

Exhibit No.:	
Issues:	AAO Lead Line Replacements
Witness:	Gary A. Naumick
Exhibit Type:	Rebuttal
Sponsoring Party:	Missouri-American Water Company
Case No.:	WU-2017-0296
Date:	August 23, 2017

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WU-2017-0296

REBUTTAL TESTIMONY

OF

GARY A. NAUMICK

ON BEHALF OF

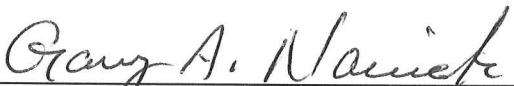
MISSOURI-AMERICAN WATER COMPANY

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 GARY A. NAUMICK

Gary A. Naumick, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Rebuttal Testimony of Gary A. Naumick"; that said testimony and schedules were prepared by him and/or under his direction and supervision; that if inquiries 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.



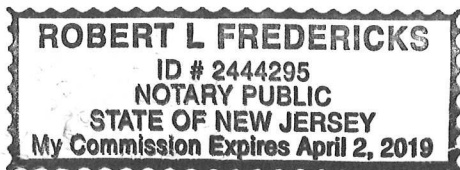
Gary A. Naumick

State of New Jersey
County of Camden
SUBSCRIBED and sworn to
Before me this 17 day of AUGUST 2017.



Notary Public

My commission expires: 4/2/2019



**REBUTTAL TESTIMONY
GARY A. NAUMICK
MISSOURI-AMERICAN WATER COMPANY
CASE NO. WU-2017-0296**

TABLE OF CONTENTS

I.	Introduction.....	1
II.	Purpose.....	1
III.	Proposed Pilot Study.....	3

1 **GARY A. NAUMICK**

2 **REBUTTAL TESTIMONY**

3
4 **I. INTRODUCTION**
5

6 **Q. Please state your name and business address.**

7 A. My name is Gary Naumick, and my business address is 1025 Laurel Oak Road,
8 Voorhees, NJ 08043.
9

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

11 A. I am employed by American Water Works Service Company, Inc. ("AWWSC") as Vice
12 President of American Water Engineering.
13

14 **Q. Are you the same Gary Naumick that previously filed Direct Testimony in this**
15 **matter?**

16 A. Yes, I am.
17

18 **II. PURPOSE**

19 **Q. What is the purpose of your rebuttal testimony?**

20 A. I will respond to the Direct Testimony of Geoff Marke of the Office of the Public Counsel
21 ("OPC"). In particular, I will explain that the lead service line pilot study he has proposed
22 is unwarranted because: 1) It is redundant to the voluminous amount of research already
23 conducted across the country; 2) It would impose unnecessary costs on Missouri-American

1 Water Company's ("MAWC", "Missouri-American" or "Company") customers; 3) It
2 contains proposed tasks that are beyond the scope and purview of any water utility; and 4)
3 It would delay the important public health benefit to Missouri-American's customers that
4 implementation of the Company's lead service line replacement ("LSLR") program will
5 provide.
6

7 **III. PROPOSED PILOT STUDY**

8 **Q. Please briefly describe OPC witness Marke's proposed pilot study.**

9 **A.** OPC witness Marke proposes a "two-year pilot study" to "explore the feasibility, legality
10 and associated policy implications of full lead service line replacement across MAWC's
11 entire service territory and the state of Missouri with the results presented to the Missouri
12 Public Service Commission, the Missouri Legislature and the Missouri Governor's Office
13 for consideration."¹ The program would include five "policy tracks": (1) an advisory
14 committee lead by a third party consultant and responsible for issuing a final report taking
15 into account a large range of considerations; (2) a scoping analysis to provide lead service
16 line estimates and information and the feasibility of developing a repository to contain lead
17 service line information and water testing results; (3) a two-year LSLR pilot program that
18 includes testing and modeling to verify the link between lead service line removal and lead
19 abatement in drinking water; (4) a review and summary of the advisory committee's
20 thoughts on communications, disclosure, prioritization and implementation; and (5)

¹ Direct Testimony of Geoff Marke ("Marke Direct"), p.5, l.15 – p.6, l.1.

1 ancillary considerations such as potential job creation, lead paint and soil abatement, and
2 potential funding sources.²

3
4 **Q. What is your opinion of this pilot study proposal?**

5 A. MAWC fully understands the importance of implementing its LSLR program in a careful
6 and effective manner, and has carefully considered its program in many aspects,
7 including field construction methodology, sampling, flushing, customer communication,
8 and community coordination. In fact, as discussed in my direct testimony, that of Mr.
9 Bruce Aiton, and further below, many of the activities listed in the proposed pilot study
10 have already been explored and considered in developing MAWC's proposed LSLR
11 program. Engaging a third party to repeat these activities would unnecessarily delay the
12 Company's ability to implement its LSLR program, and do so at an additional cost to
13 customers.

14
15 **Q. OPC witness Marke bases his proposal in part on what he describes as a “dynamic**
16 **regulatory environment and uncertainty surrounding the Lead and Copper Rule**
17 **Revisions . . .”³ Has the primary question posed by the OPC pilot study, whether**
18 **or not to perform full lead service line replacements, been extensively researched**
19 **and previously addressed?**

² See Marke Direct at pp.6-11.

