Exhibit No.:	
Issues:	Infrastructure System Replacement Surcharge, Jefferson City, Adoption of LSLR Testimony
Witness:	Bruce W. Aiton
Exhibit Type:	Rebuttal-Revenue Requirement
Sponsoring Party:	Missouri-American Water Company
Case No.:	WR-2017-0285 SR-2017-0286
Date:	January 17, 2018

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WR-2017-0285
CASE NO. SR-2017-0286

REBUTTAL TESTIMONY
REVENUE REQUIREMENT

OF

BRUCE W. AITON

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-2017-0285** **CASE NO. SR-2017-0286**

AFFIDAVIT OF BRUCE W. AITON

Bruce W. Aiton, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Rebuttal Testimony of Bruce W. Aiton"; 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.

Bruce W. Aiton

State of Missouri
County of St. Louis
SUBSCRIBED and sworn to
Before me this 8th **day of** January **2018.**

Donna S. Singler
Notary Public

My commission expires: 7/17/2020

DONNA S SINGLER
Notary Public, Notary Seal
State of Missouri
St. Louis County
Commission # 12368409
My Commission Expires 07-17-2020

REBUTTAL TESTIMONY
REVENUE REQUIREMENT
BRUCE W. AITON
MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2017-0285
CASE NO. SR-2017-0286

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REBUTTAL TESTIMONY
REVENUE REQUIREMENT

BRUCE W. AITON

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Bruce W. Aiton and my business address is 727 Craig Road, St. Louis, Missouri 63141.

Q. Are you the same Bruce W. Aiton who previously submitted direct testimony in this proceeding?

A. Yes.

Q. What is the purpose of your revenue requirement rebuttal testimony in this proceeding?

A. The purpose of my revenue requirement rebuttal testimony ("Rebuttal") is three-fold: (1) to respond to Missouri Industrial Energy Consumers ("MIEC") witness Greg Meyer's recommendations regarding the Company's Infrastructure System Replacement Surcharge ("ISRS") program; (2) to respond to testimony submitted by Jefferson City regarding conditions in the Jefferson City system; and, (3) to respond to testimony submitted by Office of the Public Counsel ("OPC") witness Geoff Marke regarding the Company's lead service line replacement ("LSLR") program.

II. INFRASTRUCTURE SYSTEM REPLACEMENT SURCHARGE

Q. On page 29 of his direct testimony, OPC witness Meyer recommends that the Commission: (1) "[r]equire MAWC to document why the water loss percentages

have increased since 2012 with the ISRS rate mechanism in effect"; and, (2) "[s]uspend the ISRS rate mechanism for St. Louis County until it can be determined why water losses are increasing and if the ISRS mechanism is achieving its desired goals." Do you believe these recommendations are necessary or appropriate?

A. No, I do not. Mr. Meyer's first recommendation suggests that the Company's water loss percentage indicates that MAWC is not undertaking efforts to reduce water loss. As Company witness Andrew Clarkson discusses in his rebuttal testimony, water loss (or non-revenue water ("NRW")) is not necessarily representative of the Company's water loss reduction efforts. In addition, I will discuss a variety of factors that contribute to main breaks and contribute to main break activity (and consequently a portion of the NRW percentage) in St. Louis County.

Mr. Meyer's second recommendation presumes that one can determine how the Company's accelerated infrastructure replacement program is working to reduce water loss by reviewing a few years of data. That is not a reasonable assumption. A decades long problem cannot be corrected in a few years. All else being equal, achieving and maintaining a 100-year replacement rate will simply allow the Company to maintain its existing infrastructure going forward. It does not account for the Company having to catch up and replace the aging infrastructure. Mr. Meyer's suggestion also fails to recognize the various factors that contribute to water loss (as discussed below) that are out of the Company's control. Looking at a 5 or even 10-year snapshot does not reflect a full cycle of replacements and cannot adequately demonstrate the impact of an infrastructure replacement program on water loss. The reality is that if the Company stopped its infrastructure replacement activities, more pipes would be breaking,

resulting in even more real water loss. Using NRW alone to recommend that the Commission suspend a much needed infrastructure replacement program would result in more, not fewer, breaks and go against the long-term interests of our customers.

Q. You mentioned that a variety of factors contribute to main breaks. Do those factors include pipe age and material?

A. Yes. Pipe age and material are of particular interest in St. Louis County because, unfortunately, older vintage pipe material makes up much of the system.

Q. Please describe the St. Louis County system.

A. There are over 4,500 miles of main in MAWC's St. Louis County water distribution system. Approximately 95% of the pipes in the system are cast iron or ductile iron. From 1900 through 1959, there have been various manufacturing and installation techniques for cast iron pipe that have resulted in pipe with different characteristics and service lives.

Generally, there are two generations of cast iron pipe. The oldest cast iron pipes (generally manufactured prior to 1930) were thicker and, many have lasted beyond their expected service life with very few or even no leaks. Beginning around 1930, cast iron pipe was thinner and has not proved as durable as the older cast iron pipe. This newer pipe is referred to as "spun cast" pipe. Approximately two-thirds of MAWC's St. Louis County system is made up of this spun cast pipe. As shown in the table below, cast iron pipe made after 1930 is two to nearly five times more likely to experience a failure than older pipe:

Decade	Miles Installed	Breaks	Breaks Per Mile
1900-1909	13	28	2.2
1910-1919	33	112	3.4
1920-1929	199	887	4.5
1930-1939	125	1259	10.1
1940-1949	178	1758	9.9
1950-1959	657	4838	7.4
1960-1969	721	1819	3
1970-1979	212	1135	5
1980-1989	11	86	8
1990-1999	9	95	11

As the spun cast iron pipe continues to age, the spun cast pipe from the 1950's through the 1990's is beginning to experience break rates similar to those currently experienced with the 1930's and 40's vintage pipe. Consequently, the number of total breaks and breaks per mile will continue to increase.

Q. What are some other factors that contribute to main breaks?

A. In addition to pipe age and material as discussed above, other factors such as soil movement and characteristics, corrosion, pressure and weather can contribute to main breaks/pipe failure. Many of these factors are often interrelated.

For example, St. Louis County has aggressive soil that can cause external corrosion of buried pipes. This, combined with the less robust nature of the pipe material discussed above, makes the pipe in St. Louis County likely to deteriorate and ultimately break more quickly than the same type of pipe in other types of soils or the older vintage, more durable pipe in St. Louis County. When the Company replaces pipe in St. Louis County, it installs primarily PVC or ductile iron pipe that is both coated with a corrosion inhibitor and wrapped in polyethylene, making these pipes less susceptible to corrosion in an aggressive (corrosive) soil environment.

Weather also can play a significant role in pipe failure, particularly when coupled with pipe that has been weakened by corrosion. Both cold and hot dry weather results in soil contraction and movement that imposes additional stress on pipes and can eventually cause pipe failures.

Cold and hot weather can also contribute to pipe failure in other ways. Generally, when it starts to get colder the water and the pipe initially contract at about the same rate. However, once the temperature, particularly the water temperature, drops below 39 degrees[1] the conditions change. As water begins to approach freezing the water begins to expand while the pipe continues to contract. This situation can result in pipe pressures in excess of 200 pounds per square inch ("psi"). This higher than normal pressure makes pipe more susceptible to failure. This is of particular concern in St. Louis County because the system's source of supply is river water. As the rivers get colder, the water in the water distribution system also gets colder, making it more likely to drop below the 39 degrees I reference above and expand within the pipe. This is different from systems that are largely sourced by well water because well water will typically have a more constant temperature and is less likely to fall below 39 degrees.

Q. Have recent conditions caused some of these weather related issues?

A. Yes. This month is a perfect example of how cold weather can impact mains. Just within the first 10 days of the month, with degrees well below freezing, the Company has repaired approximately 700 pipe breaks in St. Louis County. Similarly, in January

[1] Water begins to expand near freezing temperatures or at approximately 4 degrees Celsius (or 39 degrees Fahrenheit). *See* The International Association for Properties of Water and Steam FAQs, available at http://www.iapws.org/faq1/freeze.html

of 2014, during which much of the country experienced a polar vortex, the Company repaired 787 pipe breaks in St. Louis County. This is in stark contrast to the number of main breaks repaired during more mild winters – 247 in January of 2016 and 212 in January of 2017.

Q. Does hot, dry weather also present challenges?

A. Yes. Hot, dry weather also poses challenges to pipes because it leads to higher water usage for watering lawns and filling pools etc., which increases the demand on the system. The higher demand causes higher pressure in the pipe and often leads to rapid changes in flow velocity and even direction of flow. These higher pressures can lead to higher pipe failure. In July of 2012, during which the state of Missouri experienced hot and dry weather resulting in a drought, is a perfect example of how hot weather can impact mains. During that month alone, the Company repaired 519 main breaks in St. Louis County. While not as drastic as the impact of cold weather, this is still greater than the number of main breaks repaired during more mild summers – less than 500 main breaks collectively over the two month period of July and August in 2016.

Q. Given all the factors that contribute to main breaks and the pipe material used in the St. Louis County system, would you expect to see significant improvements in water loss percentages over a few years as Mr. Meyer suggests?

A. No, I would not. Our main replacement programs will help the situation but significant results will likely not be seen for some time. As I note above, implementing and maintaining a 100-year replacement rate simply allows the Company to maintain its existing infrastructure going forward. The Company still has over 2,000 miles of spun cast pipe that need to be replaced in the St. Louis County system. The Company must

balance the need for infrastructure replacement with the impact that investment will have on our customers' rates. Keeping both in mind, it will likely take an excess of 40 years to replace the 2,000+ miles of spun cast pipe that needs to be replaced. From the inception of the ISRS program in mid-2003 through the end of 2017, MAWC has replaced approximately 321 miles of main, which represents less than 8% of the St. Louis County system. Under the circumstances, it is unrealistic to expect a major reduction in non-revenue water**.**

III. JEFFERSON CITY

Q. On pages 2 and 3 of his direct testimony, Jefferson City witness Matthew Schofield suggested that small diameter water mains are "a potential obstacle to maintaining standards of fire safety and growth for new projects that would require additional capacity." Please respond to Mr. Schofield's testimony in this regard.

A. As Mr. Schofield notes on page 2 of his testimony, "MAWC has worked well with Jefferson City in the past on replacing undersized mains and our city-wide insurance rating from the ISO has improved to its current assessment of 3/9 as of 2012." As I discuss in my direct testimony, the Company evaluates and prioritizes its main replacement projects annually on a statewide basis. The Jefferson City water distribution system contains about 13.6 miles of small diameter mains (≤ 4"), or approximately 8.5% of the system. Most of these mains, however, do not contribute to fire protection, and therefore, do not necessarily need to be upsized on that basis alone. When the Company prioritizes its main replacement projects, it considers, among other

factors, the upsizing of those mains that are connected to fire hydrants, which currently makes up about 1.2% of all mains in the Jefferson City water system.[2]

Q. On page 4 of his testimony, Jefferson City witness Schofield raises a concern regarding water pressures at the Jefferson City Airport. Please respond to his concern.

A. The Company was aware of, and has been looking into, the issue raised by Mr. Schofield. It is important to understand that this portion of the Company's water distribution system is separate from the Company's Jefferson City system south of the Missouri River and is supplied by a wholesale connection. As such, the Company does not have visibility to all the potential issues contributing to the pressure issue, but has determined that one potential issue could be a pressure reducing valve ("PRV") located near the wholesale supply point. A larger size or different location of the PRV may improve pressure and flow to this portion of the Jefferson City system. The Company examined the PRV and is moving forward with the replacement of the valve, which should be completed by the spring of this year. The Company is further evaluating the size and location of the PRV to determine the appropriate size and location of the PRV.

Q. On pages 7 and 8 of his testimony, Jefferson City witness Britt Smith recommends that the Commission order MAWC to provide the Jefferson City Department of Public Works certain information. Please summarize and address Mr. Smith's recommendations.

[2] The Company has identified 0.3 miles of 2" diameter mains and 1.55 miles of 4" diameter mains that are connected to fire hydrants.

A. Mr. Smith is seeking information from the Company related to the Jefferson City system. Specifically, he requests: (1) annual or multi-year capital plans; (2) leak studies; (3) a current pressure and volume model; (4) the age of the water system infrastructure; and, (5) current and future versions of the Company's Resource Supervised Plan. Each request is addressed below.

(1) MAWC understands why it is important for the Department of Public Works ("Department") to have a line of sight to the Company's main replacement projects. This will help the City and the Company better coordinate its efforts to time projects appropriately, and avoid, when possible, paving roads too soon or having to dig into roads that have been recently paved. The specific resurfacing issue regarding MAWC's decision not to replace the main under Capital Street was a decision based on the type and condition of the pipe under Capital Street. The pipe is older pit cast pipe that has performed extremely well over the years. There has never been a recorded leak in that section of pipe. With limited capital to invest, MAWC therefore decided to replace other higher risk pipe than that section of pipe under Capital Street. The Company can provide the Department information regarding main replacement projects as discussed below in item 5 and updated as priorities change from time to time.

(2) In 2017 MAWC had a leak study that utilized infrared technology performed in Jefferson City to locate subsurface leaks and has repaired all the leaks found through this effort.

(3) The Company is in the process of preparing a current, calibrated hydraulic model of the Jefferson City water system, but it is not yet completed. It is also

evaluating ways that it can share relevant information from that model with the Department of Public Works and Fire Department once completed.

(4) Below is a table showing the age of the water system infrastructure by miles of main that fall into each age bracket. MAWC purchased the Jefferson City system in May 2000. Prior to that time there were some gaps in the records relating to pipe age, resulting in about 25% of the system age being unknown. Based on the acquisition year of the system, we know that these mains are at least older than 15 years old.

	Water Main Age (years)						
	> 100	80-100	60-79	40-59	Under 40	Unknown	Total
Miles	1.6	9.0	20.7	51.2	37.5	39.1	159.1
% of System	1.0%	5.7%	13.0%	32.2%	23.6%	24.6%	100%

(5) The Company's Resource Supervised Plan is part of MAWC's Owner Supervised Program ("OSP") in which the Missouri Department of Natural Resources ("DNR") approves the Company's water main replacement plans for a five-year period. The Company will be renewing the OSP in early 2018 and can provide the Department a copy of DNR's approval letter, which lists the segments of pipe by street name included in the five-year plan. This will provide the Department with a list of areas the Company plans to perform main replacement work that they can reference as they plan street paving and improvement projects. As noted above, the Company will also keep the Department apprised if adjustments are made to the plan.

IV. ADOPTION OF LSLR TESTIMONY

Q. Did you participate and provide testimony in the Company's LSLR Accounting Authority Order ("AAO") proceeding?

A. Yes. I provided written direct testimony, rebuttal testimony and surrebuttal testimony in that proceeding. I also provided live testimony at the hearing held in that proceeding on September 27, 2017 ("LSLR AAO Hearing").

Q. Did OPC witness Marke also submit testimony in the Company's LSLR AAO proceeding?

A. Yes. OPC witness Marke submitted written direct testimony, rebuttal testimony and surrebuttal testimony in the Company's LSLR AAO proceeding. He also provided live testimony at the LSLR AAO Hearing.

Q. OPC witness Marke has submitted his written testimony from the LSLR AAO proceeding as schedules to his direct testimony in this case. Did your testimony in the LSLR AAO proceeding respond to OPC witness Marke?

A. Yes. My testimony in the LSLR AAO proceeding responds to the issues raised by OPC witness Marke regarding the Company's LSLR program and OPC's proposed pilot study. My direct, rebuttal and surrebuttal testimony from the LSLR AAO proceeding is attached hereto as **Schedules BWA-1, BWA-2, and BWA-3**, respectively. MAWC witnesses Gary Naumick and James Jenkins provide additional testimony in support of the Company's LSLR program and proposed cost recovery.

Q. Does this conclude your revenue requirement rebuttal testimony?

A. Yes, it does.

Exhibit No.:	
Issues:	AAO Lead Line Replacements
Witness:	Bruce W. Aiton
Exhibit Type:	Direct
Sponsoring Party:	Missouri-American Water Company
Case No.:	WU-2017-0296
Date:	August 1, 2017

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WU-2017-0296

DIRECT TESTIMONY

OF

BRUCE W. AITON, PE

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

August 1, 2017

DIRECT TESTIMONY

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 BRUCE W. AITON

Bruce W. Aiton, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Direct Testimony of Bruce W. Aiton"; 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.

Bruce W. Aiton

State of Missouri
County of St. Louis
SUBSCRIBED and sworn to
Before me this 1st **day of** August **2017.**

Mary Beth Hercules
Notary Public

My commission expires:

MARY BETH HERCULES
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires April 26, 2020
Commission # 96546828

BRUCE W. AITON
MISSOURI-AMERICAN WATER COMPANY
CASE NO. WU-2017-0296

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BRUCE W. AITON

DIRECT TESTIMONY

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Bruce Aiton, and my business address is 727 Craig Rd., Creve Coeur, MO 63141.

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

A. I am employed by Missouri-American Water Company ("MAWC", "Missouri-American" or the "Company") as Director of Engineering.

Q. What are your responsibilities in this position?

A. I am responsible for managing the planning, design and construction of water and sewer capital investment projects for all of MAWC's systems and facilities, including the development and updating of the statewide Geographic Information System ("GIS") and developer related services. My responsibilities include ensuring MAWC's compliance with state and federal requirements related to the planning for and delivery of the capital investment program; coordinating the procurement of all project design and construction services; providing comprehensive system planning for use in developing system needs and projecting capital spending; and supporting MAWC operations staff in performing plant/system troubleshooting.

Q. Please describe your educational background and outline your business experience.

A. I received a Bachelor of Science degree in civil engineering from California State University Sacramento. I am a registered professional engineer in the state of California. I have over 29 years of experience in the water and wastewater design and construction industry. In these roles, I was involved in, or oversaw the completion of, numerous planning, design, and construction projects, ranging in size and scope from small sewer and water main extension projects to water and wastewater system planning studies and the design and construction administration of treatment plant improvement projects of up to $90 million. I began my career with American Water Works Company, Inc. ("American Water") in August of 2009 and began as the Director of Engineering for MAWC, in February 2017, the position I currently hold.

II. PURPOSE

Q. What is the purpose of your testimony in this proceeding?

A. My direct testimony is being submitted in support of the Company's Application for an Accounting Authority Order related to cost recovery of the replacement of customer-owned lead service lines. My testimony is divided into several parts. First, I discuss generally the risks associated with lead and how the Company approaches addressing lead in drinking water through treatment and sampling to ensure the Company supplies water consistent with federal and state regulatory standards established by the United States Environmental Protection Agency ("EPA") and Missouri Department of Natural Resources ("DNR"). Second, I provide an overview of Missouri-American's approach to further protecting customers from lead exposure in the drinking water through the replacement of lead service

lines. Third, I discuss the costs associated with the Company's proposed lead service line replacement program.

III. BASIS OF CONCERNS AND RESPONSES IN REGARD TO LEAD

Q. Why should we be concerned about lead?

A. As explained by Mr. Naumick, lead is a naturally occurring metal that is harmful if inhaled or swallowed, particularly in children and pregnant women. Exposure to lead can cause a variety of adverse health effects. Recent events, including those in Flint, Michigan, have heightened consumers' concern about the presence of lead in drinking water.

Q. Does any lead piping remain in service in public water systems in the State?

A. Yes. Until around 1950, it was common practice for water utilities in Missouri to install lead service lines. No known lead mains remain in service in the portions of MAWC's distribution system that predate this change or in systems subsequently acquired by the Company. However, there may be pipe in the system that has lead sealed joints in service in the system. In addition, there are both Company-owned and customer-owned lead service lines in the system. MAWC does not have data on other public water systems in the State that may contain lead pipe.

