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Witness:	*James A. Merciel, Jr., PE*
Sponsoring Party:	*MoPSC Staff*
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MISSOURI PUBLIC SERVICE COMMISSION

COMMISSION STAFF DIVISION
AUDITING DEPARTMENT

REBUTTAL TESTIMONY

OF

JAMES A. MERCIEL, JR., PE

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WU-2017-0296

Jefferson City, Missouri
August 2017

TABLE OF CONTENTS

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Q. Please state your name and business address.

A. My name is James A. Merciel, Jr., PE, and my address is P. O. Box 360, Jefferson City, Missouri, 65102.

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

A. I am employed by the Missouri Public Service Commission (Commission) as a Utility Regulatory Engineering Supervisor, in the Water and Sewer Department.

Q. Can you please describe your education, work responsibilities, and work experience?

A. Yes. My qualifications, responsibilities, and experience, along with a list of cases in which I have provided testimony, are included with this rebuttal testimony as Schedule JAM-r1, and incorporated herein by reference.

EXECUTIVE SUMMARY

Q. What is the purpose of this rebuttal testimony?

A. The purpose of this rebuttal testimony is to explain the scientific and policy justification for full replacement of customer-owned lead water service lines (LSL), referred to as "full LSL replacement" as well as the practical benefits; to explain Staff's support of Missouri-American Water Company's (MAWC) existing activities and plans to voluntarily undertake full LSL replacement; and to explain some of Staff's concerns with the position of

the Office of the Public Counsel (OPC) for purposes of this AAO Case, as outlined in the direct testimony of OPC witness Geoff Marke.

OVERVIEW OF LEAD SERVICE LINES

Q. What is a LSL?

A. A LSL is simply a water service line that uses pipe made of lead. Details regarding water service lines, including customer or MAWC ownership and maintenance responsibility, is in the rebuttal testimony of Staff witness Jonathan Dallas.

Q. How does lead get into a customer's water supply?

A. There are two main ways for lead to enter the water supply. One, which is very uncommon, is when lead is found in the water utility's source of supply. The second way is when lead is in contact with drinking water within the water distribution system or within customers' premises. When such contact occurs, it is possible for lead to leach into the drinking water, depending upon the chemical characteristics of the water. The existence of LSLs are considered a major risk of possible leaching of lead into the drinking water. When such leaching occurs, the resulting human ingestion of lead is a health hazard.[1]

Q. Then, is leaching of lead into water a concern?

A. Yes. The negative health effects of lead have been studied for a long time. Lead in drinking water specifically was studied and addressed by the United States Environmental Protection Agency (EPA) when it finalized what is called the "Lead and Copper Rule" in 1991. After enactment of EPA's rule, the Missouri Department of Natural Resources (DNR) promulgated rules to conform with EPA's new standards.

[1] See See the Environmental Protection Agency (EPA) "Learn About Lead" site, particularly the health effects of lead, accessed at https://www.epa.gov/lead/learn-about-lead#effects ; and the Agency for Toxic Substances and Disease Registry, "Lead", accessed at https://www.atsdr.cdc.gov/toxfaqs/TF.asp?id=93&tid=22 .

Q. Are there other ways for lead to impact customers?

A. Yes. Besides LSLs, lead can leach into the water from building plumbing pipe joints and water fixtures. Lead also is a component in many other household items not related to the drinking water supply such as paint and leaded gasoline. There are laws and regulations to address these other situations. However, the purpose of MAWC's AAO proposal is solely for the purpose of addressing lead in existing water service lines.

Q. What is the significance of the focus upon LSL replacement?

A. LSLs are considered to be one of the greatest risks of lead contamination in drinking water. EPA, the trade organization American Water Works Association (AWWA) and other organizations encourage LSL replacement primarily for this reason. One such organization is named the Lead Service Line Replacement Collaborative, or "LSLRC." This organization exists for the purpose of promoting LSL replacements by using whatever programs, policies and resources that may be available for individual local circumstances. This collaborative organization consists of a number of organizations with an interest in drinking water quality. A copy of a PowerPoint presentation by the LSLRC, which includes a listing of the collaborative members, is included with this testimony as Schedule JAM-r2.

Q. What is meant by "full" LSL replacement?

A. "Full LSL replacement," as opposed to "partial LSL replacement," refers to replacement of the entire lead-based portion of the water service line regardless of who owns it. A "partial LSL replacement" refers to replacement of only a portion of the LSL, for example only replacement that is needed for connection to a new replacement water main. After a partial LSL replacement, portion(s) of the LSL, which could be owned by the water utility or the customer, remains in service even if it is lead-based.