³ Marke Direct, at 11.

1 A. Yes. The United States Environmental Protection Agency (“EPA”) and Water Research
2 Foundation (“WRF”) along with partners from utilities and universities have performed
3 much research on this topic and have concluded that full lead service line replacement is
4 in the best interest of the public. The WRF has published a summary of its extensive
5 library of research on lead and copper corrosion and the Lead and Copper Rule⁴ and has
6 enlisted research partners, which include EPA, National Science Foundation (“NSF”),
7 and Water Environmental Research Foundation (“WERF”).
8

9 **Q. On page 7, line 3 of the Marke Direct Testimony, OPC recommends a literature**
10 **review of historic and current lead exposure sources and explanation of health-**
11 **related benchmark metrics (blood, parts-per-million, parts-per-billion). Has this**
12 **review already been performed?**

13 A. Yes. This information has been studied extensively and is readily available. Lead has
14 been a topic of intense interest to many health agencies including EPA, the Center for
15 Disease Control, the Department of Housing and Urban Development, National Institute
16 of Health, National Toxicology Program, National Institute of Environmental Health
17 Sciences and others over the past several years. In November 2016, the President’s Task
18 Force on Environmental Health Risks and Safety Risks to Children⁵ issued a report

⁴ See Water Research Foundation, *Lead and Copper Corrosion: An Overview of WRF Research* (Oct. 2016), available at <http://www.waterrf.org/resources/StateOfTheScienceReports/LeadCorrosion.pdf> (“WRF Overview”). See also Water research grant information is available at <https://www.epa.gov/research-grants/water-research-grants>; DC WASA information is available at https://archive.epa.gov/region03/dclead/web/html/corrosion_research.html.

⁵ The inclusiveness of the task force on lead exposure is evidenced by the broad range of federal agencies represented on the task force and listed at the end of the Task Force Report.

entitled “Key Federal Programs to Reduce Childhood Lead Exposures and Eliminate Associated Health Impacts” (“Task Force Report”). The Task Force Report covers a wide range of topics on the issue of lead exposure and health impacts including sources of lead, health related benchmark metrics, and a summary of children’s health effects by blood lead levels.⁶ The Task Force Report clearly indicates that prevention, which “...requires the removal or reduction of lead in a child’s environment before exposure occurs...” is still the best strategy to protect children from lead.⁷ MAWC’s program to replace full lead service lines aligns with the goal to remove sources of lead from the environment.

Q. OPC also recommends that the proposed two-year pilot study consider the current Lead and Copper Rule (“LCR”) methodology and limitations.⁸ Has there already been extensive engagement with stakeholder groups and the public on the current LCR methodology and limitations?

A. Yes. EPA has conducted extensive engagement with stakeholder groups and the public to inform revisions to the LCR. EPA published the “Lead and Cooper Rule Revisions White Paper” (“LCR Revisions White Paper”) in October 2016 that discusses the key principles for revision to the LCR, the health effects of lead, lead in plumbing materials, a summary of the LCR, key challenges of the current LCR, a summary of the National

⁶ See Task Force Report, available at https://ptfceph.niehs.nih.gov/features/assets/files/key_federal_programs_to_reduce_childhood_lead_exposures_and_eliminate_associated_health_impacts/presidents_508.pdf

⁷ Task Force Report, p. 12.

⁸ Marke Direct, p.7.

1 Drinking Water Advisory Council Recommendations and a summary of other
2 stakeholder input.⁹ As stated in the LCR Revisions White Paper:

3 EPA's goal for the LCR revisions is to improve public health
4 protection while ensuring effective implementation by the 68,000
5 drinking water systems that are covered by the rule...In
6 developing proposed revisions to the LCR, EPA will be guided by
7 several key principles, including:

8 Focus on Minimizing Exposure to Lead in Drinking
9 Water: Improve public health protection by reducing
10 exposure to lead in drinking water to the maximum amount
11 possible through proactive measures to remove sources of
12 lead and educating consumers about the health effects of
13 lead and actions to reduce exposure.¹⁰

14 MAWC considered the limitations of the LCR in our approach. One major limitation of
15 the current LCR is the requirement of replacing lead service lines only for those utilities
16 that exceed the lead action level, with no guidance to utilities in compliance with the
17 LCR. For its part, MAWC is in compliance with the LCR lead action level but is seeking
18 to "remove sources of lead" (as recommended in the LCR Revisions White Paper) by
19 replacing full lead service lines on a proactive basis.

⁹ See U.S. EPA Office of Water, *The Lead and Copper Rule Revisions White Paper* (Oct. 2016), available at https://www.epa.gov/sites/production/files/2016-10/documents/508_lcr_revisions_white_paper_final_10.26.16.pdf ("LCR Revisions White Paper").

¹⁰ LCR Revisions White Paper, p. 4.