Q. Please describe MAWC's obligations under federal and state regulatory standards to control lead levels in the drinking water at the customer's tap.

A. Federal and state regulations require public drinking water providers, including the Company, to regularly test for contaminants such as lead. The EPA and Missouri DNR

promulgated treatment technique regulations for lead and copper (the "Lead and Copper Rule" or "LCR") in 1991 and 1994, respectively, which establish an action level for lead of 15 parts per billion ("ppb").

The current LCR requires public water suppliers to employ water treatment methods, as necessary, to minimize the corrosive quality of the water they provide because corrosion can cause lead piping and lead solder to leach lead into the water drawn at the customer's tap. If a water system, after installing and optimizing corrosion control treatment, continues to fail to meet the lead action level, the LCR directs the utility to begin replacing lead service lines under its ownership.

Q. Please describe the Company's approach to address potential sources of lead in drinking water.

A. MAWC employs a proactive, multi-faceted approach to manage the potential exposure to lead as part of its commitment to maintain excellent water quality and protect the health and safety of its customers. These layers of protection include treatment of water, monitoring of key indicators of water quality, identification and inventorying of service line materials, development of a replacement program and communication with the customer about ways to reduce potential exposure. The primary mitigation to potential exposure of lead in drinking water is stable water quality and treatment of water to minimize corrosion. The Company utilizes corrosion control treatment measures and a sampling protocol approved by the Missouri DNR. In addition, the Company employs a wide variety of tools to help customers understand how they can reduce the risk of lead

exposure from their own older plumbing, including a lead information page on MAWC's website.

Q. What is the Company's track record in meeting LCR requirements?

A. Notwithstanding the presence of the lead service lines to homes or older plumbing fixtures contained in some of the homes in our service areas, MAWC has a well-established history of LCR compliance. In the past thirty years, the Company has not triggered the LCR action level requirements in any portion of its system. This history of compliance is a testament to the effectiveness of the Company's corrosion control measures and prudent management of its distribution system.

IV. MAWC'S LEAD SERVICE LINE REPLACEMENT PROGRAM

Q. Please describe MAWC's proposed lead service line replacement program ("LSLR Program").

A. MAWC has a program to replace water mains throughout our service areas. The main replacement is prioritized by considering a variety of factors, including the condition of the main, gauged by a combination of leaks or breaks in the line, pressure and flow conditions, and pipe age and material. MAWC also coordinates with local municipalities to replace mains in conjunction with road projects. It is during this regular main replacement process that MAWC anticipates replacing the lead service lines. Under the LSLR Program, when the Company encounters lead service lines during a main replacement project, it will proactively replace the lead portion of the service line. This may include Company-owned

lead service lines and/or lead goosenecks as well as customer-owned portions of lead service lines.

If only the goose neck is lead, the Company will replace the service line up to the service shut off valve. If the service line is lead, the Company will, with the customer's consent, replace the entire service line from the main to just outside the customer's premise or to the shut off valve within the customer's premise.

Q. Please describe the specific steps that are taken during the replacement process?

A. As we replace existing water mains we inspect the existing service line connected to the main to determine if it is lead. MAWC in the course of main replacement will excavate to expose each service, and other utilities, to both confirm location and make a determination of size and material of the service line. If the gooseneck or service line are lead then the following general steps are taken.

- The customer is notified of the presence of lead in the service line;
- A telephone notification is sent to all customers within the main replacement project limits;
- The owner of the property is presented with a "Service Line Replacement License" agreement for acceptance or denial. Execution of the license is required to allow crews to work on the subject property (see Schedule BWA-1);
- Customer/owner (both if different) are provided with "Important Notice about Your Water" and "Lead" fact sheets (see Schedule BWA-2, Schedule BWA-3, and Schedule BWA-4);

- Necessary permits for water service line replacement and electrical work if required for reestablishing grounding are acquired;
- The lead service line replacement is performed. All lead portions of the lines are replace either: 1) to the foundation (or through the foundation to the interior shut-off valve if possible); or, 2) to the service shut-off valve if only the gooseneck is lead.
- Lines are then flushed in coordination with the customer;
- Post replacement sampling is done (see Schedule BWA-5); and,
- Customer/owner are notified of sampling results.

The Company has begun to prioritize the known or anticipated presence of lead service lines when prioritizing water main replacement projects.

Q. Does the LSLR Program support the Company's ability to continue to maintain compliance with applicable drinking water regulations?

A. Yes. The LCR imposes an obligation on the Company and other drinking water providers to furnish water that is below the lead action level at the customer's tap even if the source of lead originates within the customer-owned service lines and the in-home piping. Consequently, remaining in compliance with applicable drinking water regulations when the Company replaces its mains connected to lead service lines necessarily requires taking steps to address possible sources of lead contamination from customer-owned property. In his testimony, Mr. Naumick discusses why partial replacements of lead service lines do not adequately mitigate the potential exposure to lead in drinking water. Eliminating lead pipe from the system, together with the Company's robust corrosion control water treatment

measures, are a prudent and effective means to maintain regulatory compliance and protect public health.

Q. What facilities does the Company propose to replace as part of its LSLR Program?

A. As part of the LSLR Program, the Company will replace lead service lines during water infrastructure upgrade projects. This will include lead goosenecks owned by the Company, lead service lines owned by the Company and lead service lines owned by the customer. We propose to replace lead goosenecks and lead service lines whenever we encounter them.

Q. Why is the Company proposing to replace all lead service lines that are encountered when the Company replaces its mains given MAWC's full compliance with LCR requirements?

A. As explained by Mr. Naumick, a growing body of well accepted research indicates that a "partial" replacement, which physically disturbs, but leaves in place, the customer's segment of a service connection, potentially elevates the risk of lead exposure through drinking water after the replacement occurs. In addition, the National Drinking Water Advisory Council [1] recommended that the EPA revise the LCR regulations to require complete and proactive replacement of both the utility and customer segments of service connections that contain lead.

[1] Report of the Lead and Copper Rule Working Group to the National Drinking Water Advisory Group, Aug. 2015

Consequently, an increasing number of utilities are reconsidering or avoiding the practice of partial lead service line replacement where possible. MAWC, however, has significant infrastructure rehabilitation needs and cannot avoid replacing aging infrastructure simply because it is connected to lead service lines. Replacing lead service lines when the corresponding mains or service lines are replaced will eliminate a potential source of lead exposure following a "partial" replacement for MAWC's customers.

Q. Who owns the service lines in MAWC's service areas?

A. In the St. Louis County system, the customer (property owner) owns the entire service line. In the other districts, MAWC owns the portion of the service line between the main and the curb stop at the property line, and the customer (property owner) owns the portion from the curb stop to the premise.

Q. How many lead service lines does the Company expect to identify and replace over a ten-year period?

A. MAWC continues to review its distribution system materials inventory to confirm the number and location of lead service lines. We use service line tap records if available, local district knowledge and in, St. Louis, a database that contains service tap information to estimate the total number of lead connections. If available, historical tap records were scanned then reviewed. We focused data review by starting on the older portions of our service areas where lead services may exist. Preliminary surveys of the Company's tap cards indicate that approximately 30,000 lead service lines remain on its systems. However, the Company does not have full records regarding the composition of the service

lines that are installed and owned by the customer. Consequently, MAWC does not have an exact count of lead service lines that would be replaced under the Company's proposal.

V. LEAD SERVICE LINE REPLACEMENT COSTS

Q. Has the Company estimated the cost of replacement for lead service lines?

A. Yes. MAWC initially estimated the average cost to replace a lead service line would average approximately $3,000-$5,500, when the replacement is performed in conjunction with a main replacement project. While, some replacements have cost up to $11,000 due to specific site constraints, such as long lay length and the presence of rock and large trees that impacted the cost of the installation and restoration, MAWC believes costs will be more commonly at the high end of the initial range .

Q. Is the Company's LSLR Program a cost-effective initiative to address possible exposure to lead from service lines?

A. Yes. Many customers, particularly those in older neighborhoods with populations that face economic constraints that make it difficult or impossible for them to pay for replacement, will have a difficult time replacing their lead service lines on their own. Allowing MAWC to replace lead service lines under its LSLR Program is a reasonable solution to this problem. Furthermore, the Company will be able to leverage economies of scale to reduce costs and minimize service disruptions related to lead service line replacements. In addition to these efficiencies, MAWC's ability to coordinate the replacement of Company and customer owned lead service lines will streamline project administration and reduce overall costs.

Q. Does MAWC intend to pursue state and federal funding sources to offset LSLR Program costs?

A. Yes. MAWC will seek low cost state and federal funding to the extent funding is available.

Q. Does this conclude your direct testimony at this time?

A. Yes, it does.

WATER SERVICE LINE REPLACEMENT LICENSE

(St Louis Only)

The undersigned _____ and _____ (collectively "Customer") grants to Missouri-American Water Company ("Company") and to its approved contractors and/or subcontractors a license to enter upon Customer's property at _____, _____, Missouri _____ ("Property") for the purpose of connecting Customer's residence to a Company water main adjacent to the Property, at no cost to Customer. The term of this license shall be six (6) months following the date set forth below. Customer represents that _____ is/are the sole owner(s) of the Property and has/have sole authority to agree to this License.

Customer agrees and accepts this replacement license: YES ☐ NO ☐

Company or its approved contractors and/or subcontractors will replace a portion of Customer water service line to remove lead from the existing water service line from the Company water main located near the Customer's property line in public street right of way /easement to the Customer's residence, at no cost to Customer. The Customer water service line is currently and will continue to be owned and maintained by Customer. If the work is performed by a third party contractor, Customer consents to the release of the contact information provided in this release to be provided to the contractor.

Upon completion of the work necessary to effect the new connection, Company will restore Customer's Property as nearly as practicable to its former condition.

Customer acknowledges that _____ has/have received the "Important Notice About Your Water" and "Lead" fact sheets provided by Company.

In consideration for performing the work to replace the lead contained within the portion of the Customer water service line at Company's cost, Customer agrees to indemnify, release and hold harmless Company and its affiliates and agents from and against all claims, liability and costs ("Claims") resulting from acts and omissions of Company and/or its approved subcontractors in installing the Customer water service line; however, Customer shall have no duty to indemnify Company for any Claims that result from the negligence, wrongful act, or omission of the Company including its representatives, subcontractors, successors and assigns. Notwithstanding the foregoing, Company warrants the workmanship of its installation of the portion of the Customer water service line replaced for a period of 12 months following the date set forth below, with Company's liability limited to the cost of repairing or replacing the portion of the Customer water service line containing lead that was replaced as part of this agreement.

DATE: _____ CUSTOMER PHONE #: _____ _____
HOME CELL

CUSTOMER:

_____ _____

_____ _____
[Print Name] [Print Name]

MISSOURI-AMERICAN WATER COMPANY

By: _____

_____
[Print Name and Title]

IMPORTANT NOTICE ABOUT YOUR WATER

Dear Valued Customer,

As part of our routine improvements to ensure the quality and pressure of your water service, Missouri American Water is upgrading our infrastructure. Today, we connected your customer-owned service line to the company's new main in the street. Some sediment or debris may have come loose during this process.

You should flush your household plumbing BEFORE you consume tap water or use hot water. For example, this includes drinking, cooking, making baby formula, filling pet bowls, or using icemakers, filtered water dispensers or appliances requiring water.

1. Start by finding the closest available cold water tap to where the water line comes into the home (such as an outside hose bib or laundry/utility sink). If using outside faucet, please use hose to direct water away from your home.
2. Remove faucet aerator, and if applicable, bypass any home treatment unit. Then fully open the cold water tap and let the water run for at least 5 minutes.[1]

Monitor tap and drain to prevent overflows.

For more information on your water quality, call us or visit us online at **www.missouriamwater.com**. Under Water Quality & Stewardship, select Water Quality Reports.

[1]**Source:** Environmental Protection Agency (EPA), https://www.epa.gov/il/advice-chicago-residents-about-lead-drinking-water.

Date: _____/_____/20_____ Time: _____ a.m. / p.m.

MO.STL.FLA.D.04.16

MISSOURI
AMERICAN WATER

CUSTOMER SERVICE
HOURS OF OPERATION: M-F, 7 a.m. to 7 p.m.
FOR EMERGENCIES: We're available 24/7.

1-866-430-0820

IMPORTANT NOTICE ABOUT YOUR WATER

MISSOURI AMERICAN WATER

Dear Valued Customer,

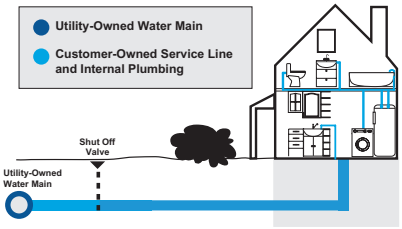
As part of our routine improvements to ensure the quality and pressure of your water service, Missouri American Water is upgrading our infrastructure. Today, we evaluated your customer-owned water service line. Here's what we found.

- ❑ We identified that your customer-owned service line may contain lead.

Missouri American Water Company is planning on replacing a portion of the customer-owned water service line that contains lead. This will occur when we reconnect your water service line to the newly installed water main in the street/right of way/easement.

You will be notified when your water service line is transferred to the newly installed water main. Once transferred, please follow the **Household Flushing Instructions** recommended by AWWA[1] listed below to minimize your exposure of any lead that may have been released.

St. Louis County



Please note: This diagram is a generic representation. Variations may apply.

Because part of the service line that we observed contained lead, you should contact a licensed plumber to identify the material used in your home plumbing. If lead is found, you should consider replacing those materials to reduce your exposure to lead. Please note: homeowners are responsible for their home plumbing and water service line.

Household Flushing Instructions

You should flush your household plumbing BEFORE you consume tap water or use hot water. For example, this includes drinking, cooking, making baby formula, filling pet bowls, or using icemakers, filtered water dispensers or appliances requiring water.

1. Start by finding the closest available cold water tap to where the water line comes into the home (such as an outside hose bib or laundry/utility sink). If using outside faucet, please use hose to direct water away from your home.
2. Remove faucet aerator, and if applicable, bypass any home treatment unit. Then fully open the cold water tap and let the water run for at least 30 minutes.

Next, flush the remainder of your household plumbing as follows:

3. Remove faucet aerators from all cold water taps in the home (and remove any filter devices).
4. Beginning in the lowest level of the home, fully open the cold water taps throughout the home.
5. Let the water run for at least 30 minutes at the last tap you opened (top floor).
6. Turn off each tap starting with the taps in the highest level of the home. Replace the aerators on faucets.

Be sure to run cold water in bathtubs, showers and faucets, and monitor all taps and drains to prevent overflows.

[1]**Source:** American Water Works Association (AWWA), www.awwa.org. AWWA is a nonprofit association dedicated to managing and treating water.

FOR MORE INFORMATION

For Questions About Lead:

Contact Jane Bishop
M-F, 7:30 a.m.–4 p.m.
314-469-6050, ext 6428
After hours: Please contact our field resources center at 1-618-239-3227

For Questions About Construction:

_____

(_____) _____

For all other inquiries:
Customer Service Center
1-866-430-0820
Hours: M-F, 7 a.m. – 7 p.m.
For emergencies, we're available 24/7.

Missouri American Water meets all drinking water standards related to lead. Basic information about lead, the steps we take—along with tips on what you can do—to reduce the potential for lead exposure, are attached and can be found online at **www.missouriamwater.com**. Under Water Quality, select Water Quality Reports.

For more information on drinking water in general:
Call the USEPA's Safe Drinking Water Hotline at (800) 426-4791.

Date: _____
Time: _____ a.m. / p.m.

MOSTL.FLB.01-2017

LEAD

The most common source of lead in tap water is the plumbing in your home

MISSOURI AMERICAN WATER

Missouri American Water regularly tests for lead in drinking water and has taken steps to minimize levels through improvements in corrosion control.

Although these tests indicate that lead is not an issue in the treated water leaving our facility, lead and/or copper levels in some homes and businesses might be detected due to customer use of lead pipes, lead solder and molded metal faucets in household plumbing.

Health effects associated with high levels of lead

The U.S. Environmental Protection Agency (EPA) sets standards related to lead in drinking water. Lead levels that exceed these standards could cause serious damage to the brain, kidneys, nervous system and red blood cells. The greatest risk, even with short-term exposure, is to young children and pregnant women.

Assessing your exposure to lead

Lead levels in drinking water are more likely to be higher if:

- your home or water system has lead pipes or has a lead service line
- your home has copper pipes with lead solder
- your home was built before 1986 AND
- you have soft or acidic water
- water sits in the pipes for several hours

Minimizing your exposure

You cannot see, smell or taste lead, and boiling water will not remove lead. Although our water is treated to minimize the risk of lead, you can reduce your household's exposure to lead in drinking water by following these simple steps:

- **Flush your tap before drinking or cooking with water, if the water in the faucet has gone unused for more than six hours.** The longer the water lies dormant in your home's plumbing, the more lead it might contain. Flush your tap with cold water for 30 seconds to two minutes before using. To conserve water, catch the running water and use it to water your plants.
- **Try not to cook with or drink water from the hot water faucet.** Hot water has the potential to contain more lead than cold water. When you need hot water, heat cold water on the stove or in the microwave.
- **Remove loose lead solder and debris from plumbing.** In newly-constructed homes or homes in which the plumbing was recently replaced, remove the strainers from each faucet and run the water for 3 to 5 minutes. When replacing or working on pipes, be sure to use materials that are lead-free. Use of lead-based solders has been banned.
- **Look for the "Lead Free" Label.** When replacing or installing fixtures, look for the "lead free" label. Under the 2011 Reduction of Lead in Drinking Water Act, fixtures must have 0.25% lead or less to be considered "lead free."
- **See also information** on the reverse related to home treatment devices.

(Continued)

For more information

Missouri American Water Customer Service Center:
1-866-430-0820
M-F, 7 a.m. - 7 p.m.

Check us out online:
missouriamwater.com

For more information on drinking water standards:
Contact the EPA Hotline at 1-800-426-4791

MISSOURI AMERICAN WATER

If you are still concerned about elevated levels and want to find out where you can have your water tested by a certified laboratory, contact the EPA's Safe Drinking Water Act Hotline at 1-800-426-4791 or visit the Missouri Department of Natural Resources' website at www.dnr.mo.gov.

FREQUENTLY ASKED QUESTIONS

Is lead in water regulated and does Missouri American Water comply with standards?

Yes and yes. The EPA's lead standard is an action level that requires treatment modifications if lead test results exceed 15 parts per billion (ppb) in more than 10 percent of first draw samples taken from household taps.

Missouri American Water regularly tests for lead at the end of its treatment process. Testing has shown that lead is not an issue in the water exiting any of our water treatment facilities.

We also conduct tests in our distribution system in accordance with the EPA regulatory requirements. For more information on your system, visit **missouriamwater.com** to view the latest consumer confidence report. Under the **Water Quality & Stewardship** menu, select **Water Quality Reports**.

Does that mean I do not have lead in my water?

Not necessarily. You might have lead in your drinking water if your household plumbing system has lead pipes or if lead solder was used in the joints of copper pipes.

Homes built before 1930 are more likely to have lead plumbing systems.

Lead pipes are dull grey color and scratch easily revealing a shiny surface. Lead solder used to join copper pipes is a silver or grey color. If your house was built before January 1986, you are more likely to have lead-soldered joints. If you do, the chance of the lead leaching into your drinking water is greater when water has been standing in the pipes for many hours, overnight for example.