Q. What is the advantage of full LSL replacement during the water main replacement?

A. The advantage of full LSL replacement is that it removes an increased risk of lead contamination exposure that would exist during partial LSL replacements. That increased risk associated with partial LSL replacement is due to disruption and damage to LSLs while connecting them to other new piping in conjunction with connections to the replacement water mains. The reason lead exposure risk could be increased with this type of work involving partial LSL replacement is that most all water pipe, including LSLs, attain internal calcium scaling that serves as an insulator between the pipe material and the water. For LSLs, the scaling insulates the lead pipe material from the water thereby largely eliminating the chance of lead leaching into the water. If that scaling is broken off, which is likely to happen while working on the pipe for partial LSL replacement, then the water would be directly exposed to the lead, resulting in a much greater risk of lead leaching into the water. Therefore, not only is it more convenient to replace the entire LSLs while undertaking main replacement projects, it also helps keep the potential for lead exposure to a minimum.

Q. Has the EPA made any statements regarding the removal of LSLs, and full versus partial LSL replacement?

A. Yes. In response to the events of Flint, Michigan, the EPA commissioned a white paper to discuss potential changes to the Lead and Copper Rule. This white paper, entitled, “Lead and Copper Rule Revisions” and included with this testimony as Schedule JAM-r3, was published in October, 2016. Among points that were made in this paper, EPA noted that its Science Advisory Board (SAB) concluded that full LSL replacement, not partial

LSL replacement should be standard. This is noted beginning on page 8 of the white paper ("PLSL replacement" means partial LSL replacement):

> …PLSLRs have not been shown to reliably reduce drinking water lead levels in the short term, ranging from days to months, and potentially even longer. Additionally, PLSLR is frequently associated with short-term elevated drinking water lead levels for some period of time after replacement, suggesting the potential for harm, rather than benefit during that time period. Available data suggest that the elevated tap water lead levels tend to then gradually stabilize over time following PLSLR, sometimes at levels below and sometimes at levels similar to those observed prior to PLSLR." (underline added)

A footnote at the end of this paragraph that appears in the white paper is a reference to a letter and a report from the SAB to the EPA administrator, included with this testimony as Schedule JAM-r4.

Furthermore, the EPA also noted in the white paper that:

> Much of the discussion regarding potential LCR (lead and copper rule) revisions has focused on mandatory, proactive LSL removal, as a potential opportunity to eliminate one of the primary sources of lead in drinking water, thus reducing reliance on corrosion control to reduce lead in drinking water at the tap.

The quotes herein appear on pages 8 through 10 of the white paper, and was based on what is summarized in the 3rd paragraph of the letter from the SAB along with information primarily on pages 5 through 23 of the attached report. The SAB noted at the beginning of the 3rd paragraph in the letter that minimal or inadequate data exists regarding studies of partial LSL replacements and more study is desirable, but it nevertheless arrived at a conclusion that partial LSL replacements are potentially harmful, as stated in the underlined portion of the first quoted section, above.

MAWC'S PROPOSAL

Q. Can you briefly describe MAWC's current LSL replacement program?

A. Yes. MAWC is voluntarily undertaking full LSL replacements as it discovers LSLs during water main replacement projects. If an entire water service is found to be a LSL, then MAWC will replace the entire water service line, regardless of ownership. If only a portion of the customer's water service line is lead and the remainder made of non-lead material, then MAWC would replace the lead portion(s) of the water service line. If the program and this AAO case is discontinued, then regarding customer owned LSL replacement MAWC would likely only complete a partial LSL replacement as needed for the specific project.[2]

Q. Is MAWC's program designed to replace all LSLs in MAWC's water systems?

A. No. MAWC is not proposing a comprehensive program to replace all LSLs. MAWC's proposed program in this AAO case is a limited LSL replacement program to take advantage of accessibility during water main excavation, and is designed to eliminate a potential source of lead contamination with limited service disruption to the customer.

Q. Have you seen MAWC's plan in action?

A. Yes. Staff expert Jonathan Dallas and I were recently on-site to observe a main replacement project with LSL replacements in St. Louis County. Please refer to Mr. Dallas' rebuttal testimony for a thorough description of MAWC's practice.

Q. Are other water utilities in the United States undertaking LSL replacement programs?

[2] MAWC would continue to replace LSL it owns as a normal course of business, but likely would likely undertake partial LSL replacement of customer-owned water service lines as necessary, such as that required to connect a water service line to a newly replaced water main.

A. Yes. MAWC witness Brian LaGrand also identified, in a data request response, some American Water Works Corp. systems that are undertaking replacement programs. Also, I am aware of several programs through our contacts with the National Association of Regulatory Utility Commission ("NARUC") Staff Water Subcommittee and through news articles over the past several months. Some programs consist of little more than notices to customers about lead in their water service lines and associated risks. Other programs offer either financial resources or financial assistance to customers who undertake LSL replacement. A few utilities are undertaking full LSL replacements. A collection of a few news articles detailing LSL issues and programs is included as Schedule JAM-r5.