1 Other limitations of the current LCR that have received much scrutiny over the past
2 several years surround some ambiguities in the sampling methodology. As a result, EPA
3 issued a memorandum on February 29, 2016, to the Water Division Directors Regions I
4 –X. (see Schedule GAN- RT3) clarifying the approach. We reviewed this memorandum
5 in detail and confirmed our sample collection methodology is consistent with the
6 approach detailed in the clarifying memorandum. Thereafter, MAWC updated its
7 customer sample collection instruction sheet (see Schedule GAN- RT4) to clarify the
8 information for our customers consistent with EPA guidance.
9

10 **Q. OPC further suggests that the pilot study consider topics such as review of the Flint,**
11 **Michigan and other case studies.¹¹ Is documentation of such stakeholder**
12 **engagement already available?**

13 A. Yes. The LCR Revisions White Paper includes recommendations from many
14 stakeholders, including the National Drinking Water Advisory Council (NDWAC), Flint
15 Water Interagency Coordinating Committee, local citizens impacted by the experience
16 in Flint, other stakeholders, and the Board of the American Water Works Association
17 (AWWA).¹² There recommendations recognize the significant lead exposure risks that
18 can accompany partial service line replacements.¹³
19

¹¹ Marke Direct, p.7.

¹² NDWAC is Federal Advisory Committee that supports EPA in performing its duties and responsibilities related to the national drinking water program.

¹³ LCR Revisions White Paper, p. 6.

1 **Q. Do you think MAWC’s LSLR program can proceed effectively while the inventory**
2 **of lead service lines is further refined?**

3 A. Yes. As Mr Aiton will address in his rebuttal testimony, MAWC has used the best
4 available information to develop its inventory, and will adjust this estimate as additional
5 information is gained. Any customer or interested party that has relevant data is
6 welcomed to contact MAWC to help to refine the information. The Company will use
7 the information it has and develops over time to refine its prioritization of main
8 replacement projects. Not having a complete or perfect inventory, however, is not a
9 legitimate reason to delay implementing the LSLR program and is not in the best interest
10 of the health and safety of our customers. Other water utilities across the country are not
11 waiting for complete or perfect inventories to begin the important work of full lead
12 service line replacements. (See Schedule GAN-RT1)

13
14 **Q. OPC witness Marke also suggests that MAWC solicit a contractor to provide**
15 **“independent testing and modeling verification of the link between lead service line**
16 **replacements and lead abatement in water at the tap.”¹⁴ Would this consultant’s**
17 **efforts be duplicative of efforts already conducted?**

18 A. Yes. The proposed pilot study would be duplicative of the work of the Lead Service Line
19 Replacement Collaborative (“LSLR Collaborative”),¹⁵ which MAWC already has access
20 to and has been utilizing. As I discussed in my Direct Testimony, a major focus of the

¹⁴ Marke Direct, p.7.

¹⁵ As noted on pages 2 and 3 of my testimony, “[t]he LSLR Collaborative is a joint effort of 24 national public health, water utility, environmental, labor, consumer, housing, and state and local governmental organizations to help communities to accelerate full removal of the lead service lines providing drinking water to millions of American homes.”

1 LSLR Collaborative is to share best practices. Utilities all across the country are facing
2 the challenge of lead service lines, and the LSLR Collaborative recognized that sharing
3 of research and best practices is much more efficient and cost-effective than every utility
4 across the country having to re-create this information on their own. The LSLR
5 Collaborative invited members and other utilities to submit best practices and case
6 studies. A listing of resources available to a community undertaking a LSLR program
7 can be found on the Collaborative's website at [http://www.lslr-](http://www.lslr-collaborative.org/resources.html)
8 [collaborative.org/resources.html](http://www.lslr-collaborative.org/resources.html).
9

10 **Q. Are these resources provided by the LSLR Collaborative extensive?**

11 A. Yes. A total of one hundred and forty-three (143) resources are provided. I have
12 provided a list of these in Schedule GAN-RT2. In addition, many other organizations,
13 such as Ammerican Water Works Association, WRF, and EPA have published materials
14 to help guide water utility LSLR efforts. We have made use of this body of research and
15 case studies in the development of MAWC's LSLR program.
16

17 **Q. What aspects of the proposed OPC pilot study are beyond the scope for a water**
18 **corporation's expertise and responsibility?**

19 A. There are several aspects of the proposed OPC pilot study that are beyond the expertise
20 and responsibility of MAWC or any water corporation to undertake and would require
21 the Company to expend additional money and resources to evaluate issues outside the
22 scope of the Company's provision of water service, at an additional cost to Missouri-
23 American's customers. Examples include considering:

- 1 • “...lead contamination from external sources separate from the distribution system
2 (e.g., lead paint)” (Marke Dir., p. 9)
- 3 • “. . . real estate and legal implications of Missouri’s Seller Disclosure Statement for
4 properties with lead service lines” (Marke Dir., p. 10)
- 5 • ... potential job creation as well as lead paint and soil abatement messaging or
6 service offerings.” (Marke Dir., p. 10)

7

8 **Q. In your opinion, is MAWC’s plan to replace lead service lines in the best interest of**
9 **the health and safety of its customers?**

10 **A.** Yes. As discussed in my direct testimony, numerous recent industry studies have
11 documented the potential for continued and/or increased lead release associated with
12 partial lead service line replacement. By removing the entire lead service line from active
13 operation, a source of lead will be removed, reducing the potential for exposure to lead
14 in the drinking water we supply our customers.