Lead kits that test for the presence of lead in solder are available at some hardware stores.

Should I flush my faucets every morning before using it to drink or use for food prep?

Yes. If you know you have lead pipes or lead solder was used on your copper piping, **flush your tap before drinking or cooking with water, if the water in the faucet has gone unused for more than six hours.** The longer the water lies dormant in your home's plumbing, the more lead it might contain. Flush your tap with cold water for 30 seconds to two minutes before using.

How can I tell if my water contains too much lead?

You can have your water tested for lead. Since you cannot see, taste or smell lead dissolved in water, testing is the only sure way of knowing.

Will electrical grounding increase my lead levels?

Possibly. If grounding wires from electrical systems are attached to household plumbing, corrosion and lead exposure may be greater. Customers can choose to pay to have an electrician check the house wiring.

Getting your water tested for lead

Missouri American Water does not provide testing for lead for individual customers who request it. Customers can choose to have their water tested at their cost at a certified laboratory.

For more information

- Contact EPA's Safe Drinking Water Act Hotline: 1-800-426-4791
- Visit Missouri Department of Natural Resources online at www.dnr.mo.gov

Do I need a home treatment device for lead?

The need for a home treatment device is a customer-specific decision. Missouri American Water takes steps to reduce the potential for lead to leach from your pipes into the water. This is accomplished by adding a corrosion inhibitor or by reducing the acidity of the water leaving our treatment facilities. Certain home treatment devices, such as water softeners for example, might increase lead levels in your water. Always consult the device manufacturer for information on potential impacts to your drinking water or household plumbing.

NSF International created a Consumer Guide to NSF Certified Lead Filtration Devices for Reduction of Lead in Drinking Water. Visit www.nsf.org/info/leadfiltrationguide for more information.

05-2016

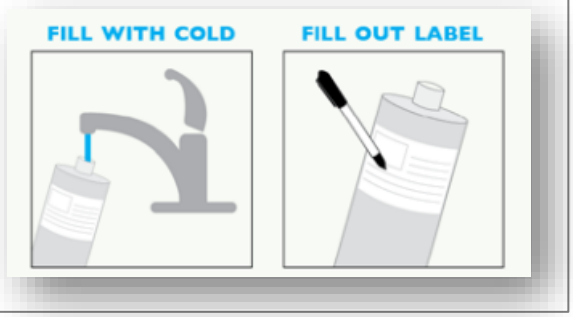
Sample #1 – Post Flush

STEP I Fill bottle and complete label (print legibly)

- Collect water sample from the **kitchen cold water tap** AFTER conducting the whole house flush.
- If a water treatment unit or filter is attached to the plumbing system or faucet, remove the filter or bypass the unit before sampling.

Sampling

1. Gently open the **kitchen cold water tap** and fill the bottle to the top (marked with a line).
2. Turn off water and tightly cap the sample bottle.
3. Fill out the bottle label:
   Collect Date, Collect Time, and Address.



STEP II Deliver Sample

Deliver sample on the SAME DAY COLLECTED to [INSERT Project Manager Name] for shipment to the lab.

Sample #2 – Water Unused for 6 Hrs

This sample should be collected within 72 hours (3 days) of the water line replacement.

STEP I Fill bottle and complete label (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.)
- This sample must be collected within 72 hours (3 days) of the repair.
- If a water treatment unit or filter is attached to the plumbing system or faucet, remove the filter or bypass the unit before sampling.

Sampling

1. Gently 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).
2. Turn off water and tightly cap the sample bottle.
3. Fill out the bottle label:
   Collect Date, Collect Time, and Address.

STEP II Deliver Sample

Deliver sample on the SAME DAY COLLECTED to [INSERT Project Manager Name] for shipment to the lab. Results will be communicated with the resident/owner as soon as they are available.

Exhibit No.:	
Issues:	AAO Lead Line Replacements
Witness:	Bruce W. Aiton
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

BRUCE W. AITON

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 BRUCE W. AITON

Bruce W. Aiton, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Rebuttal Testimony of Bruce W. Aiton"; that said testimony was prepared by him and/or under his direction and supervision; that if inquiries were made as to the facts in said testimony, he would respond as therein set forth; and that the aforesaid testimony is true and correct to the best of his knowledge.

Bruce W. Aiton

State of Missouri
County of St. Louis
SUBSCRIBED and sworn to
Before me this 8th **day of** August **2017.**

Mary Beth Hercules
Notary Public

My commission expires:

MARY BETH HERCULES
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires April 26, 2020
Commission # 96546828

REBUTTAL TESTIMONY
BRUCE W. AITON
MISSOURI-AMERICAN WATER COMPANY
CASE NO. WU-2017-0296

TABLE OF CONTENTS

BRUCE W. AITON
REBUTTAL TESTIMONY

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Bruce Aiton, and my business address is 727 Craig Rd., Creve Coeur, MO 63141.

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

A. I am employed by Missouri-American Water Company as Director of Engineering.

Q. Are you the same Bruce Aiton that previously filed Direct Testimony in this case?

A. Yes, I am.

Q. What is the purpose of your Rebuttal Testimony?

A. I will respond to certain aspects of the Direct Testimony of Office of the Public Counsel (OPC) witness Geoff Marke.

II. RESPONSE

Q. In OPC witness Marke's Direct Testimony (page 4), he states that OPC does not agree with MAWC's estimate that there are approximately 30,000 lead service lines in MAWC's system. How would you describe this estimate?

A. I believe it is a good estimate given the information MAWC has available. The Company acknowledges that it is not a precise estimate because it does not have up to date

information for each and every main and service line in its system, particularly those in systems it has acquired over time. Nevertheless, it gives a directional estimate that provides an order of magnitude of the challenge.

Q. How did MAWC develop this estimate?

A. As explained in my direct testimony, MAWC developed the estimate based on available documentation, institutional knowledge and field experience.[1] For each of the systems that MAWC maintained (or received through acquisition) tap cards, MAWC staff reviewed all available and legible tap cards and pulled those that list lead as the material for the service line. Several systems the Company has acquired over time, however, did not have tap records. In those areas, an estimate was developed based on the information available. The Company used a review of the age of houses coupled with institutional knowledge of existing staff to estimate the number of potential lead services. An example of a system with no tap records is Mexico, MO. Existing staff who have worked in the city for many years have a level of knowledge as to which areas of town do and do not have lead services lines from their experience digging up services over the years.

Q. Do you believe this estimate is sufficient to allow MAWC to prioritize and proceed with its proposed lead service line replacement ("LSLR") program?

A. Yes. MAWC believes that proceeding with full LSLR is in the best interest of the health and safety of our customers. As MAWC undertakes its main replacement projects, it plans to replace lead service lines as they are discovered regardless of whether or not

[1] Aiton Direct, p.9, l.15 – p.10, l.2.

they were part of the original inventory. A complete inventory is not necessary to complete this work. Further, as Mr. Naumick has indicated, water utilities across the country are not waiting for perfect inventories to begin the important work of full lead service line replacements. MAWC has used the best available information to develop our current estimate and we will adjust this estimate as additional information is gained.

Q. Is MAWC continually seeking additional information to refine its estimate?

A. Yes. Our inventory is updated with information from field and construction crews where lead service lines are discovered either through construction activity or through leak remediation. We also use parcel age data to help identify and screen areas where lead pipe would more likely have been used for the service line. Moreover, MAWC plans to confer with Department of Health officials for referrals of areas or premises of concern that we would prioritize and potentially add to the inventory if applicable. Further, any customer or interested party that has relevant data is welcomed to contact us to help to refine the information available to the Company.

Q. OPC witness Marke has proposed a pilot study that, among other things, calls for a third party consultant to write a report addressing: 1) how to replace customer owned lead service lines in conjunction with distribution system infrastructure replacement; 2) estimates of the number of lead, copper, or galvanized mains and lead, copper, or galvanized service lines in each MAWC water system; and, 3) estimates of a range of the number of customer-owned lead service lines. Should the lead service line replacements be delayed to allow such a study to be completed?

A. No. MAWC witness Naumick's Direct and Rebuttal Testimonies demonstrate that the case for full lead service line replacement has been established by EPA and public health experts. MAWC is working to develop the prioritization of the replacement of water mains in areas with lead service lines, which will incorporate input from local public health agencies for potential identification and prioritization of premises and areas in which to focus our efforts. This information will be considered during the Company's project prioritization process.

Q. OPC witness Marke suggests that scoping analysis should consider MAWC's proposal for addressing the costs of unusual site restoration work (page 8). How will MAWC address the cost of unusual site restoration work and excavation costs necessitated by structures or improvements located above the customer-owned portion of the lead service lines?

A. As is the case with any pipe replacement project, the costs will vary depending on site conditions. Accordingly, we have developed a bid document that includes unit price costs for various site conditions. Some locations will be on the low end of the estimated costs and others will be on the high end of estimated costs. Like any other pipe replacement project, the Company will work with its contractors to ensure the work is being performed safely and cost effectively. For example, where possible, MAWC will use trenchless technology to minimize unusual site restoration.

Q. How will OPC's proposed "two-year pilot study" affect MAWC's ability to undertake full lead service line replacement?

A. MAWC's LSLR Program proposes to replace known (+/-30,000) service lines within a ten year period, or roughly 3,000 per year. Using an average cost of $5,000 per service, MAWC estimates that it would invest approximately $15 million per year. OPC's proposal to limit the investment in LSLR to $4 million per year during the pilot limits MAWC's ability to replace lead service lines during the proposed pilot. Consequently, the Company's ability to perform planned main replacement projects will also be limited. As Mr. Naumick indicated in his direct testimony, "the galvanic corrosion that can occur after a partial lead service line replacement and the physical disturbance of the lead service line have the potential to increase lead levels following replacement."[2] Since partial LSLR has the potential to increase the risk of exposure to lead, the Company will not perform partial LSLR. This means MAWC will not complete the main replacement projects in areas where lead service lines are present, delaying much needed infrastructure replacement and rehabilitation. In addition, limiting the level of investment to $4 million per year delays the Company's proposed completion of its LSLR program, pushing it out well beyond ten years.

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

A. Yes, it does.

[2] Naumick Direct, p.7, ll.17-19.

Exhibit No.:

Issues:	AAO Lead Line Replacements
Witness:	Bruce W. Aiton
Exhibit Type:	Surrebuttal
Sponsoring Party:	Missouri-American Water Company
Case No.:	WU-2017-0296
Date:	September 14, 2017

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WU-2017-0296

SURREBUTTAL TESTIMONY

OF

BRUCE W. AITON

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

2BEFORE 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 BRUCE W. AITON

Bruce W. Aiton, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Rebuttal Testimony of Bruce W. Aiton"; 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.

Bruce W. Aiton

State of Missouri
County of St. Louis
SUBSCRIBED and sworn to
Before me this 8th day of August 2017.

Mary Beth Hercules
Notary Public

My commission expires:

MARY BETH HERCULES
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires April 26, 2020
Commission # 96546828

SURREBUTTAL TESTIMONY
BRUCE W. AITON
MISSOURI-AMERICAN WATER COMPANY
CASE NO. WU-2017-0296

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SURREBUTTAL TESTIMONY

BRUCE W. AITON

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Bruce Aiton, and my business address is 727 Craig Rd., Creve Couer, MO 63141.

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

A. I am employed by Missouri-American Water Company ("MAWC" or the "Company") as Director of Engineering.

Q. Are you the same Bruce Aiton that filed direct and rebuttal testimony in this matter (WU-2017-0296)?

A. Yes

II. PURPOSE

Q. **What is the purpose of your surrebuttal testimony in this proceeding?**

A. My surrebuttal testimony further supports the Company's request for an Accounting Authority Order related to replacement of customer-owned lead service lines. Specifically, I will address the rebuttal testimony of Office of the Public Counsel ("OPC") witness Geoff Marke regarding the cost and estimated quantity of service lines affected by this issue, and issues that may be encountered in the future during line

replacements. I will also respond to the rebuttal of Missouri Public Service Commission staff ("Staff") witness James Merciel as it relates to the Company's future approach to this issue.

III. ESTIMATED COST AND QUANTITY

Q. On pages 14-16 of his rebuttal testimony, OPC witness Marke suggests that MAWC's estimate that it has approximately 30,000 lead service lines in its systems "is likely understated" given his review of an AWWA study. Do you agree that MAWC's estimate is "likely understated"?

A. No. While MAWC's estimate of lead service lines may not be perfect, it is based on existing data from the Company's tap cards and field experience.[1] In making his allegation, OPC witness Marke references a 2016 AWWA journal article titled "National Survey of Lead Service Line Occurrence." This National Survey is based on more general information that has been extrapolated to an estimate for the entire state. It is necessarily far less precise than a review of historical data and field experience across the MAWC systems. In his surrebuttal testimony, Company witness Gary Naumick further discusses why OPC witness Marke's use of this National Survey to estimate lead service lines is not sound.

Q. OPC witness Marke disagrees with MAWC's original estimate of $3,000 to $5,500 average cost for lead service line replacements. (Marke Reb., p. 17) How would you respond to the issues OPC witness Marke raises in this regard?

[1] *See* Aiton Direct Testimony, p. 9, and Aiton Rebuttal Testimony, p. 2.

A. While it is true that it can be difficult to accurately estimate the cost to replace lead service lines ("LSLs"),[2] MAWC and its vendors who do pipe replacement and service line replacement every day as a core part of the business remain the best source to estimate these costs. MAWC has continued to refine the cost to replace service lines, based on a small number of lines that have been replaced this year and revised quotes from vendors.

Q. What additional information has the Company received since that initial estimate?

A. The Company has experienced costs greater than the original estimated average cost of $3,000-$5,500 for some replacements. These more costly replacements, however, represent longer and more difficult excavations than expected on average. Also, since providing its original estimate, MAWC has engaged in a bidding process seeking bids from vendors to establish costs for service line replacements in St Louis County. The vendor pricing for lead service line replacements in St. Louis County is attached as **Schedule BA-SR1**. It shows an estimated price of $5,817 based on a 60' service line and includes a $1,500 allowance for rock excavation. If no rock is encountered, the estimated price would be $4,317. The actual price will vary up or down from this estimate depending on the circumstances of each replacement, but it is in the range of the Company's original estimate.

[2] *See* Marke Rebuttal, p.17, ll.10-11.

Q. Based upon your additional experience and the result of the bidding process, have you adjusted your estimate of the average per service line cost for the replacement plan?

A. Yes, somewhat. We now believe that the total price for LSL replacements may result in a slightly higher average cost than the original estimated average cost of $3,000 to $5,500. Based on refined estimates and experience, the Company believes the estimated average cost across all the replacements will be approximately $6,000.

IV. FUTURE ACTIONS

Q. Staff witness Merciel suggests that if the AAO is not granted, MAWC will "likely only complete a partial LSL replacement as needed for the specific project."[3] Will this be the result if MAWC does not receive approval of the AAO?

A. This is certainly not the Company's preference, as MAWC strongly believes that the removal of LSLs is important to avoid the risk of potential exposure to lead through drinking water. Initially, rather than performing partial lead service line replacements, MAWC may likely try to avoid areas with LSLs and postpone main replacement projects with known LSLs to avoid increasing the risk of potential exposure to lead associated with a partial replacement. However, there is a downside related to this as delaying main replacement projects can increase the number of main breaks and leaks over time. This can be costly and disruptive to customers and the community. Planned pipe replacements are much less costly on a unit cost basis than the costs of increasing pipe breaks, service disruptions, property damages, health risks from potential drinking

[3] *See* Merciel Rebuttal, p.6, 9-10.

water contamination exposure during pipe breaks, related community opportunity costs related to community health and economic development, and the steep increase in future pipe replacements resulting from prior deferrals of the replacements. In addition, MAWC's works with other entities when pipelines need to be relocated due to work by other utilities, state and local roadway projects and redevelopment. Considering the level of coordination normally needed for the various types of infrastructure upgrades by the Company, the Commission should be aware that there could be a wider potential impact if the AAO is not granted.

Q. Please elaborate on the other issues that can arise if MAWC does not have a clear path for customer-owned lead service line replacement?

A. MAWC will be faced with multiple dilemmas beyond merely postponing main replacement projects. For example, in situations where the Company normally coordinates with municipalities' road construction projects and MAWC is aware of LSLs in the construction area, MAWC will be forced to decide whether to replace its main in conjunction with that road construction project. If it chooses not to do so because of the risk associated with partial replacements, the ultimate main replacement will likely come at a greater cost, and inconvenience, to its customers. If MAWC instead chooses to move forward at the time of construction, it would be forced to perform partial replacements that are known to increase the risk of potential exposure to lead through drinking water. Neither is an optimal outcome. Similar situations could arise when other underground utilities (gas, electric, sewer, telecom, storm sewers), railroad entities and other stakeholders perform work in these areas and

request MAWC relocate its water mains. MAWC would not likely have time to resolve such a situation without impacting the schedule of other entities.

Q. If MAWC delays its work in the situation described above, does that avoid the risk for customers?

A. No. Customers have a similar risk related to service lines that may be disturbed through the work of other utilities as well. For example telephone, electric, or cable companies directionally drilling in new cable can also disturb the lead service pipe and may or may not require relocation by the Company.

Ultimately, the risk to the public is only lowered if we are able to replace these lines and remove the source of the potential exposure.

Q. OPC witness Marke identifies several concerns that OPC has with MAWC's communications, testing and prioritization. (Marke Reb., p. 21-22) How does MAWC plan to address the various issues raised by OPC witness Marke?

A. MAWC was aware and had considered most of the questions raised by OPC witness Marke. Attached as **Schedules BA-SR2 and BA-SR3** are a process flow chart and communication materials that illustrate how MAWC will go about addressing many of these questions. MAWC crews and contractors regularly work in excavations where they encounter different and often unexpected conditions. Some are very small and inconsequential, like working around the neighborhood "trash day," while others take more thought. These situations are dealt with effectively every day.

Q. How does MAWC plan to address LSLs as part of its main replacement project prioritization process?

A. On an annual basis, MAWC prioritizes main replacement projects on a state-wide basis. Factors considered in the prioritization process include the frequency of main breaks and customer complaints associated with existing line, the hydraulic flow and pressure adequacy of the existing line, and the primary consequences or impacts on the system and the community of additional line failures. The Company also considers the type and number of customers affected by failures in the line in question and the potential to coordinate with municipalities and other utilities in joint improvement projects. We plan to overlay the known lead service line locations with the above priority areas and working to replace all known lead service lines within a ten-year timeframe.

Q. Does this conclude your surrebuttal testimony at this time?

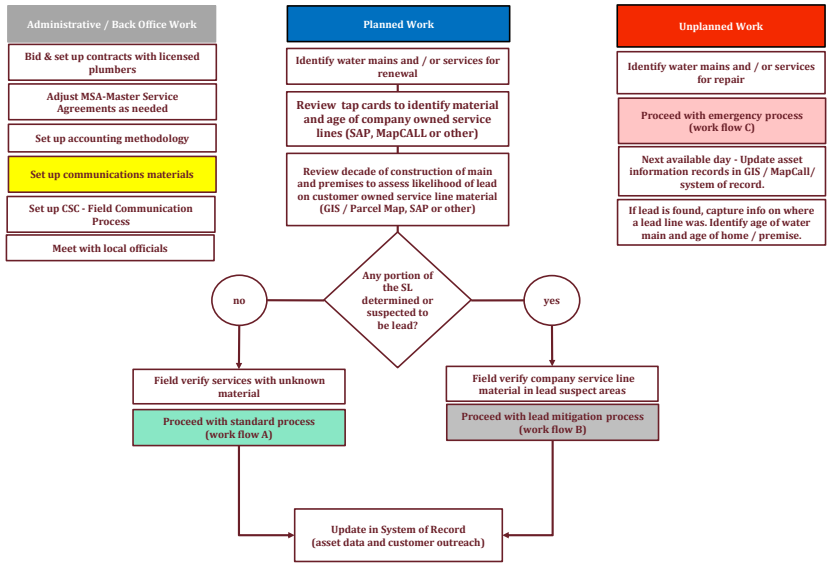
A. Yes, it does.

