

Lead/Copper Procedure and Material Inventory

Riviera Utilities Water Department
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Foley, AL 36535
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TESTING DATES FOR CURRENT LCR CYCLE: 6/1/2016 --- 9/30/2016

1. Purpose

The purpose of Riviera Utilities lead and copper sampling is to comply with the EPA's Lead and Copper Rule, 40 C.F.R Sections 141.80 to 141.91, which requires monitoring at consumer taps to identify levels of lead in drinking water that may result from corrosion of lead-bearing components in the public water system's distribution system or in household plumbing. These samples help Riviera Utilities assess the need for, or the effectiveness of, corrosion control treatment.

2. Criteria

Riviera Utilities sampling plan consists of 30 monitoring sites that are required to be sampled on a **three year** basis per Division 7 regulations set forth by ADEM. Riviera Utilities shall sample utilizing tier one sites or document the lack of sufficient sites and conduct the remaining monitoring from tier two sites. Riviera Utilities may utilize tier three sites if tier one and tier two sites are not sufficient for monitoring. A compliance action level of 0.015 mg/l (equal or less than) for lead and 1.3 mg/l (equal or less than) for copper must be demonstrated for all sampling sites.

2.1 Tier Sites Defined

- Tier one sites- These sites include single family structures containing lead pipe or plumbing, are served by a lead service line, or contain copper pipes with lead solder and were constructed after 1982
- Tier two sites- These sites include buildings and multiple family residences containing lead pipe or plumbing, are served by a lead service line, or contain copper pipes with lead solder and were constructed after 1982.
- Tier three sites- These sites include single family structures containing copper pipes with lead solder which were constructed prior to 1983.

3. Lead & Copper Monitoring Collection Procedures

Tap and service line monitoring shall be collected in accordance with the following:

- a. Tap monitoring for lead and copper shall be first draw and one liter in volume. The water shall stand motionless in the plumbing system for at least six hours prior to collection. Collection shall be from the cold water kitchen tap or bathroom sink tap from tier one sites or from an interior

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tap typically used for obtaining water for consumption from tier 2 and tier 3 sites. Monitoring may be conducted by the resident after proper instructions and procedures have been provided by Riviera Utilities water system. Follow up tap monitoring shall be conducted from the same sites. Should a site no longer be available, an alternate acceptable site may be selected which is reasonable proximity of the original site. Taps used for monitoring may not include faucets that have point of use or treatment devices installed.

- b. Service line monitoring shall be one liter in volume and have remained in the lead service line for at least six hours prior to collection. Service line monitoring may be collected directly by tapping into the lead service line, or by flushing the volume of water between the tap and the lead service line until either the calculated amount of water between the tap and the service line has been discharged or for single family residences until there is a significant change in temperature which would indicate the water available was standing in the lead service line.
- c. Water systems with insufficient taps that can supply first draw samples may apply to the state in writing to substitute non-first-draw samples. These systems must collect as many of the samples as possible from first-draw taps and identify the monitoring times and locations that would likely result in the longest standing times for the remaining samples. Non-first-draw samples shall be one liter in volume and collected from an interior tap from which water is typically drawn for consumption.

4. Corrosion Control

Riviera Utilities utilizes both a corrosion inhibitor and a sequestrian product to reduce the corrosion in distribution mains but also to minimize the release of lead and copper from residential plumbing. Riviera Utilities closely monitors the effectiveness of these products at the facilities. Lead, copper, mild steel, and stainless steel coupons are also analyzed on a semi-annual basis for effectiveness. Zinc Orthophosphate is injected into the water system after disinfection from two treatment facilities at a rate of 2.0 ppm as a corrosion inhibitor. In addition to zinc orthophosphate, polyphosphate is injected into the water system before treatment from five groundwater wells in the system at a rate of 6.0 ppm as a sequestrian for iron in the water system.

5. Lead and Copper Inventory

Riviera Utilities has estimated close to 300 miles of water lines in its distribution system serving approximately 11,737 customers. Of those 300 miles, an estimated 218 miles are PVC; 15 miles are ductile iron, 40 miles of cast iron, and 27 miles of galvanized pipe or other material. Contained within the system is an estimate of the following:

- Lead from household plumbing materials such as fittings and solder.
- Copper for service lines and components installed by Riviera Utilities.
- Brass backflow preventers, corporation stops, curb stops, meter yokes, and rubber compression fittings for new water service installations.

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- To the best of our knowledge, Type K copper has been the primary material for new water service installations since the late 1980's.
- An estimated 85% of existing water meters are brass. After the 'Reduction of Lead in Drinking Water Act' enacted in 2014, Riviera Utilities purchased all plastic flow meters that are 100% lead-free with no moving parts.