15

16 **Q. Does this conclude your rebuttal testimony at this time?**

17 **A.** Yes, it does.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 29 2016

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Clarification of Recommended Tap Sampling Procedures for Purposes of the Lead and Copper Rule

FROM: Peter C. Grevatt, Director
Office of Ground Water & Drinking Water

TO: Water Division Directors
Regions I - X

The Lead and Copper Rule, 40 C.F.R. Sections 141.80 to 141.91, requires monitoring at consumer taps to identify levels of lead in drinking water that may result from corrosion of lead-bearing components in a public water system's distribution system or in household plumbing. These samples help assess the need for, or the effectiveness of, corrosion control treatment. The purpose of this memorandum is to provide recommendations on how public water systems should address the removal and cleaning of aerators, pre-stagnation flushing, and bottle configuration for the purpose of Lead and Copper Rule sampling.

Removal and Cleaning of Aerators

EPA issued a memorandum on *Management of Aerators during Collection of Tap Samples to Comply with the Lead and Copper Rule* on October 20, 2006. This memorandum stated that EPA recommends that homeowners regularly clean their aerators to remove particulate matter as a general practice, but states that public water systems should not recommend the removal or cleaning of aerators prior to or during the collection of tap samples gathered for purposes of the Lead and Copper Rule. EPA continues to recommend this approach. The removal or cleaning of aerators during collection of tap samples could mask the added contribution of lead at the tap, which may potentially lead to the public water system not taking additional actions needed to reduce exposure to lead in drinking water. EPA's recommendation about the removal and cleaning of aerators during sample collection applies only to monitoring for lead and copper conducted pursuant to 40 C.F.R. 141.86.

Pre-Stagnation Flushing

EPA is aware that some sampling instructions provided to residents include recommendations to flush the tap for a specified period of time prior to starting the minimum 6-hour stagnation time required for samples collected under the Lead and Copper Rule. This practice is called pre-stagnation flushing. Pre-stagnation flushing may potentially lower the lead levels as compared to when it is not practiced.

Flushing removes water that may have been in contact with the lead service line for extended periods, which is when lead typically leaches into drinking water. Therefore, EPA recommends that sampling instructions not contain a pre-stagnation flushing step.

Bottle Configuration

EPA recommends that wide-mouth bottles be used to collect Lead and Copper compliance samples. It has become apparent that wide-mouth bottles offer advantages over narrow-necked bottles because wide-mouth bottles allow for a higher flow rate during sample collection which is more representative of the flow that a consumer may use to fill up a glass of water. In addition, a higher flow rate can result in greater release of particulate and colloidal lead and therefore is more conservative in terms of identifying lead concentrations.

Conclusion

EPA is providing these recommendations for collection of Lead and Copper Rule tap samples to better reflect the state of knowledge about the fate and transport of lead in distribution systems. The three areas discussed above may potentially lead to samples that erroneously reflect lower levels of lead concentrations. The recommendations in this memorandum are also consistent with the recommendations provided by the EPA's Flint Task Force. For more information about the Task Force please view EPA's website at: <http://www.epa.gov/flint>.

To provide further information on this topic, EPA included an amended "Suggested Directions for Homeowner Tap Sample Collection Procedures" in Appendix D of the 2010 revision of *Lead and Copper Rule Monitoring and Reporting Guidance for Public Water Systems* (EPA 816-R-10-004). This document can be found at:

<http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100DP2P.txt>

Please share these recommendations with your state drinking water program directors. If you have any questions, please contact Anita Thompkins at thompkins.anita@epa.gov.

Attachment

cc: James Taft, Association of State Drinking Water Administrators

Suggested Directions for Homeowner Tap Sample Collection Schedule Schedule C-ART1
Revised Version: February 2016

These samples are being collected to determine the lead and copper levels in your tap water. This sampling effort is required by the U.S. Environmental Protection Agency and your State under the Lead and Copper Rule, and is being accomplished through a collaboration between the public water system and their consumers (e.g. residents).

Collect samples from a tap that has not been used for at least 6 hours. To ensure the water has not been used for at least 6 hours, the best time to collect samples is either early in the morning or in the evening upon returning from work. Be sure to use a kitchen or bathroom cold water tap that has been used for drinking water consumption in the past few weeks. The collection procedure is described below.