SCHEDULE A - ALL ST. LOUIS COUNTY

CBA - 2017 LEAD SERVICE LINES			
Item	Description	UoM	Excel Utility
1	Tap Hole, Tap Main Line, Destroy Existing Tap	EA	$ 729.50
2A	Install 1" Copper Service Line (Includes removal of any existing service line material).	LF	$ 19.00
2B	Install 1" HDPE Service Line (Includes removal of any existing service line material).	LF	$ 16.00
3	Install Stop Box	EA	$ 437.75
4	Install Meter Pit, and Meter Setter (3/4" Setter - MOAW to Install Meter)	EA	$ 672.91
5	Core Drill Foundation (Includes Grouting of Old Service)	EA	$ 157.56
6	Removal of existing Meter Box and Meter Setter (Removal of existing meter box to include removal of lid and ring and backfill.	EA	$ 190.89
7	Rock Excavation Adder	LF	$ 150.00
8	Water Sampling (Include Delivery to Lab)	EA	$ 364.00
9	Temporatry Paving, Hot / Cold Patch. The contract price shall include the furnishing and installation of temporary bituminous material in accordance with Specification Section 2610, Part 3.01, or as otherwise required by Federal, State or Local Authorities. By approval only when contacted on an emergency basis. Pricing includes material and labor for Installation.	YD3	$ 235.89
10	Non-native granular backfill. Provide, Deliver, Place & Compact Rock Base - backfill, non-naitive soil, Local DOT / Code required (up to 1 1/2" stones, AASHTO #57)	TON	$ 25.00
11	Sampled QTY Per Service	QTY	
12	Tap Hole, Tap Main Line, Destroy Existing Tap	1	$ 729.50
13	Install 1" Copper Service Line (Includes removal of any existing service line material).	60	$ 1,140.00
14	Install 1" HDPE Service Line (Includes removal of any existing service line material).	0	$ -
15	Install Stop Box	1	$ 437.75
16	Install Meter Pit, and Meter Setter (3/4" Setter - MOAW to Install Meter)	1	$ 672.91
17	Core Drill Foundation (Includes Grouting of Old Service)	1	$ 157.56
18	Removal of existing Meter Box and Meter Setter (Removal of existing meter box to include removal of lid and ring and backfill.	1	$ 190.89
19	Rock Excavation Adder	10	$ 1,500.00
20	Water Sampling (Include Delivery to Lab)	2	$ 728.00
21	Temporatry Paving, Hot / Cold Patch. The contract price shall include the furnishing and installation of temporary bituminous material in accordance with Specification Section 2610, Part 3.01, or as otherwise required by Federal, State or Local Authorities. By approval only when contacted on an emergency basis. Pricing includes material and labor for Installation.	1	$ 235.89
22	Non-native granular backfill. Provide, Deliver, Place & Compact Rock Base - backfill, non-naitive soil, Local DOT / Code required (up to 1 1/2" stones, AASHTO #57)	1	$ 25.00
23	TOTAL ESTIMATED PRICING PER SERVICE LINE		$ 5,817.50

Water Main / Service Line Renewal

Basic Work flow
v. 05.18.17

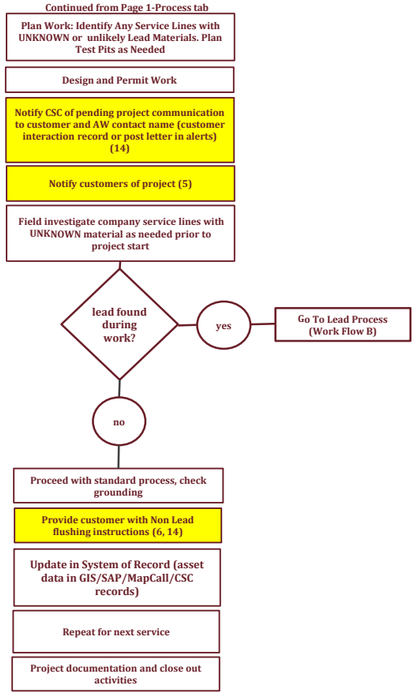


	Customer Communication Steps
1	Customer Information Packet: Lead Service Line Replacement Offer
2	Customer Release Form: Customer allows AW to test pit on private property for unknown material or suspect LSL
3	Doorhanger - service line assessment result
4	Release Form: Customer signs to allow AW to work on private property / Customer accepts or declines LSLR offer
5	Customer Letter: Water main renewal project letter
6	Doorhanger: Flushing Instructions - Non Lead
7	Flushing Instructions - Lead & case of bottled water
8	Contractor Flyer: Grounding info
9	Contractor Flyer: Sample information packet with sample bottle (customer version included in 6 above)
10	Customer Letter: Sample result letter
11	Door Hanger: Reminder to collect 72-Hour Post Work sample
12	Customer Discussion: Premise Plumbing Issue- use lead fact sheet
13	Customer Discussion: Emergency partial performed - full replacement pending / use lead fact sheet & discuss filter
14	Customer interaction record - local company process
15	Lead Fact Sheet
16	Code Red Script - optional

Water Main / Service Line Renewal (lead unlikely)

Workflow A
v. 05.18.17

Continued from Page 1-Process tab

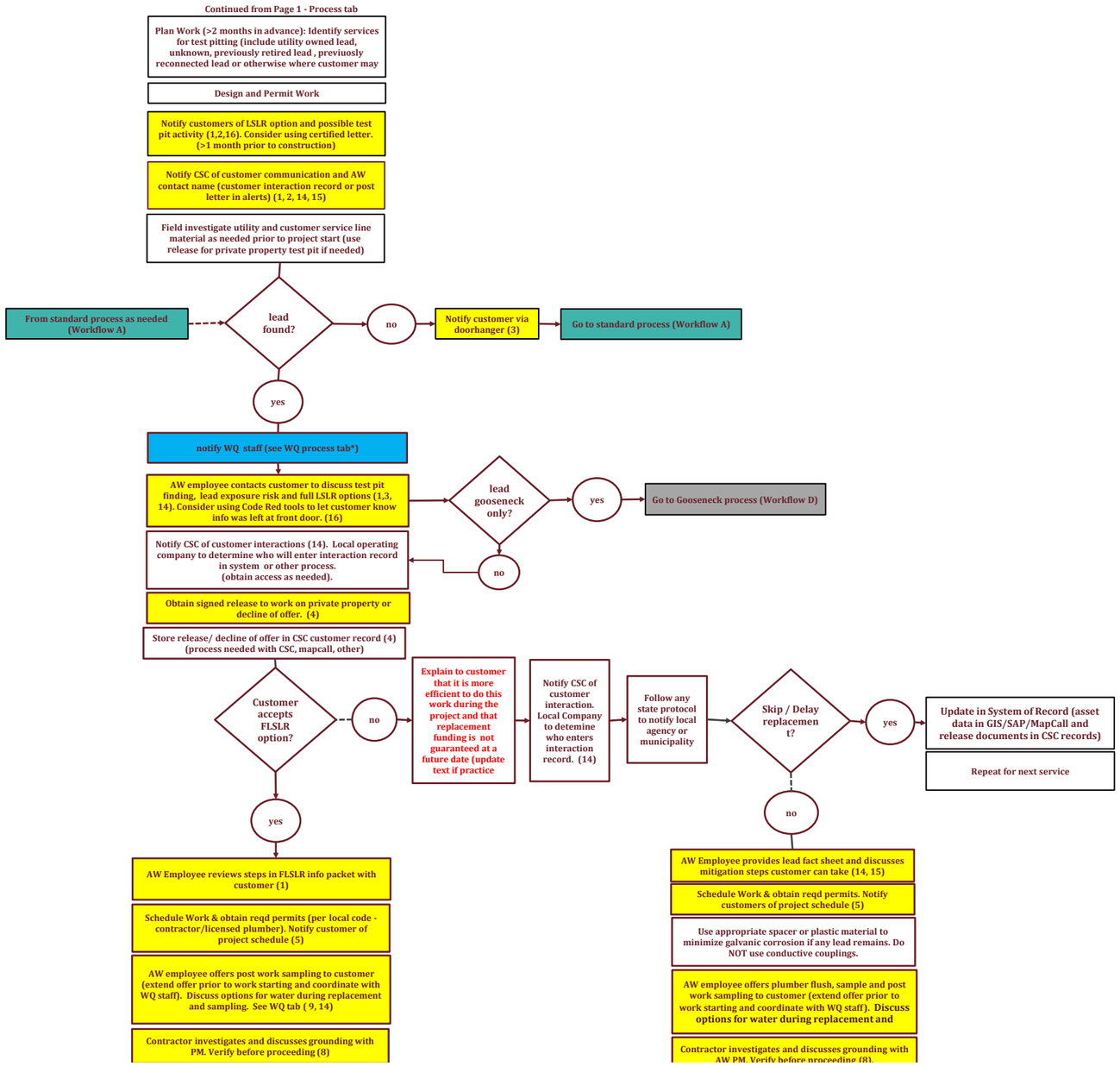


Customer Communication Steps

1 Customer Information Packet: Lead Service Line Replacement Offer
2 Customer Release Form: Customer allows AW to test pit on private property for unknown material or suspect LSL
3 Doorhanger - service line assessment result
4 Release Form: Customer signs to allow AW to work on private property / Customer accepts or declines LSLR offer
5 Customer Letter: Water main renewal project letter
6 Doorhanger: Flushing Instructions - Non Lead
7 Flushing Instructions - Lead & case of bottled water
8 Contractor Flyer: Grounding info
9 Contractor Flyer: Sample information packet with sample bottle (customer version included in 6 above)
10 Customer Letter: Sample result letter
11 Door Hanger: Reminder to collect 72-Hour Post Work sample
12 Customer Discussion: Premise Plumbing Issue- use lead fact sheet
13 Customer Discussion: Emergency partial performed - full replacement pending / use lead fact sheet & discuss filter
14 Customer interaction record - local company process
15 Lead Fact Sheet
16 Code Red Script - optional

Water Main / Service Line Renewal - Lead Services Likely or Possible

Workflow B
v. 05.18.17



Customer Communication Steps	
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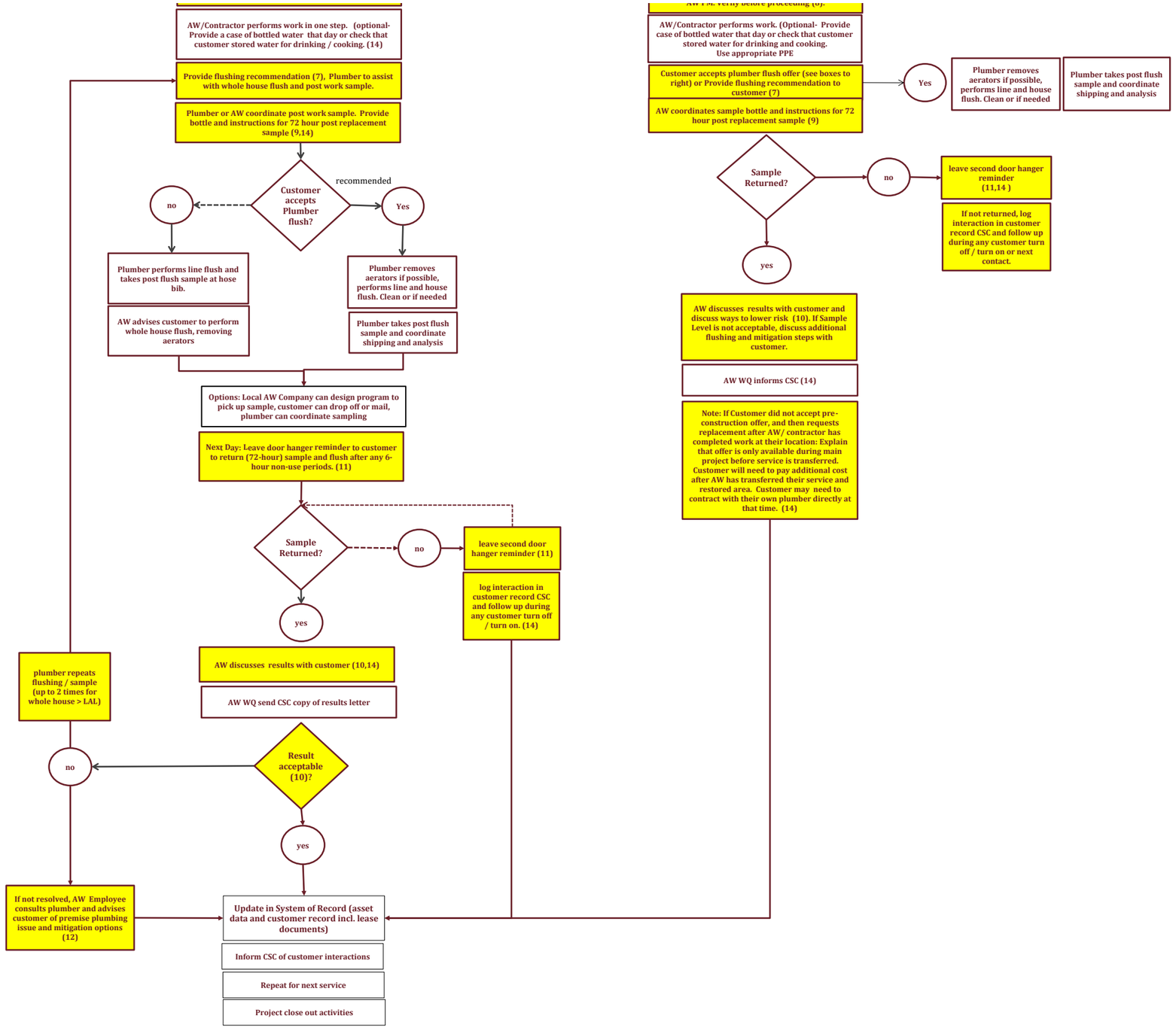
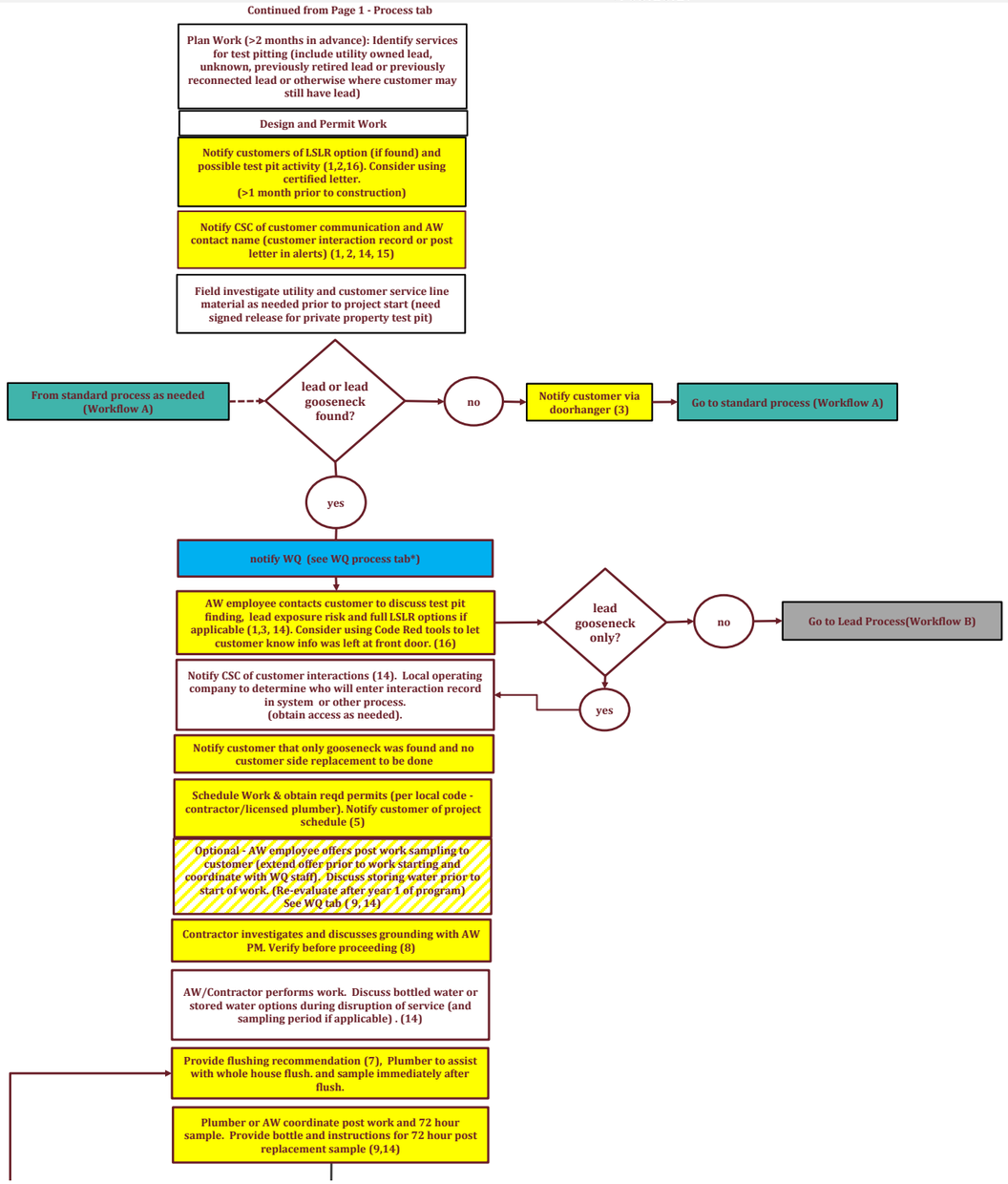
3	Doorhanger - service line assessment result
4	Release Form: Customer signs to allow AW to work on private property / Customer accepts or declines LSLR offer
5	Customer Letter: Water main renewal project letter
6	Doorhanger: Flushing Instructions - Non Lead
7	Flushing Instructions - Lead & case of bottled water
8	Contractor Flyer: Grounding info
9	Contractor Flyer: Sample information packet with sample bottle (customer version included in 6 above)
10	Customer Letter: Sample result letter
11	Door Hanger: Reminder to collect 72-Hour Post Work sample
12	Customer Discussion: Premise Plumbing Issue- use lead fact sheet
13	Customer Discussion: Emergency partial performed - full replacement pending / use lead fact sheet & discuss filter
14	Customer interaction record - local company process
15	Lead Fact Sheet
16	Code Red Script - optional


