicant must renew the permit prior its expiration. If the permit is not renewed, then the City shall cause such work to be completed and the applicant shall pay all the expenses.
20. All excavations shall be protected at all times. All excavations made in roadways shall be protected following the guidelines of the Manual on Uniform Traffic Control Devices (current Edition). Lighted barricades must be used on all excavations.
21. Roads and streets are to be kept open to traffic.
22. This permit does not allow for the removal or disturbance of shrubs or trees within the right-of-way.
23. No excavated materials to be stored on pavement or sidewalk overnight.
24. Constructions equipment shall be located on the pavement surface so as to maintain at least on (1) lane of traffic during working hours. Such equipment shall be shielded with

barricades, cones, etc. with two (2) flagmen to handle traffic. Street shall be returned to normal two-way traffic at the end of each work day.

25. Pavement must remain free and clear of mud, rock and debris at all times.
26. If sidewalks are removed a temporary walking surface must be provided.
27. A copy of the permit shall be kept in the field at all times during both the excavation operation and the remedial work.
28. **In accepting the issuance of an Excavation Permit for work within a public right-of-way within the City of Creve Coeur, all contractors are required by Federal Regulation and State Law to call all utility companies before digging. All applicants must call: Missouri One-Call System, Inc. Call BEFORE you DIG 1-800-344-7483**

PENALTY for NOT FILING:
$50 PERMIT FEE
$60 INSPECTION FEE

IMPORTANT NOTE:
APPLICANT MUST ALLOW FIVE WORKING DAYS FOR APPROVAL AFTER SUBMISSION OF THE EXCAVATION PERMIT APPLICATION.

24 hour Notice shall be given to the Public Works Department prior to beginning the excavation operation and the remedial work outlined in the excavation permit (314) 872-2500.

Missouri-American Tank Painting

Painting Costs		
	Interior	Exterior
# Tanks	97	97
Average Life/Tank	13.7	9
# Projects/Year	7	11
Total Cost to Paint All Tanks	$ 11,634,000	$ 6,475,000
Average Painting Cost/Tank	$ 119,938	$ 66,753
Total Painting Cost/Year	$ 839,567	$ 734,278
Total Average Painting Cost/Year	**$**	**1,573,845**

Inspection Costs		
	Washout & Inspection	Visual Inspection
# Tanks Not Under Warranty after 5 years of program and therefore inspections add to yearly cost	62	62
Number of Inspections per Year based on 4 year cycle, alternating between washout and visual inspections	16	16
Average Cost	$ 2,725	$ 515
Total Yearly Inspection Cost	$ 43,600	$ 8,240
Average Yearly Inspection Cost		**$ 51,840**

Grand Total Average Tank Maintenance Cost	**$**	**1,625,685**