1. Prior arrangements will be made with you, the customer, to coordinate the sample collection. Dates will be set for sample kit delivery and pick-up by water system staff.
2. There must be a minimum of 6 hours during which there is no water used from the tap where the sample will be collected and any taps adjacent or close to that tap. Either early mornings or evenings upon returning home are the best sampling times to ensure that the necessary stagnant water conditions exist. Do not intentionally flush the water line before the start of the 6 hour period.
3. Use a kitchen or bathroom cold-water faucet for sampling. If you have water softeners on your kitchen taps, collect your sample from the bathroom tap that is not attached to a water softener, or a point of use filter, if possible. Do not remove the aerator prior to sampling. Place the opened sample bottle below the faucet and open the cold water tap as you would do to fill a glass of water. Fill the sample bottle to the line marked "1000-mL" and turn off the water.
4. Tightly cap the sample bottle and place in the sample kit provided. Please review the sample kit label at this time to ensure that all information contained on the label is correct.
5. If any plumbing repairs or replacement has been done in the home since the previous sampling event, note this information on the label as provided. Also if your sample was collected from a tap with a water softener, note this as well.
6. Place the sample kit in the same location the kit was delivered to so that water system staff may pick up the sample kit.
7. Results from this monitoring effort and information about lead will be provided to you as soon as practical but no later than 30 days after the system learns of the tap monitoring results. However, if excessive lead and/or copper levels are found, immediate notification will be provided (usually 1-2 working days after the system learns of the tap monitoring results).

Call _____ at _____ if you have any questions regarding these instructions.

TO BE COMPLETED BY RESIDENT

Water was last used: Time _____ Date _____

Sample was collected: Time _____ Date _____

Sample Location & faucet (e.g. Bathroom sink): _____

I have read the above directions and have taken a tap sample in accordance with these directions.

Signature _____ Date _____



Missouri American Water thanks you for your assistance in collecting samples to determine the contribution of service line, faucet fixtures, household pipes, and/or solder to the lead and copper levels in the tap water. This sampling effort is required by the Missouri Department of Natural Resources (MDNR) and the United States Environmental Protection Agency (USEPA) under the Lead and Copper Rule, and is being accomplished through the cooperation of homeowners and residents like you.

Our records indicate that your house at, **ADDRESS**, is a Tier **X** site. An explanation of Tiers is provided below.

Tier 1: Single family with copper pipes installed after 1982 or lead service

Tier 2: Multi-family with lead service or copper pipes installed after 1982

Tier 3: Single family with copper pipes with lead solder before 1983

F-1: Structure with lead-free plumbing. This may include plastic, galvanized or copper with flair fittings.

F-2: Any site in a structure with a water softener or other treatment device.

If any plumbing repairs or replacements have been completed in your home or the Tier listed above for your home is incorrect, please call us at **PHONE NO** to discuss if your home is still eligible for sampling.

Sampling Instructions

STEP I Fill bottle and complete form on reverse side (please print legibly)

- Collect water sample from the **kitchen cold water tap** AFTER water has sat motionless for **AT LEAST 6 HOURS**. (This may be first thing in the morning or after returning home from work, etc.)
- Prior to turning on the water, position the sample bottle under the tap.
- If a water treatment unit or filter is attached to the plumbing system or faucet, remove the filter or bypass the unit before sampling. Do not remove the aerator.

Sampling

- Open the **cold water tap** (*that has been unused for at least 6 hours*) and fill the bottle to the top (marked with a line).
- Turn off water and tightly cap the sample bottle.
- Complete the reverse side of this paper including the checklist, dates/times, name, and address.



STEP II Sample Pickup

Please call us at **PHONE NO** for sample pickup. Leave the box, containing this completed sheet and bottle, outside of your residence in an accessible location (ie. front porch step). We will be by later in the day.

Homeowner Sample Collection Procedure

Please complete the attached checklist so we can be sure of obtaining a valid sample.

Sampling Procedure: (Check appropriate box when completed)

1. Sample only a kitchen	<input type="checkbox"/>	
Sample COLD water only	<input type="checkbox"/>	
2. Do you have a have a water softener, reverse osmosis unit, or other home treatment of any type?	Y / N	
<u>If YES:</u>		
We bypassed our treatment device for sampling	<input type="checkbox"/>	
We were <i>not</i> able to bypass our treatment device	<input type="checkbox"/>	
3. Do <u>not</u> remove the faucet aerator	<input type="checkbox"/>	
Do <u>not</u> sample a dripping faucet	<input type="checkbox"/>	
4. Record the date and time this tap was last used:		
Date _____	Time _____	am/pm <input type="checkbox"/>
5. DO NOT USE ANY WATER IN THE DWELLING FOR AT LEAST SIX HOURS PRIOR TO TAKING THE SAMPLE	<input type="checkbox"/>	
6. Collect the water sample:		
a) Do not flush the water faucet	<input type="checkbox"/>	
b) Place bottle under cold water faucet	<input type="checkbox"/>	
c) Do not touch the bottle to the faucet	<input type="checkbox"/>	
d) Fill the bottle to the top as you would fill a glass	<input type="checkbox"/>	
e) Cap the bottle tightly	<input type="checkbox"/>	
f) Record the date and time of sample collection:	<input type="checkbox"/>	
Date _____	Time _____	am/pm

