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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

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TABLE OF CONTENTS
REBUTTAL TESTIMONY
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EXECUTIVE SUMMARY 1

OVERVIEW OF LEAD SERVICE LINES..... 2

MAWC’S PROPOSAL 6

OPC’S PROPOSAL 8

CONCLUSION 9

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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

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

3 **OVERVIEW OF LEAD SERVICE LINES**

4 Q. What is a LSL?

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

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

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

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

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

¹ 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> .

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1 **MAWC'S PROPOSAL**

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

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

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

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

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

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

20 Q. Are other water utilities in the United States undertaking LSL replacement
21 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.

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

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

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

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

16 A. For MAWC’s service areas, except for St. Louis County, based generally on
17 trenching costs, the cost of materials, and review of provided invoices, the stated cost range
18 for LSL replacements is probably realistic for LSL replacements between the outdoor meter
19 setting and the house/structure. There likely could be some situations where the cost could be
20 outside this range due to unusual property restoration needs or difficult work conditions.
21 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.

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

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

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

18 **OPC'S PROPOSAL**

19 Q. Briefly describe OPC's proposal.

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

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

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

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

8 A. Staff does not have any fundamental disagreement with the Commission
9 creating a workgroup for the limited purpose of studying the issue of lead in drinking water⁴.
10 However, the potential for lead in the drinking water of Missouri citizens is much broader
11 than just MAWC. In fact, most citizens in Missouri receive their drinking water from entities
12 not regulated by the Commission. If the Commission establishes such a working group, Staff
13 requests the Commission provide guidance on such issues as: if such a workgroup would only
14 involve MAWC, or involve all regulated water utilities; how to include/address potential lead
15 in drinking water issues related to non-regulated entities; and, how to avoid or minimize
16 consumer fear that a study means there is lead in Missouri's drinking water.

17 **CONCLUSION**

18 Q. Can you summarize your rebuttal testimony?

19 A. Yes. In this proceeding, MAWC is proposing an immediate step to assist in
20 alleviating a potential lead contamination risk in an economically beneficial manner. In
21 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.

Rebuttal Testimony of
James A. Merciel, Jr., PE

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

6 Q. Does this conclude your rebuttal testimony?

7 A. Yes.