AW/Contractor performs work in one step. (optional- Provide a case of bottled water that day or check that customer stored water for drinking / cooking. (14)
Provide flushing recommendation (7), Plumber to assist with whole house flush and post work sample.
Plumber or AW coordinate post work sample. Provide bottle and instructions for 72 hour post replacement sample (9,14)
Customer accepts Plumber flush?
recommended
no
Yes
Plumber performs line flush and takes post flush sample at hose bib.
AW advises customer to perform whole house flush, removing aerators
Plumber removes aerators if possible, performs line and house flush. Clean or if needed
Plumber takes post flush sample and coordinate shipping and analysis
Options: Local AW Company can design program to pick up sample, customer can drop off or mail, plumber can coordinate sampling
Next Day: Leave door hanger reminder to customer to return (72-hour) sample and flush after any 6-hour non-use periods. (11)
Sample Returned?
no
leave second door hanger reminder (11)
log interaction in customer record CSC and follow up during any customer turn off / turn on. (14)
yes
AW discusses results with customer (10,14)
AW WQ send CSC copy of results letter
plumber repeats flushing / sample (up to 2 times for whole house > LAL)
Result acceptable (10)?
no
yes
If not resolved, AW Employee consults plumber and advises customer of premise plumbing issue and mitigation options (12)
Update in System of Record (asset data and customer record incl. lease documents)
Inform CSC of customer interactions
Repeat for next service
Project close out activities
AW PM: Verify before proceeding (8).
AW/Contractor performs work. (Optional- Provide case of bottled water that day or check that customer stored water for drinking and cooking.
Use appropriate PPE
Customer accepts plumber flush offer (see boxes to right) or Provide flushing recommendation to customer (7)
Yes
Plumber removes aerators if possible, performs line and house flush. Clean or if needed
Plumber takes post flush sample and coordinate shipping and analysis
AW coordinates sample bottle and instructions for 72 hour post replacement sample (9)
Sample Returned?
no
leave second door hanger reminder (11,14)
If not returned, log interaction in customer record CSC and follow up during any customer turn off / turn on or next contact.
yes
AW discusses results with customer and discuss ways to lower risk (10). If Sample Level is not acceptable, discuss additional flushing and mitigation steps with customer.
AW WQ informs CSC (14)
Note: If Customer did not accept pre-construction offer, and then requests replacement after AW/ contractor has completed work at their location: Explain that offer is only available during main project before service is transferred. Customer will need to pay additional cost after AW has transferred their service and restored area. Customer may need to contract with their own plumber directly at that time. (14)

Water Main / Service Line Renewal - Lead Gooseneck Likely or Possible

Workflow B - suspect gooseneck only
v. 05.18.17



Customer
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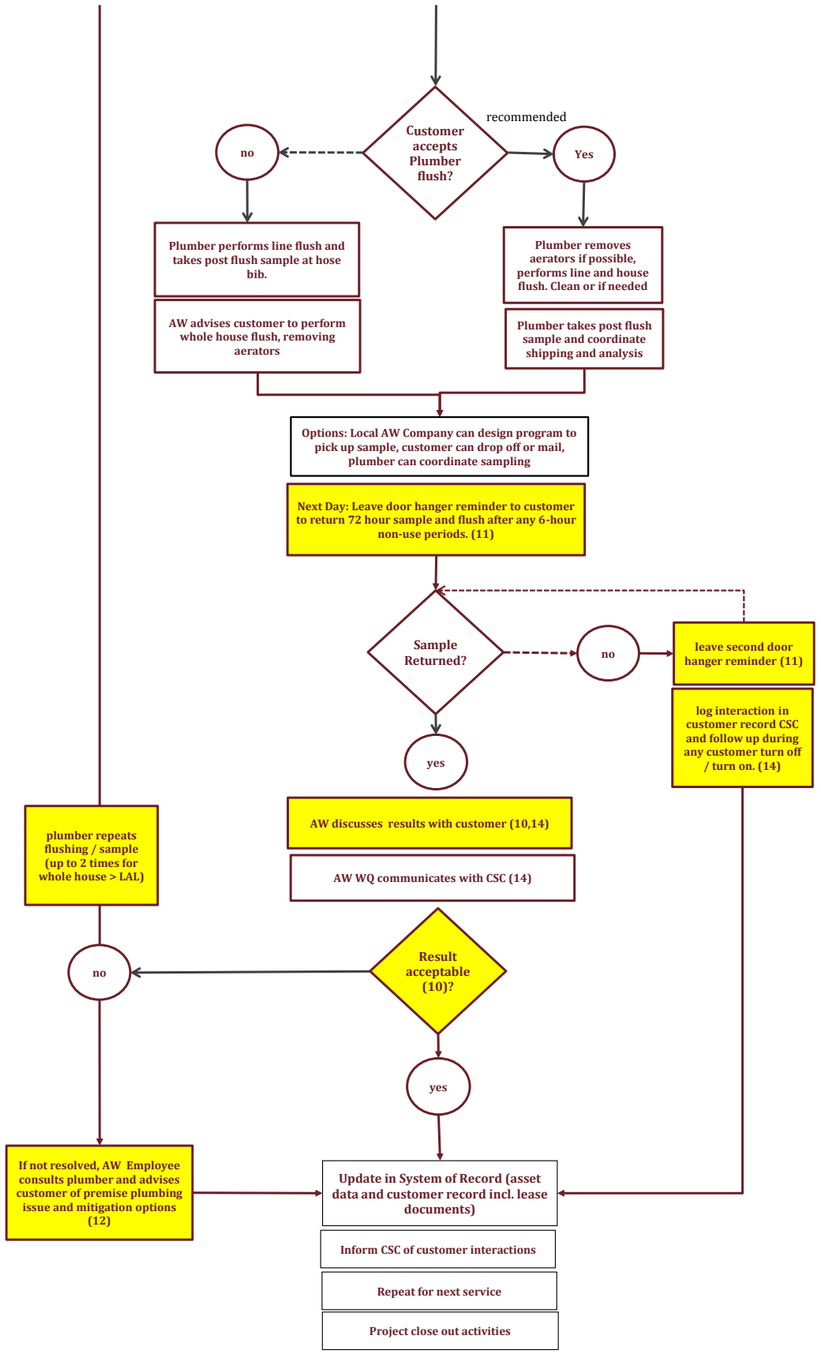
Customer accepts Plumber flush?
recommended
no
Yes
Plumber performs line flush and takes post flush sample at hose bib.
AW advises customer to perform whole house flush, removing aerators
Plumber removes aerators if possible, performs line and house flush. Clean or if needed
Plumber takes post flush sample and coordinate shipping and analysis
Options: Local AW Company can design program to pick up sample, customer can drop off or mail, plumber can coordinate sampling
Next Day: Leave door hanger reminder to customer to return 72 hour sample and flush after any 6-hour non-use periods. (11)
Sample Returned?
no
leave second door hanger reminder (11)
log interaction in customer record CSC and follow up during any customer turn off / turn on. (14)
yes
AW discusses results with customer (10,14)
AW WQ communicates with CSC (14)
plumber repeats flushing / sample (up to 2 times for whole house > LAL)
Result acceptable (10)?
no
yes
If not resolved, AW Employee consults plumber and advises customer of premise plumbing issue and mitigation options (12)
Update in System of Record (asset data and customer record incl. lease documents)
Inform CSC of customer interactions
Repeat for next service
Project close out activities

Communication Steps
Customer Information Packet: Lead Service Line Replacement Offer
Customer Release Form: Customer allows AW to test pit on private property for unknown material or suspect LSL
Doorhanger - service line assessment result
Release Form: Customer signs to allow AW to work on private property / Customer accepts or declines LSLR offer
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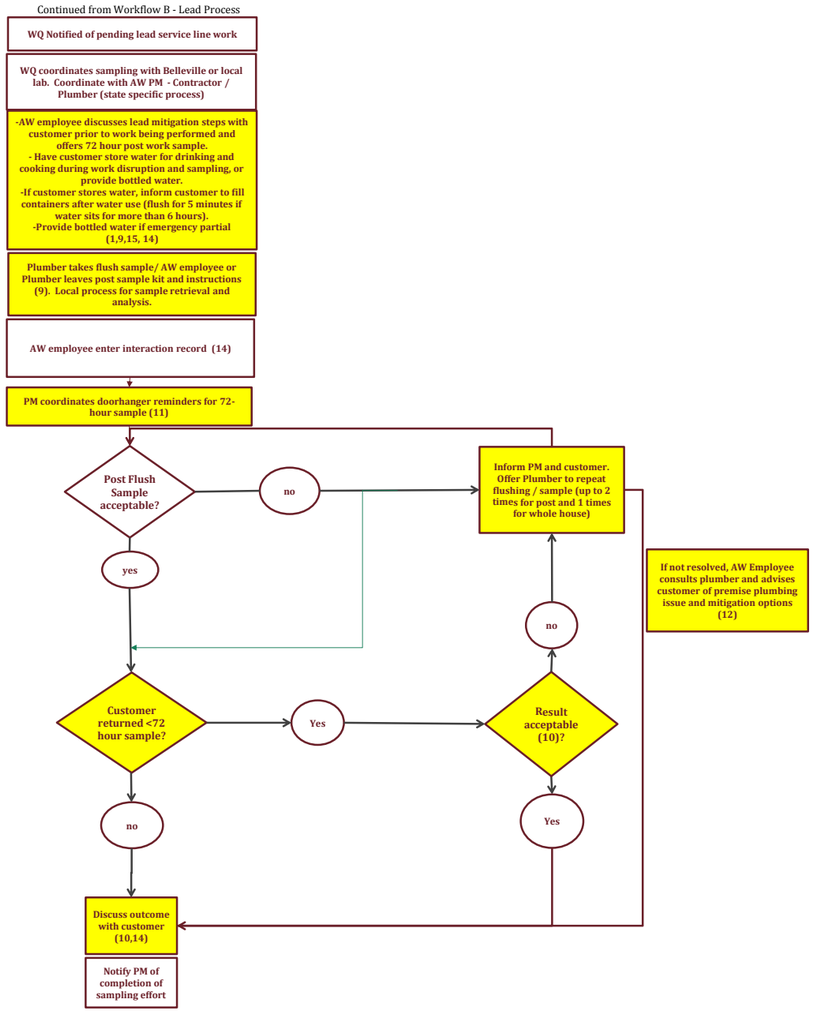
Flushing Instructions - Lead & case of bottled water
Contractor Flyer: Grounding info
Contractor Flyer: Sample information packet with sample bottle (customer version included in 6 above)
Customer Letter: Sample result letter
Door Hanger: Reminder to collect 72-Hour Post Work sample
Customer Discussion: Premise Plumbing Issue- use lead fact sheet
Customer Discussion: Emergency partial performed - full replacement pending / use lead fact sheet & discuss filter
Customer interaction record - local company process
Lead Fact Sheet
Code Red Script - optional

Water Main / Service Line Renewal - Water Quality Staff Workflow

04.25.17



Customer Communication Steps	
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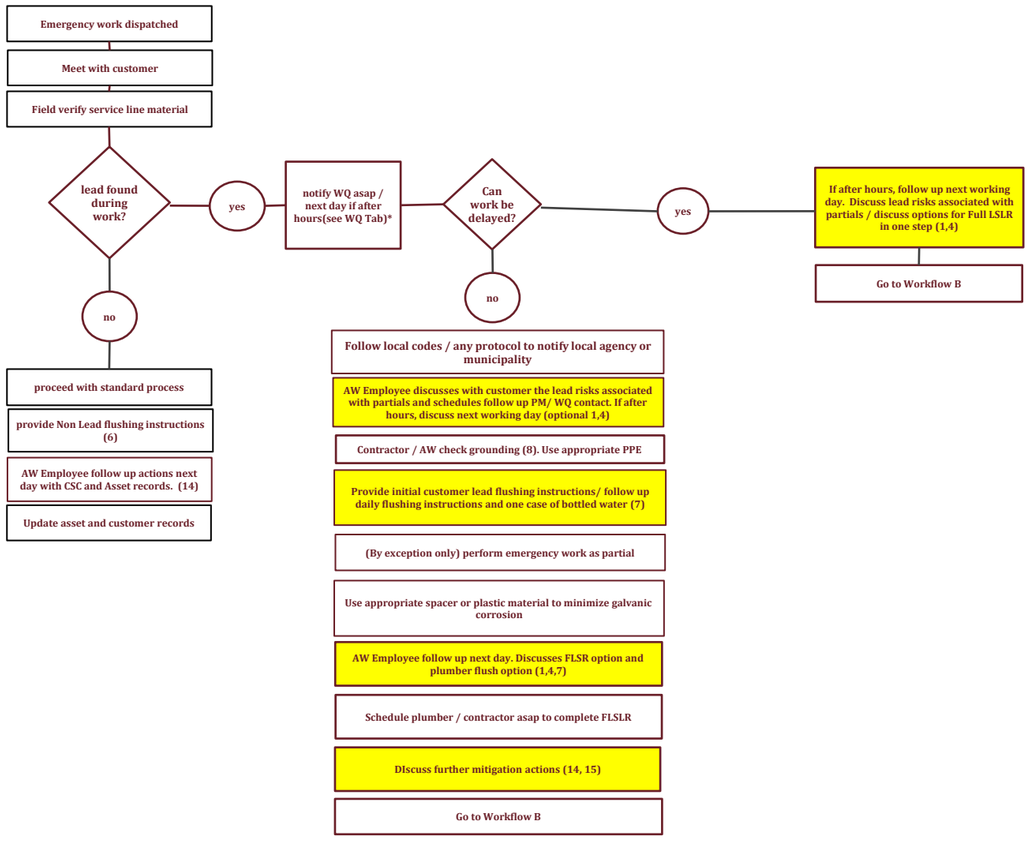
12	Customer Discussion: Premise Plumbing Issue- use lead fact sheet
13	Customer Discussion: Emergency partial performed - full replacement pending / use lead fact sheet & discuss filter
14	Customer interaction record - local company process
15	Lead Fact Sheet
16	Code Red Script - optional

Emergency Work (unknown material)

Workflow C



Customer CommunicationSteps	
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13	Customer Discussion: Emergency partial performed - full replacement pending / use lead fact sheet & discuss filter
14	Customer interaction record - local company process
15	Lead Fact Sheet
16	Code Red Script - optional

FREQUENTLY ASKED QUESTIONS

Why am I receiving this information?
The water infrastructure in your street is being upgraded. If any portion of the service line from the water main to your house is made of lead, we can replace it during this work.

Why should I participate in this program?
Your decision to replace an old lead service line is an important one. The U.S. Centers for Disease Control (CDC) and the U.S. Environmental Protection Agency (EPA) recommend replacing the entire lead service line rather than only replacing a portion of the line. Because replacing only a portion of the lead service line can potentially increase the exposure to lead through drinking water, your entire service line should be replaced.

What is included?
An entire new water service line would be installed from the new water main to a valve inside your house (limited up to 5 feet inside your house). If there is no existing valve, we will install one as needed. In addition, if your household electric system is grounded through your lead service line, we will have a certified electrician check your electric system to make sure it's grounded properly.

How will this be funded?
As part of this project, we will cover a portion, and in some cases all, of the costs related to replacing the customer-owned portion of the lead service line. If there are any costs that you would be responsible for, we would provide you with an advanced estimate for your approval. Note: Home improvements/modifications are not covered.

How long will this take?
Generally, an entire new service line can be installed in one day. Additional time may be needed if obstacles, such as other underground piping, are in the way.

Do I need to be home?
You will need to be home for part of the work. To remove the entire lead service line, we will need to access your existing customer-owned service line as it enters your house. You also will need to be home to flush your plumbing.

How do you install a new water service line?
There are several construction methods that may be considered. Our contractor will evaluate the options and provide the best approach.

Will my water service be turned off during this work?
A short, temporary disruption may occur as we transition your water service from the old lead service line to the new service line. We will make every effort to minimize any disruption.

Why do I need to flush my household plumbing after replacement of the service line?
Flushing of your household plumbing can remove any pipe scale that broke loose during construction. Pipe scale can contain lead so it is important to flush it out.

If I choose to participate, when can you schedule this work?
We need to perform this work as we are upgrading the water main in your street. We will contact you to schedule a time that works for you. Normal hours are from 7 a.m. to 7 p.m.

Are my local officials aware of this work?
Yes. We are coordinating this work with your local municipality. They can also help direct questions to us.

Can I use a filter to remove lead instead of replacing the lead service line?
While using filters rated to remove lead can be effective if properly maintained, removing the entire lead service line pipe will remove a source of lead and help to minimize your risk of exposure to lead in drinking water.

If I'm not ready to replace my service line now, will you cover any costs if I replace it later?
At this time, this program is only offered when we are upgrading our water mains. If you decide to replace your service line at a later date, we can not guarantee that we could cover the costs. You may need to pay to have a plumber and an electrician perform the work.

My household plumbing is lead. Will you replace that as well?
No, this project will only replace lead water service lines from the water main to the first valve within your household, up to 5 feet.

About Lead
Missouri American Water regularly tests for lead in drinking water at our treatment facilities and at representative sites in the distribution system, and we comply with drinking water standards. For more information, visit **missouriamwater.com**. Under **Water Quality**, select **Water Quality Reports**.

What steps can I take to minimize my exposure to lead?
1. If you have a lead service line, replace it.
2. Flush your tap before drinking or cooking with water, if the water in the faucet has gone unused for more than six hours. The longer the water lies dormant in your household's plumbing, the more lead it might contain. Flush your tap with cold water for 30 seconds to two minutes before using.
3. Remove and clean the aerators or strainers from each faucet periodically.
4. Visit our website for more tips.
5. NSF International created a Consumer Guide to NSF Certified Lead Filtration Devices for Reduction of Lead in Drinking Water. Visit www.nsf.org/info/leadfiltrationguide for more information.

IMPORTANT NOTICE ABOUT YOUR WATER SERVICE AND LEAD SERVICE LINES

Missouri American Water will be upgrading the water infrastructure along your street in the near future. While we're there, if the utility-owned or customer-owned portion of the service line (see diagram) is made of lead or lined with lead, we'd like to work with you to replace it.

Best of all, we'll cover a portion, and in some cases all, of the costs to replace your service line.

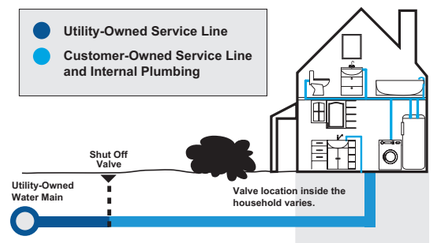
Replacing any lead service lines now helps manage the risk of exposure to lead in drinking water.

Please review the enclosed information and contact us as soon as possible, because we need your input on this important project impacting your water service.

Name _____

Phone _____

Utility-owned vs. Customer-owned portion of the service line



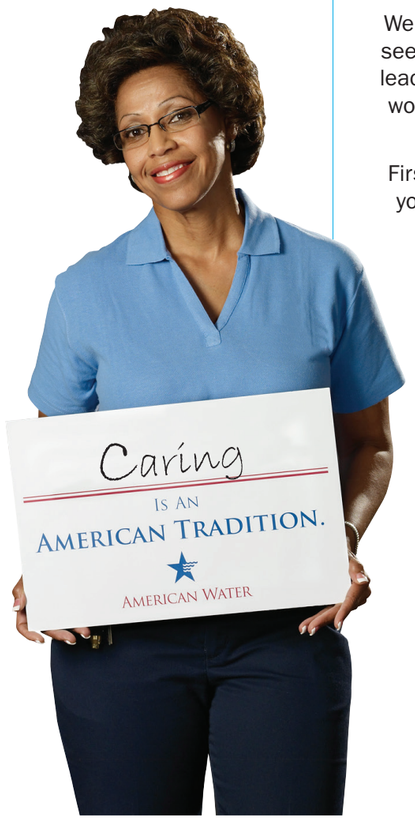
Note: This diagram is a generic representation. Variations may apply.

Please allow us to replace your service line at this time if it's made of lead.

Here's what to expect...

Call us.

Contact us, and we will explain the process and answer your questions.



Agree to have your service line checked.

We can check to see if your line is lead while we are working on your street.