Please ensure the above is filled out completely prior to returning the sample

Were all instructions followed in collecting this sample? YES ☐ NO ☐

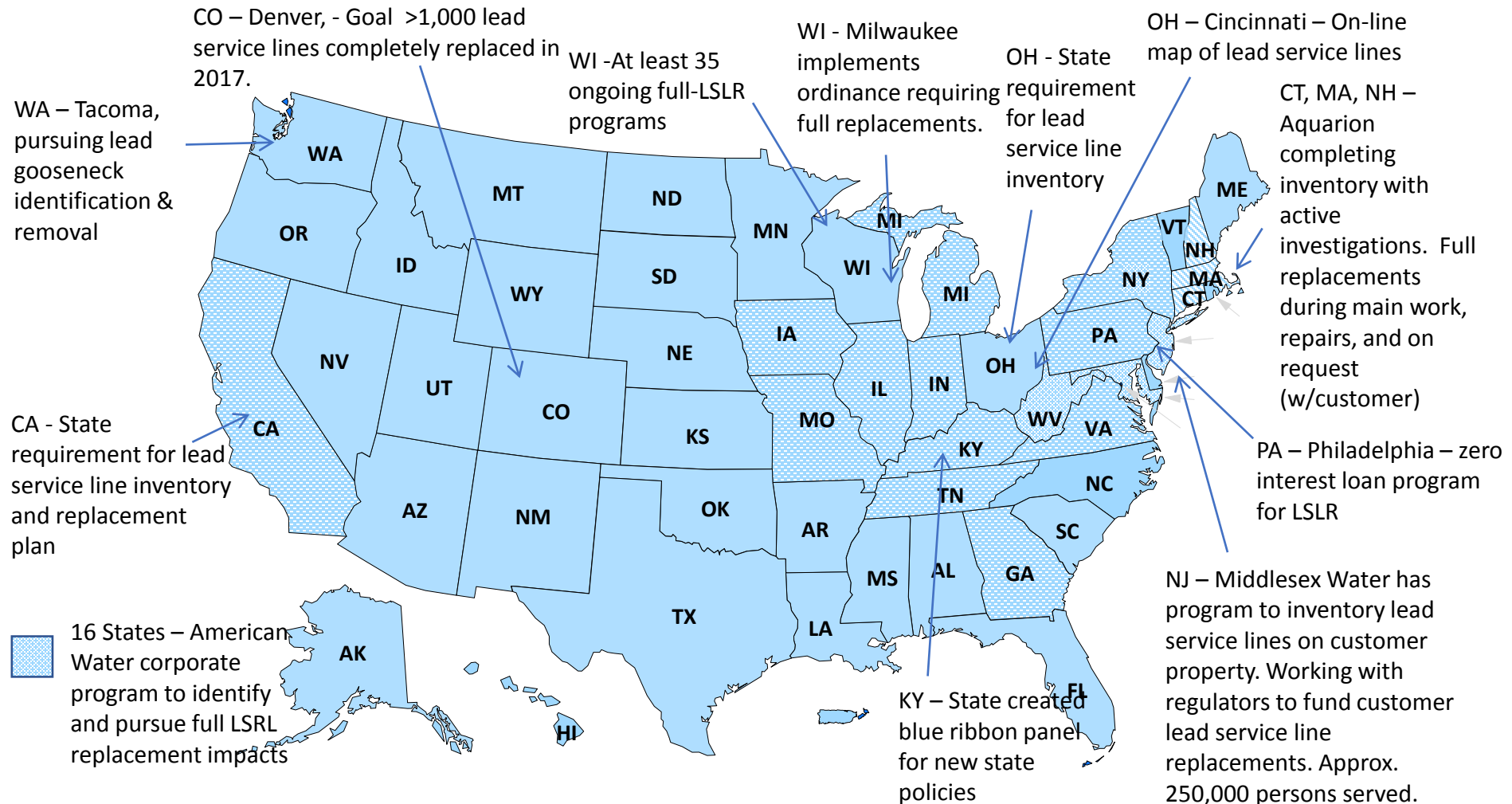
Signature: _____	Date: _____
------------------	-------------

Printed Name _____

Physical Address _____

Mailing Address _____

Local communities are taking steps



**Missouri-American Water Company
WU-2017-0296**

The Lead Service Line Removal Collaborative was formed in 2016, bringing together stakeholders from the areas of public health, justice and sustainability, national associations, non-profits, environmental groups and utilities. The goal of the Lead Service Line Replacement Collaborative is to accelerate voluntary lead service line replacement in communities across the United States. American Water is a participant in the Collaborative.

To help communities and utilities develop lead service line replacement programs, the Collaborative has posted an extensive library of 143 references, resources, research studies, tools, and case studies for use in all aspects of implementation of a lead service line removal programs. These 143 reference materials can be found at this site:

<http://www.lslr-collaborative.org/references.html>

Here is a full listing of the resources available from the Lead Service Line Collaborative website.