Q. Have you reviewed information pertaining to the cost of LSL replacements?

A. Yes. Besides an estimated cost range of $3,000 to $5,500 as stated by MAWC in its filings in this case, MAWC also provided Staff with some example plumbing contractor invoices for service line work in a data request from Staff to MAWC.[3] Copies of the invoices are included here as Schedule JAM-r6.

Q. Do you think MAWC's stated estimated cost range is realistic?

A. For MAWC's service areas, except for St. Louis County, based generally on trenching costs, the cost of materials, and review of provided invoices, the stated cost range for LSL replacements is probably realistic for LSL replacements between the outdoor meter setting and the house/structure. There likely could be some situations where the cost could be outside this range due to unusual property restoration needs or difficult work conditions. However, the stated cost range is probably not realistic for the St. Louis County service area.

[3] Due to county plumbing regulations in St. Louis along with labor considerations, MAWC must hire plumbing contractors for water service line work it undertakes. In other service areas MAWC could choose to hire plumbing contractors for management of its personnel workload.

The replacements at issue in St. Louis for this AAO case not only involve the customer-owned portion of water service lines between the property line and the house/structure, but in St. Louis County they also involve the customer-owned portion of water service lines between the water main and the property line including the connections to the main, the pipeline under street pavement, and connections to the outdoor water meter location, along with associated street pavement repair or boring under pavement, and permits for plumbing work under streets. Based on expected costs for this additional service line work, the cost range for LSL replacements in the St. Louis County service area could be more than twice MAWC's stated general costs.

Q. In Staff's opinion, considering the wide range of cost estimates, is MAWC's replacement program reasonable?

A. Yes. Ordinarily, Staff would not be in favor of this type of program. However, given the national concern over the potential risk of lead contamination, the overall disruption of replacing individual LSLs, and the cost of replacement to any given homeowner, MAWC's proposal is a reasonable approach and is consistent with current EPA recommendations. Further, Staff, OPC, and ultimately, the Commission will have the opportunity to review MAWC's actions prior to any recovery being included in rates.

OPC'S PROPOSAL

Q. Briefly describe OPC's proposal.

A. In OPC witness Geoff Marke's direct testimony, OPC has a two-fold recommendation. The first part is for the Commission to reject MAWC's current application. The second part is for a two-year pilot program with a maximum of $8 million expended on LSL replacement.

Q. Does Staff have concerns with the first prong of OPC's position?

A. Yes. Staff disagrees with OPC's position with respect to its recommendation that MAWC withdraw this AAO case, and effectively abandon and discontinue its relatively new practice of replacing LSLs. As discussed above, Staff firmly believes that the public benefit of removing any lead-based water service lines outweighs the estimated costs associated with these removals.

Q. Does Staff have any concerns with the pilot study OPC is recommending?

A. Staff does not have any fundamental disagreement with the Commission creating a workgroup for the limited purpose of studying the issue of lead in drinking water[4]. However, the potential for lead in the drinking water of Missouri citizens is much broader than just MAWC. In fact, most citizens in Missouri receive their drinking water from entities not regulated by the Commission. If the Commission establishes such a working group, Staff requests the Commission provide guidance on such issues as: if such a workgroup would only involve MAWC, or involve all regulated water utilities; how to include/address potential lead in drinking water issues related to non-regulated entities; and, how to avoid or minimize consumer fear that a study means there is lead in Missouri's drinking water.

CONCLUSION

Q. Can you summarize your rebuttal testimony?

A. Yes. In this proceeding, MAWC is proposing an immediate step to assist in alleviating a potential lead contamination risk in an economically beneficial manner. In Staff's opinion, full LSL replacement in the limited situation as proposed by MAWC is a

[4] OPC's proposal includes other topics outside or beyond the Commission's jurisdiction such as: "real estate and legal implications of Missouri's Seller Disclosure Statement"; obligations to inform homeowners; and, prioritizing projects.

reasonable approach to remove a potential source for lead contamination in customers' drinking water. Staff is also of the opinion that MAWC's current plan and proposal is in the public's interest. Therefore, Staff recommends MAWC be authorized to continue with its voluntary full LSL replacement program in conjunction with water main replacements, with extraordinary accounting treatment as recommended by Staff expert Amanda C. McMellen.

Q. Does this conclude your rebuttal testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Missouri-American Water Company for an Accounting Order Concerning MAWC's Lead Service Line Replacement Program	))))	**Case No. WU-2017-0296**

AFFIDAVIT OF JAMES A MERCIEL, JR.

State of Missouri)
) ss.
County of Cole)

COMES NOW James A. Merciel, Jr., and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Rebuttal Testimony; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

James A. Merciel, Jr.

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 23rd day of August, 2017.

Dianna L. Vaught
NOTARY PUBLIC

My commission expires: June 28, 2019.

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: June 28, 2019
Commission Number: 15207377