First, we'll need your approval.

We'll check your line.

With your approval, our contractor will check to see if your service line is made of lead or lined with lead.

This may involve our contractor obtaining a mark out of underground utilities and checking your home electrical system grounding.

In addition, we may need to dig one to two small diameter test pits over your existing service line to determine your service line material.

We'll let you know if your line is lead.

We will inform you if lead pipe is found.

And, if it is, we'll need your approval to replace it. Replacing the entire service line at this time can help you better manage your risk of exposure to lead in drinking water.

Agree to have your lead service line replaced.

First, we'll meet with you to discuss the project specifics and how to prepare the work area.

Then, before we can proceed, the property owner must sign and return a release to allow our contractor to work on your property.

We'll replace the entire service line.

Our contractor will install a new water service line. This generally can be done in one day.

Any needed lawn, driveway or sidewalk restoration work may take additional days, but there's no need for you to be home while we complete the restoration.

Flush your plumbing.

Your household plumbing will need to be flushed to remove any pipe scale that may have come loose during construction.

This step should be completed BEFORE you consume tap water or use hot water. This also is a good time to clean aerators

We'll provide you with printed instructions for initial and ongoing maintenance flushing. Our contractor will be available to assist you with the initial flush.

We'll collect a water sample.

When the work is completed, we will schedule a time to collect a water sample.

Once available, we will inform you of the results.

See FAQs on the back for more information.

LEARN MORE

CALL US Contact our project manager at the number provided on the front page.
Customers can also contact our Customer Service Center at 1-866-430-0820, M-F, 7 a.m.–7 p.m. For emergencies, we're available 24/7.

ONLINE Tips on what you can do to reduce the potential for lead exposure are attached and can be found online at missouriamwater.com.
Under Water Quality, select Water Quality Reports.

For more information on drinking water in general: Call the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Note: We are not selling any services in this program.

CHECK YOUR WATER SERVICE LINE MATERIAL

MISSOURI AMERICAN WATER

Customer elects for Company to investigate Customer's water service line material to determine if it is eligible for Lead Service Line Replacement[1]: ❑ CHECK HERE

The undersigned customer(s), whose name(s) appear in the signature block at the bottom of this page (the "Customer") grants to Missouri-American Water Company ("the Company") and to its approved contractors and/or subcontractors a license to enter upon Customer's property at the address shown below ("Property") for the purpose of investigating the Customer's service line material at the front of the Property to determine if it is eligible for Lead Service Line Replacement. This investigation will be at no cost to Customer.

PROPERTY ADDRESS: _____City_____State_____Zip_____

The Customer represents that the Customer is/are the sole owner(s) of the Property at the address shown above and has/have sole authority to agree to this License.

The term of this license shall be six (6) months following the date set forth below.

The Company or its approved contractors and/or subcontractors will make up to three small test borings in the Customer's yard near the Company meter or valve installation ("Installation") or along the service line in the Customer's front property. The Company will determine the location and size of the test borings and review with the Customer prior to work being performed.

Upon completion of the work necessary to check the service line material, the Company will restore the Customer's Property as nearly as practicable to its former condition. The Company warrants the workmanship of its restoration of the test boring holes for a period of 2 months following the date set forth below, with the Company's liability limited to the cost of repairing the surface above the test boring. Restoration may include filling in boring hole with soil, applying grass seed or mulch, or patching concrete. Limits of restoration will be discussed with the Customer prior to work being performed.

THE CUSTOMER ACKNOWLEDGES THAT HE/SHE HAS RECEIVED THE "LEAD" FACT SHEETS PROVIDED BY THE COMPANY.

IN CONSIDERATION FOR PERFORMING THE WORK TO INVESTIGATE THE CUSTOMER SERVICE LINE AT THE COMPANY'S COST AND THE COMPANY'S AGREEMENT TO PROVIDE A 2-MONTH LIMITED WORKMANSHIP WARRANTY, THE CUSTOMER AGREES TO INDEMNIFY, RELEASE AND HOLD HARMLESS THE COMPANY AND ITS AFFILIATES AND AGENTS FROM AND AGAINST ALL CLAIMS, LIABILITY AND COSTS ("CLAIMS") RESULTING FROM ACTS AND OMISSIONS OF THE COMPANY AND/OR ITS APPROVED SUBCONTRACTORS IN INVESTIGATING THE CUSTOMER SERVICE LINE.

CUSTOMER

Signature _____ Signature _____

Print Name _____ Print Name _____

Date _____ Date _____

[1] Lead Service Line Replacement may include replacing all or portions of the domestic water service line if it is made of lead pipe or a ferrous-based material capable of retaining lead particles. The service line is defined as the pipe extending from the connection at the water main to the first shut off valve inside the Customer's premise, or as otherwise feasible due to safety constraints. This work is limited to up to 5 feet within the Customer's premise and does not include improvements to the Customer's premise plumbing. Additional details can be found in the pamphlet entitled "Important Notice about Your Water Service and Lead Service Lines.

CHECK YOUR WATER SERVICE LINE MATERIAL

MISSOURI AMERICAN WATER

Customer does not permit the Company to investigate Customer's water service line material for the purpose of determining if it is eligible for Lead Service Line Replacement: ❑ CHECK HERE

Customer Acknowledgement

The undersigned customer(s), whose name(s) appear(s) in the signature block shown below (the "Customer"), who receives water service provided by the Company to the residence at the Property address listed below, acknowledges that Customer has been informed by the Company that the Customer's water service line, which connects the Customer's residence to a Company water main at the front of the Property, may be made of lead pipe. The Customer does not permit the Company to investigate the Customer's water service line to determine if it is eligible for LEAD SERVICE LINE REPLACEMENT[1]. The Customer acknowledges that it has received and read the "Important Notice About Your Water Service" and "Lead Fact Sheet" provided by the Company.

PROPERTY ADDRESS: _____City_____State_____Zip_____

CUSTOMER

Signature _____ Signature _____

Print Name _____ Print Name_____

Date _____ Date _____

[1] Lead Service Line Replacement may include replacing all or portions of the domestic water service line if it is made of lead pipe or a ferrous-based material capable of retaining lead particles. The service line is defined as the pipe extending from the connection at the water main to the first shut off valve inside the Customer's premise, or as otherwise feasible due to safety constraints. This work is limited to up to 5 feet within the Customer's premise and does not include improvements to the Customer's premise plumbing. Additional details can be found in the pamphlet entitled "Important Notice about Your Water Service and Lead Service Lines.

SERVICE LINE ASSESSMENT RESULTS

Dear Valued Customer,

Thank you for allowing us to take a closer look at your service line. We care about our customers and believe this is an important step in assessing your household's exposure to lead. **Here's what we found when we checked your customer-owned service line:**

- ❑ **We'd like to talk to you about replacing your service line, because it appears to be made of lead pipe.** Replacing your lead service line now helps to manage your exposure to lead. Please contact us at the number below.
- ❑ **Your service line does NOT appear to be made of lead pipe.** We will proceed with connecting your existing service line to the new water main after the new main is installed.
- ☑ **BEFORE USING WATER FOR DRINKING OR COOKING:** Your household plumbing will need to be flushed to remove any pipe scale that may have come loose in the process of checking your service line. Pipe scales may contain lead. To flush your line, please remove the aerator on the faucet(s) used for drinking or cooking, and run the water for 5 minutes before use. Then, clean and replace the aerators on the faucet(s).

We'll provide you with further details about the main replacement improvement as we get closer to the start of the project. If you have questions in the meantime, please contact our customer service center at the number provided below.

Date: _____/_____/20_____ Time: _____ a.m. / p.m.

MO.SLR.3 09-2017

MISSOURI
AMERICAN WATER

CUSTOMER SERVICE
HOURS OF OPERATION: M-F, 7 a.m. to 7 p.m.
FOR EMERGENCIES: We're available 24/7.

1-866-430-0820

RESULTADOS DE LA EVALUACIÓN DE LA TUBERÍA DE SERVICIO

Estimado y preciado cliente:

Gracias por permitirnos revisar más detenidamente su tubería de servicio. Nuestros clientes son valiosos para nosotros y creemos que este es un paso importante para evaluar la exposición al plomo en su hogar. **Cuando revisamos la tubería de servicio que es de su propiedad, observamos lo siguiente:**

- ☐ **Nos gustaría hablar con usted sobre el reemplazo de su tubería de servicio, ya que parece ser una tubería de plomo.** Reemplazar la tubería de servicio de plomo ahora ayudará a controlar su exposición al plomo. Comuníquese con nosotros al número que se indica a continuación.
- ☐ **Su tubería de servicio NO parece ser una tubería de plomo.** Procederemos a conectar la tubería de servicio existente a la nueva tubería de agua principal una vez que esta se haya instalado.
- ☑ **ANTES DE UTILIZAR AGUA PARA BEBER O COCINAR:** Será necesario que purgue las tuberías de su hogar para eliminar cualquier residuo que pudiera haberse desprendido mientras se revisaba la tubería de servicio. Los residuos de las tuberías podrían contener plomo. Para purgar la tubería, retire el aireador de los grifos utilizados para beber o cocinar y deje correr el agua durante 5 minutos antes de usar. Luego, limpie y vuelva a colocar los aireadores de los grifos. We'll provide you with further details about the main replacement improvement as we get closer to the start of the project. If you have questions in the meantime, please contact our customer service center at the number provided below.

Fecha: _____/_____/20_____ Hora: _____ a.m. / p.m.

MISSOURI
AMERICAN WATER

CUSTOMER SERVICE

HORARIOS DE ATENCIÓN:
De lunes a viernes de 7 a. m. a 7 p. m.
PARA EMERGENCIAS:
Estamos disponibles las 24 horas, los 7 días a la semana.

1-866-430-0820

LEAD WATER SERVICE LINE REPLACEMENT

MISSOURI AMERICAN WATER

Customer elects for Company to replace Customer's lead water service line: ❑ CHECK HERE.

The undersigned customer(s), whose name(s) appear in the signature block at the bottom of this page (the "Customer") grants to Missouri-American Water Company ("Company") and to its approved contractors and/or subcontractors a license to enter upon Customer's property at the address shown below ("Property") for the purpose of connecting Customer's residence to a Company water main at the front of the Property, at no cost to Customer.

PROPERTY ADDRESS: _____City_____State_____Zip_____

Customer represents that Customer is/are the sole owner(s) of the Property at the address shown above and has/have sole authority to agree to this License.

The term of this license shall be six (6) months following the date set forth below.

Company or its approved contractors and/or subcontractors will install the Company service line from the water main to a Company meter or valve installation ("Installation") at Customer's front Property line. Company will determine the location of the Installation. Company's service line and the Installation will be owned and maintained by Company.

Company or its approved contractors and/or subcontractors will install a Customer connecting line from the Installation to Customer's residence. The Customer connecting line is currently and will continue to be owned and maintained by Customer.

Upon completion of the work necessary to effect the new connection, Company will restore Customer's Property as nearly as practicable to its former condition. Company warrants the workmanship of its installation of the Customer service line for a period of 12 months following the date set forth below, with Company's liability limited to the cost of repairing or replacing the Customer service line.

CUSTOMER ACKNOWLEDGES THAT CUSTOMER HAS RECEIVED THE "IMPORTANT NOTICE ABOUT YOUR WATER" AND "LEAD" FACT SHEETS PROVIDED BY COMPANY.

IN CONSIDERATION FOR PERFORMING THE WORK TO INSTALL THE CUSTOMER SERVICE LINE AT COMPANY'S COST AND THE COMPANY'S AGREEMENT TO PROVIDE A 12-MONTH LIMITED WORKMANSHIP WARRANTY, CUSTOMER AGREES TO INDEMNIFY, RELEASE AND HOLD HARMLESS COMPANY AND ITS AFFILIATES AND AGENTS FROM AND AGAINST ALL CLAIMS, LIABILITY AND COSTS ("CLAIMS") RESULTING FROM ACTS AND OMISSIONS OF COMPANY AND/OR ITS APPROVED SUBCONTRACTORS IN INSTALLING THE CUSTOMER SERVICE LINE.

CUSTOMER

Signature _____ Signature _____

Print Name _____ Print Name _____

Date _____ Date _____

COMPANY: MISSOURI-AMERICAN WATER COMPANY

Signature _____

Print Name _____

Date _____

MO.SLR.4 09-2017

LEAD WATER SERVICE LINE REPLACEMENT

MISSOURI AMERICAN WATER

Customer does NOT elect for Company to replace Customer's lead water service line: ❑ CHECK HERE.

Customer Acknowledgement

The undersigned customer(s), whose name(s) appear(s) in the signature block shown below (the "Customer"), who receives water service provided by the Company to the residence at the Property address listed below, acknowledges that Customer has been informed by Company that Customer's water service line, which connects Customer's residence to a Company water main at the front of the Property, is made of lead pipe. Customer acknowledges that it elects not to permit the Company to replace Customer's water service line. Customer acknowledges that it has received and read the "Important Notice About Your Water" and "Lead Fact Sheet" provided by Company.

PROPERTY ADDRESS: _____City_____State_____Zip_____

CUSTOMER

Signature _____ Signature _____

Print Name _____ Print Name _____

Date _____ Date _____

WE ARE INVESTING IN YOUR NEIGHBORHOOD

Main Replacement Project to Start Soon

At Missouri American Water, we're committed to providing our customers with safe, reliable water service. This requires investing in our treatment and distribution systems, and one of these projects is about to take place near you. The project involves replacing aging water main and fire hydrants along the pipeline route (see reverse for information about service lines).

Project Overview

- Install, disinfect, test and place new main into service
- Transfer customers to the new main
- Perform final paving and any restoration of concrete, driveway, grass and landscaping

Service Impacts: What to Expect

While we interconnect the new main to distribution system: Customers may experience a temporary service interruption while this work is performed. Customers may also experience a slight discoloration of water. If this happens, run the water until it is clear.

Once the new main is installed: We'll return to connect customers to the new main. Typically there is a 30- and 60-minute interruption of service while the contractor performs this work. We'll attempt to notify customers 24 hours in advance. **We'll also notify you on the day we transfer service with further instructions on how to flush your household plumbing prior to using water. It is important that you read and follow these instructions.** If you're not home, we'll leave the instructions at your front door.

Our crews will work as quickly as possible to shorten the length of these temporary inconveniences. We appreciate your patience and understanding during this project.

ABOUT THE PROJECT

INVESTMENT	
WHAT	
WHERE	
WHEN	
WORK HOURS	
PROJECT CONTACT	

MISSOURI AMERICAN WATER

SAFETY IS KEY! SLOW DOWN IN WORK ZONES!

Your safety, as well as the safety of your neighbors and our workers is important to us! We work hard to keep our jobsites safe, and we appreciate your efforts to slow down and use caution around the construction site.

QUESTIONS?

Call our project contact listed to the left.

We can also be reached at our Customer Service Center at 1-866-430-0820
Hours: 7 a.m.-7 p.m.
For emergencies: We're available 24/7

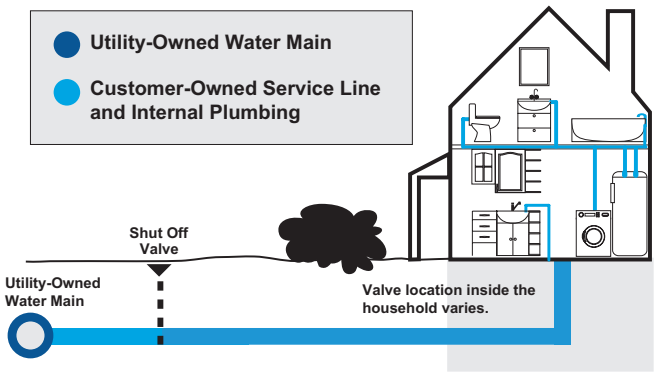
MO.SLR.5 09-2017

WATER: QUALITY, CARE AND VALUE DELIVERED IN EVERY DROP.

Quality, care and value delivered in every drop.

MISSOURI AMERICAN WATER

Utility-owned vs. Customer-owned



Please note: This diagram is a generic representation. Variations may apply.

Traffic and Accessibility

Noise

Our contractor will take measures to minimize noise levels; however, there will be some unavoidable noise associated with this project. We appreciate your understanding of any inconvenience that this may cause.

Site Maintenance

The project site will be maintained and cleaned each day before contractors have completed work.

How should we reach you in an emergency?

Missouri American Water uses a high-speed mass notification system called "CodeRED" to keep customers informed about water-related emergencies and notifications. Log on to our online self-service portal, My Account (**www.amwater.com/myaccount**) to make sure your contact information is up to date. While you're there, tell us how you prefer to receive your alerts and notifications: phone; text and phone; and/or email.

** Standard text, data and phone rates may apply.*

Important Information About Your Service Lines

Customer-owned service line: This portion of the service line is the responsibility of the property owner. It extends from the company shut off valve to and including the inside plumbing.

WHEN WE TRANSFER YOUR SERVICE LINE TO THE NEW MAIN, we'll notify you that day with further instructions on how to flush your household plumbing prior to using the water.
If you're not home, we'll leave the instructions at your front door.

Do you know what your service line is made of?

Over the years, plumbers have used many different materials, including copper, PVC, lead and others. One way to find out what your service line is made of is to contact a licensed plumber. If we find lead during the course of our main replacement project, we'll contact you to discuss replacing your service line. Replacing lead service lines reduces your potential exposure to lead. To learn more, visit **missouriamwater.com**. Under Water Quality, select Lead and Drinking Water.

WE ARE INVESTING IN YOUR NEIGHBORHOOD

Main Replacement Project to Start Soon

At Missouri American Water, we're committed to providing our customers with safe, reliable water service. This requires investing in our treatment and distribution systems, and one of these projects is about to take place near you. The project involves replacing aging water main, as well as utility-owned service lines and fire hydrants along the pipeline route (see reverse for more information about service lines).

Project Overview

- Install, disinfect, test and place new main into service
- Replace utility-owned service lines and transfer customers to the new main
- Perform final paving and any restoration of concrete, driveway, grass and landscaping

Service Impacts: What to Expect

While we interconnect the new main to distribution system: Customers may experience a temporary service interruption while this work is performed. Customers may also experience a slight discoloration of water. If this happens, run the water until it is clear.

Once the new main is installed: We'll return to connect customers to the new main. This may involve replacing the utility-owned service lines. If we're replacing the utility-owned service line at your property, typically there is a 30- and 60-minute interruption of service while the contractor connects the new service line. We'll attempt to notify customers 24 hours in advance. **We'll also notify you on the day the service line is replaced with further instructions on how to flush your household plumbing prior to using water. It is important that you read and follow these instructions.** If you're not home, we'll leave the instructions at your front door.

Our crews will work as quickly as possible to shorten the length of these temporary inconveniences. We appreciate your patience and understanding during this project.

ABOUT THE PROJECT

INVESTMENT	
WHAT	
WHERE	
WHEN	
WORK HOURS	
PROJECT CONTACT	

MISSOURI AMERICAN WATER

SAFETY IS KEY! SLOW DOWN IN WORK ZONES!

Your safety, as well as the safety of your neighbors and our workers is important to us! We work hard to keep our jobsites safe, and we appreciate your efforts to slow down and use caution around the construction site.

QUESTIONS?

Call our project contact listed to the left.