References

Roadmap

Getting Started

Building Consensus

- [Good Public Participation Results in Better Decisions](#)
- [Working Together for Healthier Communities](#)
- [Community Collaborative Life Stages](#)
- [Community Collaboration for School Innovation Toolkit](#)

Making Decisions

- [Communicating about LSLs: A Guide for Water Systems Addressing Service Line Repair and Replacement](#)
- [7 Ways Leaders can Address Racial Inequities](#)
- [Webinar: How to Address Racial Inequities in Your City](#)
- [How Cities Can Advance Racial Equity Through Community Conversation](#)

Legal Factors

- [Dillon Rule and Home Rule States](#)
- [Lansing: Lead Service Advisory Information](#)

Funding

- [UNC Environmental Finance Center: Designing Water Rate Structures for Conservation and Revenue Stability](#)
- [EPA: Resources for Setting Small System Water Rates](#)
- [HUD Community Development Block Grants \(CDBG\)](#)
- [EPA Drinking Water State Revolving Loan Fund \(SRF\)](#)
- [EPA Water Infrastructure Finance Innovation Act \(WIFIA\)](#)
- [USDA Rural Development Fund](#)
- [Michigan Department of Health & Human Services](#)
- [Wisconsin Department of Natural Resources](#)
- [Washington, DC LSL Replacement Assistance](#)
- [Massachusetts Water Resources Authority](#)
- [Boston Water and Sewer Commission, Massachusetts](#)
- [Philadelphia Water Department, Pennsylvania](#)
- [Madison Water Utility, Wisconsin](#)
- [Milwaukee Water Works, Wisconsin](#)
- [Flint Child Health & Development Fund](#)

Plan Development

- [Strategies to Obtain Customer Acceptance of Complete LSL Replacement](#)
- [SAB Evaluation of the Effectiveness of Partial Lead Service Replacements](#)
- [Greenbay, WI: Chapter 21 - Utilities](#)
- [Madison, WI: Lead Water Service Line Replacement](#)
- [Certified Product Listings for Lead Reduction](#)
- [Innovative Techniques for Locating Lead Service Lines](#)

- [Communicating About LSLs : A Guide for Water Systems Addressing Service Line Repair and Replacement](#)

Replacement Practices

Preparing an Inventory

- [SDWA Lead Ban](#)

Identifying Service Line Material

- [OSHA Lead Test Kits](#)
- [National Center for Healthy Housing: Lead Test Kits](#)
- [EPA: Advice to Chicago Residents about Lead in Drinking Water](#)
- [DC Water: Guide to Identifying Household Plumbing](#)
- [Cincinnati Water Lead Scratch Test](#)

Understanding Replacement Techniques

- [Galesburg: Replacing a Lead Service Line](#)
- [Controlling Lead in Drinking Water](#)

Communicating About LSL Replacement

Multiple Audiences

- [Creating a Strategic Communication Plan that Gathers No Dust](#)
- [US Census Bureau American Fact Finder](#)
- [Washington Department of Health: Translations for Public Notice](#)
- [Portland Water Bureau: A Guide to Lead in Household Plumbing and Your Drinking Water](#)
- [San Francisco Public Utilities Commission: Lead Information](#)

Outreach Materials

- [Denver Water: Homeowner Responsibility](#)
- [DC Water: Minimize Your Risk of Lead Exposure](#)
- [York Water: What Material is Your Water Service Line?](#)
- [Cleveland Water Division: Connection Details](#)
- [Onondaga County Water Authority: New Water Service Installation](#)
- [Denver Water: Getting the lead out when we find it](#)
- [Boston Water and Sewage Commission: Lead Service Map](#)

- [Tacoma Public Utilities: Possible Gooseneck Locations](#)
- [Greater Cincinnati Water Works: Service Line Information](#)
- [DC Water: Water Service Information](#)

Coordinating and Implementing Replacement

Coordination of Replacement Activity

- [Approved Contractor List](#)
- [Plumber Licensing](#)
- [Project Permit](#)

Techniques to Control Lead Release from LSL Replacement

- [Evaluation of Flushing to Reduce Lead Levels](#)
- [High Velocity Household and Service Line Flushing Following LSL Replacement](#)
- [Flint MI Residential Flushing Protocol](#)
- [Galvanic Corrosion Following Partial Lead Service Line Replacement](#)
- [Galvanic corrosion after simulated small-scale partial lead service line replacements](#)

Steps to Ensure LSL Removal Was Successful at Reducing Lead in Water

- [High-Velocity Household and Service Line Flushing Following LSL Replacement](#)
- [Evaluating the Effects of Full and Partial Lead Service Line Replacement on Lead Levels in Drinking Water](#)
- [Investigating dissolved lead at the tap using various sampling protocols](#)
- [DC Water: Service Pipe Replacements](#)
- [EPA Flint Safe Drinking Water Task Force Recommendations Regarding City of Flint Fast Track Plan for Lead Service Line Replacement](#)
- [Halifax Water LSL Replacement Program](#)
- [Evaluation of Lead Sampling Strategies](#)

Policies

Community Access to Funding

The Local Need

- [Lead and Copper Rule Revisions White Paper](#)
- [Civil Rights Act of 1964 \(Title VI\)](#)

- [Complaints Filed with EPA under Title VI of the Civil Rights Act of 1964](#)
- [Drinking Water Infrastructure Needs Survey and Assessment](#)
- [ASDWA Releases New Resource Needs Report](#)

Examples from Local LSL Replacement Efforts

- [EPA seeks details of Madison's Lead Service Replacement Program](#)
- [Lansing Board of Water and Light's Lead Service Line Replacement Program](#)
- [Massachusetts Water Resources Authority Board Approves \\$100 Million in Funding to Remove Lead Service Lines](#)
- [Boston Water and Sewer Commission: The Lead Replacement Incentive Program](#)
- [Wisconsin DNR: Private Lead Service Line \(LSL\) Replacement Funding Program](#)
- [Inslee issues directive aimed at reducing lead exposure](#)
- [WA State Department of Health: Owning and Managing a Group A Water System](#)

Opportunities to Support LSL Replacement Efforts

- [HUD: Energy Efficient Mortgage Program](#)
- [HUD: 203\(k\) Rehab Mortgage Insurance](#)
- [HUD: About Title I Home Improvement and Property Improvement Loans](#)
- [Property Assessed Clean Energy \(PACE\) programs](#)
- [High Road Infrastructure Report](#)

Helping Consumers Make Informed Decisions

Examples from Local LSL Replacement Efforts

- [DC Water and Sewer Authority: Service Pipe Material Information](#)
- [Boston Water and Sewer Commission: Lead Service Map](#)
- [Cleveland Water: Lead Treatment](#)
- [Greater Cincinnati Water Works Enhanced Program](#)
- [New York Real Property Law § 462. Property condition disclosure statement](#)
- [Ohio Legislature House Bill 512: Water-lead and copper testing/plumbing-lead contamination](#)
- [Ohio EPA Guidelines for Lead Mapping in Distribution Systems](#)

Opportunities to Support LSL Replacement Efforts

- [New York Real Property Law § 462. Property condition disclosure statement](#)

Requiring LSL Replacement When Opportunities Arise

The Local Need

- [Primary Enforcement of Seat Belt Laws](#)
- [Carbon Monoxide Detector Requirements](#)

Examples from Local LSL Replacement Efforts

- [California SB-1398: Public water systems: lead user service lines](#)
- [California § 64551.60: User Service Line](#)
- [Inslee issues directive aimed at reducing lead exposure](#)
- [New York City's Code: Section 20.03\(s\)](#)
- [Ohio: Rules, Laws, Policies and Guidance](#)

Opportunities to Support LSL Replacement Efforts

- [International Plumbing Code](#)
- [HUD: Federal Housing Administration](#)
- [Federal Housing Finance Administration \(FHFA\)](#)
- [Qualified Allocation Plan](#)
- [Toxic Substances Control Act \(TSCA\)](#)

Engaging other Lead Poisoning Prevention Programs

The Local Need

- [President's Task Force on Environmental Health and Safety Risks to Children](#)
- [Eliminating Childhood Lead Poisoning](#)
- [Hazard Standards for Lead in Paint, Dust, and Soil \(TSCA Section 403\)](#)
- [Renovation, Repair and Painting Program](#)
- [Office of Lead Hazard Control and Healthy Homes](#)
- [Lead-Safe Housing Rule](#)
- [Lead-Based Paint Activities Professionals](#)
- [Real Estate Disclosure](#)
- [CMCS Medicaid Lead Screening](#)
- [CDC: Lead](#)

Examples from Local LSL Replacement Efforts

- [Multnomah County Health Department: Request a Water Test Kit for Lead](#)

Opportunities to Support LSL Replacement Efforts

- [Protect Your Family from Lead in Your Home](#)
- [The Lead-Safe Certified Guide to Renovate Right](#)

Improving how we Communicate the Risk

The Local Need

- [Evaluation of Lead Sampling Strategies](#)
- [Contribution of Service Line and Plumbing Fixtures to Lead and Copper Rule Compliance Issues](#)

Resources

Introduction to Lead and LSL Removal

- [Lead \(Centers for Disease Control and Prevention\)](#)
- [Consumer Confidence Report \(CCR\)](#)

Equity in LSL Replacement

- [EPA: Environmental Justice](#)
- [EPA: Civil Rights](#)
- [Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations](#)
- [Title VI of the Civil Rights Act of 1964](#)

Child Care Facilities and Schools

- [US Dept of Education "Find a School" search tool](#)
- [Child Care Resources and Referral](#)
- [Eco-Healthy Child Care® \(EHCC\)](#)
- [3Ts for Reducing Lead in Drinking Water in Schools](#)
- [Key Findings: Managing Lead in Drinking Water at Schools and Early Childhood Education Facilities](#)

Filling Information Gaps through Research

- [Innovative Techniques for LSL Location](#)
- [Evaluation of FLushing to Reduce Lead Levels](#)

Case Studies

- [Lansing: Lead Service Line Replacement Process](#)
- [Opflow: Get the Lead Out](#)
- [Halifax Water: Utility Adopts a Complete LSL Replacement Strategy](#)

Additional Resources

- [Implementing the Lead Public Education Provision of the Lead and Copper Rule: A Guide for Community Water Systems](#)