We can also be reached at our Customer Service Center at 1-866-430-0820
Hours: 7 a.m.-7 p.m.
For emergencies: We're available 24/7

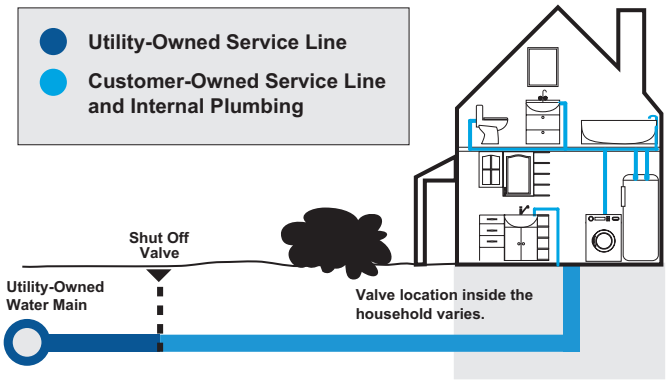
MO.SLR.5 09-2017

WATER: QUALITY, CARE AND VALUE DELIVERED IN EVERY DROP.

Quality, care and value delivered in every drop.

MISSOURI AMERICAN WATER

Utility-owned vs Customer-owned portion of the service line



Please note: This diagram is a generic representation. Variations may apply.

Traffic and Accessibility

Noise

Our contractor will take measures to minimize noise levels; however, there will be some unavoidable noise associated with this project. We appreciate your understanding of any inconvenience that this may cause.

Site Maintenance

The project site will be maintained and cleaned each day before contractors have completed work.

How should we reach you in an emergency?

Missouri American Water uses a high-speed mass notification system called "CodeRED" to keep customers informed about water-related emergencies and notifications. Log on to our online self-service portal, My Account (**www.amwater.com/myaccount**) to make sure your contact information is up to date. While you're there, tell us how you prefer to receive your alerts and notifications: phone; text and phone; and/or email.

** Standard text, data and phone rates may apply.*

Important Information About Service Lines

There are two components of a service line.

Utility-owned portion of the service line: This is the portion of the service line that extends from the company's main in the street to the company shut off valve (generally located near the curb).

Customer-owned portion of the service line: This portion of the service line is the responsibility of the property owner. It extends from the company shut off valve to and including the inside plumbing.

IF WE ARE REPLACING THE UTILITY-OWNED SERVICE LINE SERVING YOUR PROPERTY, we'll notify you on the day the service line is replaced with further instructions on how to flush your household plumbing prior to using the water.
If you're not home, we'll leave the instructions at your front door.

Do you know what your service line is made of?

Over the years, plumbers have used many different materials, including copper, PVC, lead and others. One way to find out what your service line is made of is to contact a licensed plumber. If we find lead during the course of our main replacement project, we'll contact you to discuss replacing your service line. Replacing lead service lines reduces your potential exposure to lead. To learn more, visit **missouriamwater.com**. Under Water Quality, select Lead and Drinking Water.

IT'S TIME TO FLUSH YOUR WATER LINE

Dear Valued Customer,

Today, we replaced the utility-owned portion of the water service line from the company's main in the street to the company shut off valve (generally located near the curb). Some sediment or debris may have come loose during removal of the pipe.

Our contractor flushed the new service line using your outside faucet. **Now, we'll need you to flush your household plumbing BEFORE you consume tap water or use hot water. For example, this includes drinking, cooking, making baby formula, filling pet bowls, or using icemakers, filtered water dispensers or appliances requiring water.**

Flushing Your Plumbing in Three Simple Steps

1. Remove faucet aerator on your kitchen faucet, and if applicable, bypass any home treatment unit.
2. Fully open the cold water tap and let the water run for at least 5 minutes. Monitor tap and drain to prevent overflows.
3. Clean and replace the faucet aerator.

For more information on your water quality, call us or visit us online at **www.missouriamwater.com**. Under Water Quality, select Water Quality Reports.

Date: _____/_____/20_____ Time: _____ a.m. / p.m.

MO.SLR.6 09-2017

MISSOURI
AMERICAN WATER

CUSTOMER SERVICE
HOURS OF OPERATION: M-F, 7 a.m. to 7 p.m.
FOR EMERGENCIES: We're available 24/7.

1-866-430-0820

ES HORA DE PURGAR LA TUBERÍA DEL AGUA

Estimado preciado cliente,

El día de hoy, remplazamos la porción de la tubería del servicio de agua que es propiedad de los servicios públicos, y que va de la tubería principal de la compañía en la calle a la válvula de paso de la compañía (generalmente ubicada cerca de la acera). Es posible que se haya desprendido algo de sedimento y escombro durante el cambio de la tubería.

El contratista usó su grifo exterior para purgar la nueva tubería de servicio. **Ahora usted debe purgar la tubería de su casa ANTES de consumir el agua del grifo, o utilizar agua caliente. Por ejemplo, el agua para tomar, cocinar, preparar fórmula para bebés, llenar los platos de agua para las mascotas, o utilizar las máquinas de hielo, los dispensadores de agua filtrada o los electrodomésticos que requieran agua.**

Purgue la tubería en tres sencillos pasos

1. Retire el aireador del grifo de la cocina, y de ser el caso, evite cualquier unidad de tratamiento de agua para el hogar.
2. Abra completamente el grifo de agua fría y deje que el agua corra por lo menos 5 minutos. Vigile el grifo y el desagüe para evitar que el agua se desborde.
3. Limpie y vuelva a colocar el aireador del grifo.

Para más información sobre la calidad del agua, llámenos o visítenos en línea en **www.missouriamwater.com**. En la pestaña de Water Quality (calidad del agua), seleccione Water Quality Reports (informes de calidad del agua).

Fecha: _____/_____/20_____ Hora: _____ a.m. / p.m.

MISSOURI
AMERICAN WATER

CUSTOMER SERVICE
HORARIOS DE ATENCIÓN:
De lunes a viernes de 7 a. m. a 7 p. m.
PARA EMERGENCIAS:
Estamos disponibles las 24 horas, los 7 días a la semana.
1-866-430-0820

IMPORTANT NOTICE ABOUT YOUR WATER

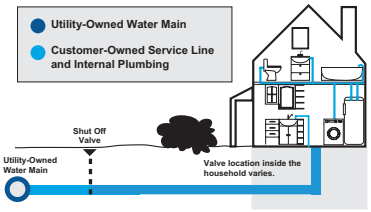
MISSOURI AMERICAN WATER

Dear Valued Customer,

Today, we replaced the following at your property:

☐ the customer-owned portion of the service line, which contained lead.

Your household plumbing will need to be flushed to remove any pipe scale that may have come loose during construction. Pipe scales may contain lead.



Please note: This diagram is a generic representation. Variations may apply.

Please take the following steps to minimize your exposure to any scale that may have been released.

Immediate Household Flushing Instructions

You should flush your household plumbing BEFORE you consume tap water or use hot water. For example, this includes drinking, cooking, making baby formula, filling pet bowls, or using icemakers, filtered water dispensers or appliances requiring water.

1. Start by finding the closest available cold water tap to where the water line comes into the home (such as an outside hose bib or laundry/utility sink). If using outside faucet, please use hose to safely direct water away from your home.
2. Remove faucet aerator, and if applicable, bypass any home treatment unit. Then fully open the cold water tap and let the water run for at least 30 minutes.

Next, flush the remainder of your household plumbing as follows[1]:

3. Find all the faucets that will drain properly into a basin, tub, shower or laundry tub. Be careful to monitor all taps and drains to prevent overflows.
4. Remove faucet aerators and screens wherever possible from all cold water taps that you plan to flush in the home (and remove any filter devices).
5. Beginning in the lowest level of the home, fully open the cold water taps throughout the home.
6. Let the water run for at least 30 minutes at the last tap you opened (top floor).
7. Turn off each tap starting with the taps in the highest level of the home. Clean and replace the aerators on faucets.

Be sure to run cold water in bathtubs, showers and faucets, and monitor all taps and drains to prevent overflows.

Daily and Monthly Maintenance for Six Months

Other steps to help manage your exposure include:

- **DAILY (for six months):** Each morning or any time the water in the faucet has gone unused for more than six hours, flush your tap for 30 seconds to two minutes before using any water for drinking, cooking or making infant formula.
- **MONTHLY (for six months):** Remove and clean your faucet aerators.

[1]**Source:** American Water Works Association (AWWA)

There are other steps you can take to protect yourself and your family from lead in tap water, regardless of whether you have a lead service line. Plumbing fixtures like faucets, valves and solder can contain small amounts of lead, so flushing can help reduce lead exposure. Visit our website for more information. Please note: homeowners are responsible for their home plumbing.

FOR MORE INFORMATION

For Questions About Lead:

Contact the Customer Service Center at 1-866-430-0820. Please request a water quality follow-up.

For Questions About Construction:

_____

(____)_____

For all other inquiries:
Customer Service Center
1-866-430-0820
Hours: M-F, 7 a.m.–7 p.m.
For emergencies, we're available 24/7.

Missouri American Water meets all drinking water standards related to lead. Basic information about lead, the steps we take—along with tips on what you can do—to reduce the potential for lead exposure, are attached and can be found online at **missouriamwater.com.** Under Water Quality, select Water Quality Reports.

LEARN MORE

USEPA's Safe Drinking Water Hotline
1-800-426-4791

National Lead Information Center: 1-800-424-LEAD

Date: _____

Time: _____ a.m. / p.m.

MO.STL.SLR.7 09-2017

NOTIFICACIÓN IMPORTANTE SOBRE EL AGUA

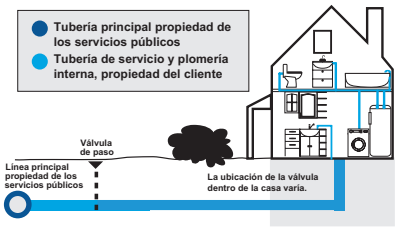
MISSOURI AMERICAN WATER

Estimado preciado cliente,

El día de hoy, reemplazamos lo siguiente en su propiedad:

☐ la parte de la tubería de servicio que es propiedad del cliente y que contenía plomo.

Será necesario que purgue las tuberías de su casa para eliminar cualquier partícula que se haya podido desprender de las tuberías durante el arreglo. Las partículas de las tuberías pudieran contener plomo.



Tenga en cuenta lo siguiente: Este diagrama es una representación genérica. Pueden existir variantes.

Se le ruega que siga las siguientes instrucciones para minimizar su exposición a cualquier partícula que pudiera haberse desprendido.

Instrucciones para purgar inmediatamente las tuberías del hogar

Debe purgar la tubería de su casa ANTES de consumir el agua del grifo, o utilizar agua caliente. Por ejemplo, el agua para tomar, cocinar, preparar fórmula para bebés, llenar los platos de agua para las mascotas, o utilizar las máquinas de hielo, los dispensadores de agua filtrada o los electrodomésticos que requieran agua.

1. Para empezar localice el grifo de agua fría más cercano a la tubería por donde llega el agua a su casa (puede ser la toma para la manguera afuera de su casa, o la toma para la lavadora/el lavadero). Si utiliza un grifo localizado afuera, dirija la manguera en sentido opuesto de su casa.
2. Retire el aireador del grifo, y de ser el caso, evite cualquier unidad de tratamiento de agua para el hogar. Luego, abra completamente el grifo de agua fría y deje que el agua corra por lo menos 30 minutos.

Después, purgue el resto de la plomería de su hogar de la siguiente forma[1]:

3. Busque todos los grifos que puedan drenarse debidamente en el lavamanos, la tina, ducha o el lavadero de la lavandería. Vigile todos los grifos y desagües para evitar que el agua se desborde.
4. De ser posible, retire los aireadores y las rejillas de todos los grifos de agua fría que vaya a purgar en su casa (y retire cualquier dispositivo de filtros).
5. Empezado en el piso más bajo en su casa, abra completamente los grifos de agua fría en toda la casa.
6. Deje que el agua corra por lo menos 30 minutos a partir del momento en que abrió el último grifo (en el piso superior).
7. Cierre cada grifo empezando con los que están ubicados en el piso superior de su casa. Limpie y vuelva a colocar los aireadores de los grifos.

Asegúrese de dejar correr el agua en las bañeras, duchas, y los grifos, y vigile todas las salidas de agua y los desagües para evitar desbordes de agua.

Mantenimiento diario y mensual durante seis meses

Otros pasos para ayudar a controlar la exposición son:

- **DIARIAMENTE (durante seis meses):** Todas las mañanas o toda vez que no se haya usado el agua del grifo durante más de seis horas, purgue el grifo de 30 segundos a dos minutos antes de usar el agua para tomar, cocinar o preparar fórmula para bebés.
- **MENSUALMENTE (durante seis meses):** Retire y limpie los aireadores de los grifos.

[1]**Fuente:** Asociación Estadounidense de Obras Hidráulicas (American Water Works Association o AWWA)

Existen otras medidas que puede tomar para protegerse a usted y a su familia del plomo en el agua potable, independientemente de que tenga o no tuberías de plomo. La fontanería como por ejemplo los grifos y las válvulas y la soldadura pueden contener pequeñas cantidades de plomo, por tanto purgar las tuberías puede ayudar a reducir la exposición al plomo. Para más información, visite nuestra página web. Le rogamos que tenga en cuenta que los propietarios son responsables por la plomería de sus hogares.

PARA MÁS INFORMACIÓN

Para preguntas sobre el plomo:

Comuníquese con el Centro de Servicio al Cliente al 1-866-430-0820
Solicite un control de la calidad del agua.

Para preguntas sobre la reparación:

_____

(____)_____

Para cualquier otra pregunta:
Centro de Atención al Cliente
1-866-430-0820
Horarios: De lunes a viernes de 7 a.m. a 7 p.m. Para casos de emergencia, estamos disponibles las 24 horas del día los 7 días de la semana.

Missouri American Water cumple con todos los estándares de agua potable en lo que respecta al plomo. A continuación se adjunta información básica sobre el plomo, las medidas que tomamos, junto con consejos de lo que usted puede para reducir la posible exposición al plomo, esta información también puede encontrarse en línea en **missouriamwater.com**. En la pestaña de Water Quality (calidad del agua), seleccione Water Quality Reports (informes de calidad del agua).

MÁS INFORMACIÓN

Línea de ayuda de Agua Potable Segura de la USEPA: 1-800-426-4791

National Lead Information Center [Centro Nacional de Información acerca del Plomo]: 1-800-424-LEAD

Fecha: _____

Hora: _____ a.m. / p.m.

IMPORTANT NOTICE ABOUT YOUR WATER

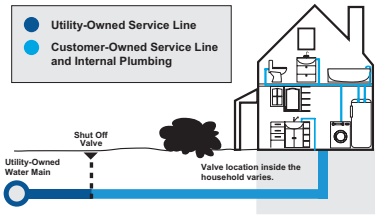
MISSOURI AMERICAN WATER

Dear Valued Customer,

Today, we replaced the following at your property:

- ☐ the utility-owned portion of the service line, which contained lead.
- ☐ the customer-owned portion of the service line, which contained lead.

Your household plumbing will need to be flushed to remove any pipe scale that may have come loose during construction. Pipe scales may contain lead.



Please note: This diagram is a generic representation. Variations may apply.

Please take the following steps to minimize your exposure to any scale that may have been released.

Immediate Household Flushing Instructions

You should flush your household plumbing BEFORE you consume tap water or use hot water. For example, this includes drinking, cooking, making baby formula, filling pet bowls, or using icemakers, filtered water dispensers or appliances requiring water.

1. Start by finding the closest available cold water tap to where the water line comes into the home (such as an outside hose bib or laundry/utility sink). If using outside faucet, please use hose to safely direct water away from your home.
2. Remove faucet aerator, and if applicable, bypass any home treatment unit. Then fully open the cold water tap and let the water run for at least 30 minutes.

Next, flush the remainder of your household plumbing as follows[1]:

3. Find all the faucets that will drain properly into a basin, tub, shower or laundry tub. Be careful to monitor all taps and drains to prevent overflows.
4. Remove faucet aerators and screens wherever possible from all cold water taps that you plan to flush in the home (and remove any filter devices).
5. Beginning in the lowest level of the home, fully open the cold water taps throughout the home.
6. Let the water run for at least 30 minutes at the last tap you opened (top floor).
7. Turn off each tap starting with the taps in the highest level of the home. Clean and replace the aerators on faucets.

Be sure to run cold water in bathtubs, showers and faucets, and monitor all taps and drains to prevent overflows.

Daily and Monthly Maintenance for Six Months

Other steps to help manage your exposure include:

- **DAILY (for six months):** Each morning or any time the water in the faucet has gone unused for more than six hours, flush your tap for 30 seconds to two minutes before using any water for drinking, cooking or making infant formula.
- **MONTHLY (for six months):** Remove and clean your faucet aerators.

[1]**Source:** American Water Works Association (AWWA)

There are other steps you can take to protect yourself and your family from lead in tap water, regardless of whether you have a lead service line. Plumbing fixtures like faucets, valves and solder can contain small amounts of lead, so flushing can help reduce lead exposure. Visit our website for more information. Please note: homeowners are responsible for their home plumbing.

FOR MORE INFORMATION

For Questions About Lead:

Contact the Customer Service Center at 1-866-430-0820. Please request a water quality follow-up.

For Questions About Construction:

_____

(____)_____

For all other inquiries:
Customer Service Center
1-866-430-0820
Hours: M-F, 7 a.m.–7 p.m.
For emergencies, we're available 24/7.

Missouri American Water meets all drinking water standards related to lead. Basic information about lead, the steps we take—along with tips on what you can do—to reduce the potential for lead exposure, are attached and can be found online at **missouriamwater.com.** Under Water Quality, select Water Quality Reports.

LEARN MORE

USEPA's Safe Drinking Water Hotline
1-800-426-4791

National Lead Information Center: 1-800-424-LEAD

Date: _____

Time: _____ a.m. / p.m.

MO.SLR.7 09-2017

NOTIFICACIÓN IMPORTANTE SOBRE EL AGUA

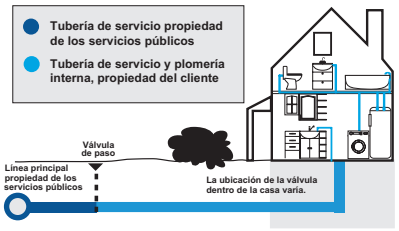
MISSOURI AMERICAN WATER

Estimado preciado cliente,

El día de hoy, reemplazamos lo siguiente en su propiedad:

- ☐ la parte de la tubería de servicio que es propiedad de los servicios públicos y que contenía plomo.
- ☐ la parte de la tubería de servicio que es propiedad del cliente y que contenía plomo.

Será necesario que purgue las tuberías de su casa para eliminar cualquier partícula que se haya podido desprender de las tuberías durante el arreglo. Las partículas de las tuberías pudieran contener plomo.



Tenga en cuenta lo siguiente: Este diagrama es una representación genérica. Pueden existir variantes.

Se le ruega que siga las siguientes instrucciones para minimizar su exposición a cualquier partícula que pudiera haberse desprendido.

Instrucciones para purgar inmediatamente las tuberías del hogar

Debe purgar la tubería de su casa ANTES de consumir el agua del grifo, o utilizar agua caliente. Por ejemplo, el agua para tomar, cocinar, preparar fórmula para bebés, llenar los platos de agua para las mascotas, o utilizar las máquinas de hielo, los dispensadores de agua filtrada o los electrodomésticos que requieran agua.

1. Para empezar localice el grifo de agua fría más cercano a la tubería por donde llega el agua a su casa (puede ser la toma para la manguera afuera de su casa, o la toma para la lavadora/el lavadero). Si utiliza un grifo localizado afuera, dirija la manguera en sentido opuesto de su casa.
2. Retire el aireador del grifo, y de ser el caso, evite cualquier unidad de tratamiento de agua para el hogar. Luego, abra completamente el grifo de agua fría y deje que el agua corra por lo menos 30 minutos.

Después, purgue el resto de la plomería de su hogar de la siguiente forma[1]:

3. Busque todos los grifos que puedan drenarse debidamente en el lavamanos, la tina, ducha o el lavadero de la lavandería. Vigile todos los grifos y desagües para evitar que el agua se desborde.
4. De ser posible, retire los aireadores y las rejillas de todos los grifos de agua fría que vaya a purgar en su casa (y retire cualquier dispositivo de filtros).
5. Empezado en el piso más bajo en su casa, abra completamente los grifos de agua fría en toda la casa.
6. Deje que el agua corra por lo menos 30 minutos a partir del momento en que abrió el último grifo (en el piso superior).
7. Cierre cada grifo empezando con los que están ubicados en el piso superior de su casa. Limpie y vuelva a colocar los aireadores de los grifos.

Asegúrese de dejar correr el agua en las bañeras, duchas, y los grifos, y vigile todas las salidas de agua y los desagües para evitar desbordes de agua.

Mantenimiento diario y mensual durante seis meses

Otros pasos para ayudar a controlar la exposición son:

- **DIARIAMENTE (durante seis meses):** Todas las mañanas o toda vez que no se haya usado el agua del grifo durante más de seis horas, purgue el grifo de 30 segundos a dos minutos antes de usar el agua para tomar, cocinar o preparar fórmula para bebés.
- **MENSUALMENTE (durante seis meses):** Retire y limpie los aireadores de los grifos.

[1]**Fuente:** Asociación Estadounidense de Obras Hidráulicas (American Water Works Association o AWWA)

Existen otras medidas que puede tomar para protegerse a usted y a su familia del plomo en el agua potable, independientemente de que tenga o no tuberías de plomo. La fontanería como por ejemplo los grifos y las válvulas y la soldadura pueden contener pequeñas cantidades de plomo, por tanto purgar las tuberías puede ayudar a reducir la exposición al plomo. Para más información, visite nuestra página web. Le rogamos que tenga en cuenta que los propietarios son responsables por la plomería de sus hogares.

PARA MÁS INFORMACIÓN

Para preguntas sobre el plomo:

Comuníquese con el Centro de Servicio al Cliente al 1-866-430-0820
Solicite un control de la calidad del agua.

Para preguntas sobre la reparación:

_____

(____)_____

Para cualquier otra pregunta:
Centro de Atención al Cliente
1-866-430-0820
Horarios: De lunes a viernes de 7 a.m. a 7 p.m. Para casos de emergencia, estamos disponibles las 24 horas del día los 7 días de la semana.

Missouri American Water cumple con todos los estándares de agua potable en lo que respecta al plomo. A continuación se adjunta información básica sobre el plomo, las medidas que tomamos, junto con consejos de lo que usted puede para reducir la posible exposición al plomo, esta información también puede encontrarse en línea en **missouriamwater.com**. En la pestaña de Water Quality (calidad del agua), seleccione Water Quality Reports (informes de calidad del agua).

MÁS INFORMACIÓN

Línea de ayuda de Agua Potable Segura de la USEPA: 1-800-426-4791

National Lead Information Center [Centro Nacional de Información acerca del Plomo]: 1-800-424-LEAD

Fecha: _____

Hora: _____ a.m. / p.m.

Lead Service Line Replacement & Electrical Grounding

MISSOURI AMERICAN WATER

ATTENTION CONTRACTORS

Before retiring a lead water service line:

1. Have an electrician check the premise electrical grounding and bonding.
2. DO NOT connect copper pipe to lead through conductive fittings. Any remaining lead pipe can CORRODE due to galvanic corrosion if connected to other metal pipe and fittings.
3. Always use proper Personal Protective Equipment (PPE) to prevent shocks and other hazards.
4. Discuss any needed upgrades to grounding with the project manager.

Lead water service pipes may have been used as part of the premise's electrical grounding system. This is of special concern whenever a lead water service line will be replaced. You should have a professional electrician determine the location and adequacy of the premise electrical grounding system.

REMEMBER TO ALWAYS USE PROPER PPE.

If the customer chose NOT to have their lead service line replaced:

All LEAD water service line pipe should be removed if possible during water infrastructure improvement projects that include service line work.

If it is not possible to remove the entire lead service line pipe or if the plumbing inside the premise is lead, the plumbing contractor should avoid creating galvanic corrosion of lead materials, such as connecting copper pipe to lead pipe through conductive couplings.

If any portion of a lead service line will remain, the contractor should:

1. Use non-conductive pipe for drinking water applications, or
2. if copper is used for the new portion of the water service line, use a plastic spacer or dielectric union (couplings which join together pipes of different metals preventing electrolysis).

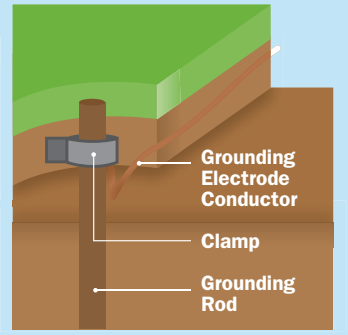
These options can lower the risk of lead corrosion, but may no longer make a reliable grounding option for the electrical system. In these cases, please have the electrician suggest an alternative means of grounding if needed.

The contractor should check the local codes and the premise's electrical grounding and bonding before retiring a lead water service pipe on public property, private property or both.

Please note that internal premise plumbing is not part of the utility's work. Customers may also want to consult a plumber to check their internal premise plumbing and fixtures.

Check Your Premise Electrical Grounding

Electrical grounding directs dangerous electrical charges away from the home and into the ground. Lightning strikes and static electricity charges are the two most common types of damaging electrical charges.



Historically, a home's metallic water service may have provided a safe ground for the electrical system as it's pipes typically extend at least 10 feet underground from the point where the pipes enter the home to the main water line.

Questions? Call

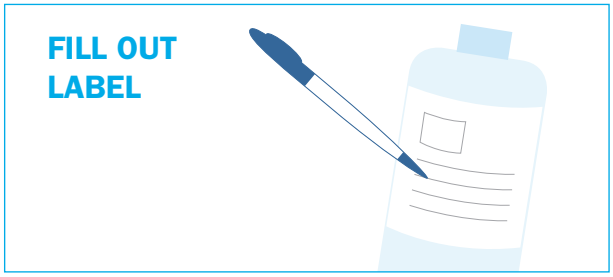
Name _____

Phone _____

MO.SLR.8 09-2017

Water Sampling Process for Lead

MISSOURI AMERICAN WATER



SAMPLE 1
Company/Plumber takes water sample

WHEN: After whole house flush

Our company/plumber will collect a cold water sample from the kitchen tap AFTER conducting the whole house flush. Please let us know if you have a home water treatment unit, pressure reducing valve or filter attached to the plumbing system or faucet before sampling.

Sampling Instructions for Company/Plumber

1. Gently open the kitchen cold water tap and fill the bottle to the top.
2. Turn off water and tightly cap the sample bottle.
3. Fill out the bottle label: Check Plumber Box and complete Address, Sample Location, Collect Date, and Collect Time.
4. Deliver the sample to the project manager on the same day it is collected or as otherwise directed.

SAMPLE 2
Customer takes water sample

WHEN: Between 8 to 72 hours after service line is replaced

If requested by the customer, we'll analyze a second water sample for free. This sample should be collected within 72 hours (3 days) of the repair if possible.

Sampling Instructions for the Customer

1. AFTER water has sat motionless for AT LEAST 6 HOURS, gently open the kitchen cold water tap and fill the sample bottle to the top. This can be done first thing in the morning or after returning home from work, etc. NOTE: If a water treatment unit or filter is attached to the plumbing system or faucet, please remove the filter or bypass the unit before sampling.
2. Turn off water and tightly cap the sample bottle.
3. Fill out the bottle label: Check Customer Box and complete Address, Sample Location, Collect Date, and Collect Time.
4. Call us to pick up your water sample.

   Name _____

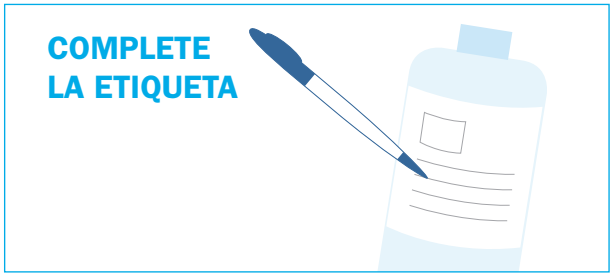
   Phone _____

5. We'll contact you with the results as soon as they are available.

MO.SLR.9 09-2017

Proceso de obtención de la muestra de agua

MISSOURI AMERICAN WATER



MUESTRA 1

La compañía/el plomero toma una muestra de agua

CUÁNDO: Después de la purga del agua de toda la casa.

Nuestra compañía/el plomero recolectará una muestra de agua fría del grifo de la cocina DESPUÉS de realizar la purga del agua en toda la casa. Antes de que se tome la muestra, infórmenos si en su casa hay alguna unidad de tratamiento de agua, válvula reductora o filtro fijados al sistema de tuberías o al grifo.

Instrucciones de obtención de la muestra para la compañía/el plomero

1. Abra lentamente el grifo de agua fría de la cocina y rellene la botella hasta el tope.
2. Cierre el grifo y cierre bien la tapa de la botella de muestra.
3. Complete la etiqueta de la botella: marque la casilla Plomero y complete la dirección, la ubicación de la muestra, la fecha de recolección y la hora de recolección.
4. Entregue la muestra al gerente de proyecto el mismo día de la recolección o según se le indique.

MUESTRA 2

El cliente obtiene la muestra de agua

CUÁNDO: Entre las 8 y las 72 horas posteriores al reemplazo de la tubería de servicio.

Si el cliente lo solicita, analizaremos una segunda muestra de agua sin costo. Esta muestra debería recolectarse en un plazo de 72 horas (3 días) después de la reparación si es posible.

Instrucciones de obtención de la muestra para el Cliente

1. DESPUÉS de que el agua se asiente sin movimiento durante AL MENOS 6 HORAS, abra lentamente el grifo de agua fría de la cocina y rellene la botella de muestra hasta el tope. Esto puede hacerse temprano en la mañana o después de regresar a su casa del trabajo, etc. TENGA EN CUENTA LO SIGUIENTE: Si hay una unidad de tratamiento de agua o filtro fijado al sistema de tuberías o al grifo, retire el filtro u omita el uso de la unidad antes de obtener la muestra.
2. Cierre el grifo y cierre bien la tapa de la botella de muestra.
3. Complete la etiqueta de la botella: marque la casilla Cliente y complete la dirección, la ubicación de la muestra, la fecha de recolección y la hora de recolección.
4. Llámenos para que recojamos la muestra de agua.

Nombre _____

Teléfono _____

5. Nos comunicaremos con usted cuando estén disponibles los resultados.

72-HOUR WATER SAMPLE REMINDER

We haven't received your call to pick up your second water sample, so we thought we'd check to make sure you are still interested. If you are, the sample should be collected within 72 hours (3 days) of the repair using the kit that was provided. If you have any questions or need a replacement kit, please contact us at the number listed below.

Sampling Instructions for the Customer

1. AFTER water has sat motionless for AT LEAST 6 HOURS, gently open the kitchen cold water tap and fill the sample bottle to the top. This can be first thing in the morning or after returning home from work, etc. NOTE: If a water treatment unit or filter is attached to the plumbing system or faucet, please remove the filter or bypass the unit before sampling.
2. Turn off water and tightly cap the sample bottle.
3. Fill out the bottle label: Check Customer Box and complete Address, Sample Location, Collect Date, and Collect Time.
4. Call us to pick up your water sample.

Name _____

Phone _____

LEARN MORE

For more information on your water quality and ways to reduce your exposure to lead, call us or visit us online at **www.missouriamwater.com**. Under Water Quality, select Lead and Drinking Water.

Date: _____/_____/20_____ Time: _____ a.m. / p.m.

PA.SLR.10 09-2017

MISSOURI AMERICAN WATER

CUSTOMER SERVICE

HOURS OF OPERATION: M-F, 7 a.m. to 7 p.m.
FOR EMERGENCIES: We're available 24/7.

1-866-430-0820

RECORDATORIO DE LA MUESTRA DE AGUA DE 72 HORAS

No hemos recibido su llamado para recoger la segunda muestra de agua, solo queremos asegurarnos de que todavía está interesado. Si lo está, la muestra debe obtenerse el kit que se proporcionó en un plazo de 72 horas (3 días) a partir de la reparación. Si tiene preguntas o necesita un kit de repuesto, comuníquese con nosotros al número de teléfono más abajo.

Instrucciones de obtención de la muestra para el Cliente

1. DESPUÉS de que el agua se asiente sin movimiento durante AL MENOS 6 HORAS, abra lentamente el grifo de agua fría de la cocina y rellene la botella de muestra hasta el tope. Esto puede hacerse temprano en la mañana o después de regresar a su casa del trabajo, etc. TENGA EN CUENTA LO SIGUIENTE: Si hay una unidad de tratamiento de agua o filtro fijado al sistema de tuberías o al grifo, retire el filtro u omita el uso de la unidad antes de obtener la muestra.
2. Cierre el grifo y cierre bien la tapa de la botella de muestra.
3. Complete la etiqueta de la botella: marque la casilla Cliente y complete la dirección, la ubicación de la muestra, la fecha de recolección y la hora de recolección.
4. Llámenos para que recojamos la muestra de agua.

Nombre _____

Teléfono _____

MÁS INFORMACIÓN

Para más información sobre la calidad del agua y formas de reducir la exposición al plomo, llámenos o visítenos en línea en **www.missouriamwater.com**. En la pestaña de Water Quality (calidad del agua), seleccione Lead and Drinking Water (plomo y agua potable).

Fecha: _____/_____/20_____ Hora: _____ a.m. / p.m.

MISSOURI AMERICAN WATER

SERVICIO AL CLIENTE

HORARIOS DE ATENCIÓN: De lunes a viernes de 7 a. m. a 7 p. m.
PARA EMERGENCIAS: Estamos disponibles las 24 horas, los 7 días de la semana.

1-866-430-0820

LEAD

The most common source of lead in tap water is the plumbing in your home

MISSOURI AMERICAN WATER

Missouri American Water regularly tests for lead in drinking water and has taken steps to minimize levels through improvements in corrosion control.

Although these tests indicate that lead is not an issue in the treated water leaving our facility, lead and/or copper levels in some homes and businesses might be detected due to customer use of lead pipes, lead solder and molded metal faucets in household plumbing.

Health effects associated with high levels of lead

The U.S. Environmental Protection Agency (EPA) sets standards related to lead in drinking water. Lead levels that exceed these standards could cause serious damage to the brain, kidneys, nervous system and red blood cells. The greatest risk, even with short-term exposure, is to young children and pregnant women.

Assessing your exposure to lead

Lead levels in drinking water are more likely to be higher if:

- your home or water system has lead pipes or has a lead service line
- a partial replacement of the lead service lines serving your home is performed
- your home has copper pipes with lead solder
- your home was built before 1986 AND
- you have soft or acidic water
- water sits in the pipes for several hours

Minimizing your exposure

You cannot see, smell or taste lead, and boiling water will not remove lead. Although our water is treated to minimize the risk of lead, you can reduce your household's exposure to lead in drinking water by following these simple steps:

- **Flush your tap before drinking or cooking with water, if the water in the faucet has gone unused for more than six hours.** The longer the water lies dormant in your home's plumbing, the more lead it might contain. Flush your tap with cold water for 30 seconds to two minutes before using. To conserve water, catch the running water and use it to water your plants.
- **Try not to cook with or drink water from the hot water faucet.** Hot water has the potential to contain more lead than cold water. When you need hot water, heat cold water on the stove or in the microwave.
- **Clean faucet aerators.** Routinely remove and clean all faucet aerators.
- **Remove loose solder and debris from plumbing.** In newly-constructed homes or homes in which the plumbing was recently replaced, remove the strainers from each faucet and run the water for 3 to 5 minutes. When replacing or working on pipes, be sure to use lead-free materials.
- **Look for the "Lead Free" Label.** When replacing or installing fixtures, look for the "lead free" label.
- **See information on page 2 related to home treatment devices.**

(Continued)

Have lead pipes, fixtures or solder?

BEFORE USING WATER FOR DRINKING OR COOKING

If water goes unused for more than 6 hours, run water for 30 seconds to 2 minutes before use.

For more information

Missouri American Water Customer Service Center:
1-866-430-0820
M-F, 7 a.m. - 7 p.m.

Check us out online
missouriamwater.com

For more information on drinking water standards:
Contact the
EPA Hotline at
1-800-426-4791

MISSOURI AMERICAN WATER

FREQUENTLY ASKED Q AND A

Is lead in water regulated and does Missouri American Water comply with standards?

Yes and yes. The EPA's lead standard is an action level that requires treatment modifications if lead test results exceed 15 parts per billion (ppb) in more than 10 percent of first draw samples taken from household taps.

Missouri American Water regularly tests for lead at the end of its treatment process. Testing has shown that lead is not an issue in the water exiting any of our water treatment facilities.

We also conduct tests in our distribution system in accordance with the EPA regulatory requirements. For more information on your system, visit **missouriamwater.com** to view the latest consumer confidence report. Under the **Water Quality** menu, select **Water Quality Reports**.

Does that mean I do not have lead in my water?

Not necessarily. You might have lead in your drinking water if your household plumbing system has lead pipes or if lead solder was used in the joints of copper pipes.

Homes built before 1930 are more likely to have lead plumbing systems. Lead pipes are dull grey color and scratch easily revealing a shiny surface. Lead solder used to join copper pipes is a silver or grey color. If your house was built before January 1986, you are more likely to have lead-soldered joints. If you do, the chance of the lead leaching into your drinking water is greater when water has been standing in the pipes for many hours, overnight for example.

Lead kits that test for the presence of lead in solder are available at some hardware stores.

Should I flush my faucets every morning before using it to drink or use for food prep?

Yes. See Minimizing Your Exposure.

How can I tell if my water contains too much lead?

You can have your water tested for lead. Since you cannot see, taste or smell lead dissolved in water, testing is the only sure way of knowing.

Do I need a home treatment device for lead?

The need for a home treatment device is a customer-specific decision. Missouri American Water takes steps to reduce the potential for lead to leach from your pipes into the water. This is accomplished by adding a corrosion inhibitor or by reducing the acidity of the water leaving our treatment facilities. Certain home treatment devices, such as water softeners for example, might increase lead levels in your water.

Always consult the device manufacturer for information on treatment device maintenance and potential impacts to your drinking water or household plumbing.

NSF International created a Consumer Guide to NSF Certified Lead Filtration Devices for Reduction of Lead in Drinking Water. Visit **www.nsf.org/info/leadfiltrationguide** for more information.

Will electrical grounding increase my lead levels?

Possibly. If grounding wires from electrical systems are attached to household plumbing, corrosion and lead exposure may be greater. Customers can choose to pay to have an electrician check the house wiring.

Getting your water tested for lead

Missouri American Water does not provide testing for lead for individual customers who request it. Customers can choose to have their water tested at their cost at a certified laboratory.

For more information

If you are still concerned about elevated levels and want to find out where you can have your water tested by a certified laboratory:

- **Contact EPA's Safe Drinking Water Act Hotline:** 1-800-426-4791
- **Visit Missouri Department of Natural Resources online** at www.dnr.mo.gov

missouriamwater.com

09-2017

We need to discuss important information about your water service.

PLEASE CONTACT US

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See other side for contact information.

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