6. Current Lead & Copper Site Plan

Site Address	Tier 1,2, or 3	Year of Plumbing	Lead Service Line
502 Linda Ct., Foley AL 36535	1	1986	NO
503 Linda Ct., Foley AL 36535	1	1986	NO
506 Linda Ct., Foley AL 36535	1	1986	NO
508 Linda Ct., Foley AL 36535	1	1986	NO
509 Linda Ct., Foley AL 36535	1	1986	NO
511 Linda Ct., Foley AL 36535	1	1986	NO
512 Linda Ct., Foley AL 36535	1	1986	NO
514 Linda Ct., Foley AL 36535	1	1986	NO
11923 Village Green Dr. Magnolia Springs, AL	1	1982	NO
24807 Pine St., Elberta, AL 36530	1	1982	NO
501 Jeraldean Ct., Foley AL 36535	1	1986	NO
506 Jeraldean Ct., Foley AL 36535	1	1986	NO
510 Jeraldean Ct., Foley AL 36535	1	1986	NO
515 Jeraldean Ct., Foley AL 36535	1	1986	NO
516 Jeraldean Ct., Foley AL 36535	1	1986	NO
517 Jeraldean Ct., Foley AL 36535	1	1986	NO
500 Carol Ann Ct., Foley AL 36535	1	1986	NO
502 Carol Ann Ct., Foley AL 36535	1	1985	NO
1205 N Oak St., Foley AL 36535	1	1983	NO
210 S. Cedar St., Foley AL 36535	1	1983	NO
212 W. Violet Ave., Foley AL 36535	1	1983	NO
522 Verbena Loop, Foley AL 36535	1	1983	NO
7698 Simmons Dr., Foley AL 36535	1	1985	NO
601 East gate Circle, Foley AL 36535	1	1984	NO
606 East gate Circle, Foley AL 36535	1	1984	NO
505 W. Orchid Ave., Foley AL 36535	1	1983	NO
609 W. Orchid Ave., Foley AI 36535	1	1986	NO
319 W. Marigold Ave., Foley AL 36535	1	1983	NO
516 Linda Ct., Foley AL 36535	1	1986	NO
619 W. Marigold Ave., Foley AL 36535	1	1983	NO

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7. Original Lead & Copper Site Plan (1992)

Site Address	Tier 1,2, or 3	Year of Plumbing	Lead Service Line
7689 Simmons Dr. Foley, AL 36535	1	1985	No
319 West Myrtle Ave, Foley, AL 36535	1	1983	No
605 W. Begonia Ave, Foley, AL 36536	1	1982	No
609 W. Orchid Ave, Foley, AL 36535	1	1983	No
607 N. Pine Street, Foley, AL 36535	3	1982	No
405 W. Fern Ave., Foley, AL 36535	1	1983	No
619 W. Marigold, Foley, AL 36535	1	1983	No
1205 N. Oak St., Foley AL, 36535	1	1983	No
606 East gate Circle, Foley, AL 36535	1	1984	No
4 Verbena Circle, Foley, AL 36535	1	1984	No
515 Jeraldean Ct, Foley, AL 36535	1	1986	No
505 W. Orchid Ave., Foley AL 36535	1	1983	No
202 W. Camphor Ave., Foley, AL 36535	1	1982	No
212 W. Violet Ave., Foley AL 36535	1	1983	No
517 Jeraldean Ct., Foley AL 36535	1	1986	No
601 East gate Circle, Foley AL 36535	1	1984	No
719 E. Jackson Ave., Foley AL 36535	1	1982	No
522 Verbena Loop, Foley AL 36535	1	1983	No
1401 S. Cedar St., Foley AL 36535	1	1989	No
601 W. Laurel Ave, Foley	1	1982	No
600 W. Marigold, Foley, AL 36535	1	1984	No
502 Linda Ct., Foley AL, 36535	1	1986	No
506 Linda Ct., Foley AL 36535	1	1986	No
508 Linda Ct., Foley AL 36535	1	1986	No
510 Linda Ct., Foley AL 36535	1	1985	No
512 Linda Ct., Foley AL 36535	1	1986	No
514 Linda Ct., Foley AL 36535	1	1986	No
516 Linda Ct., Foley AL 36535	1	1986	No
517 Linda Ct., Foley AL 36535	1	1986	No
501 Linda Ct., Foley AL 36535	1	1986	No
503 Linda Ct., Foley AL 36535	1	1986	No
515 Linda Ct., Foley AL 36535	1	1985	No
511 Linda Ct., Foley AL 36535	1	1986	No
509 Linda Ct., Foley AL 36535	1	1986	No
505 Linda Ct., Foley AL 36535	1	1985	No
510 Jeraldean Ct., Foley AL 36535	1	1986	No
110 W. Sycamore, Foley AL 36535	1	1982	No
317 S. Elm St., Foley AL 36535	1	1982	No
200 West Azalea, Foley AL 36535	1	1983	No
511 Jeraldean Ct., Foley AL 36535	1	1986	No
505 Jeraldean Ct., Foley AL 36535	1	1986	No

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8. Alternate Addresses for Lead & Copper Site Plan

Site Address	Tier 1,2, or 3	Year of Plumbing	Lead Service Line
319 West Myrtle Ave, Foley, AL 36535	1	1983	No
605 W. Begonia Ave, Foley, AL 36536	1	1982	No
607 N. Pine Street, Foley, AL 36535	3	1982	No
405 W. Fern Ave., Foley, AL 36535	1	1983	No
4 Verbena Circle, Foley, AL 36535	1	1984	No
202 W. Camphor Ave., Foley, AL 36535	1	1982	No
212 W. Violet Ave., Foley AL 36535	1	1983	No
719 E. Jackson Ave., Foley AL 36535	1	1982	No
1401 S. Cedar St., Foley AL 36535	1	1989	No
601 W. Laurel Ave, Foley	1	1982	No
600 W. Marigold, Foley, AL 36535	1	1984	No
510 Linda Ct., Foley AL 36535	1	1985	No
517 Linda Ct., Foley AL 36535	1	1986	No
501 Linda Ct., Foley AL 36535	1	1986	No
515 Linda Ct., Foley AL 36535	1	1985	No
505 Linda Ct., Foley AL 36535	1	1985	No
110 W. Sycamore, Foley AL 36535	1	1982	No
317 S. Elm St., Foley AL 36535	1	1982	No
200 West Azalea, Foley AL 36535	1	1983	No
505 Jeraldean Ct., Foley AL 36535	1	1986	No

9. Laboratory

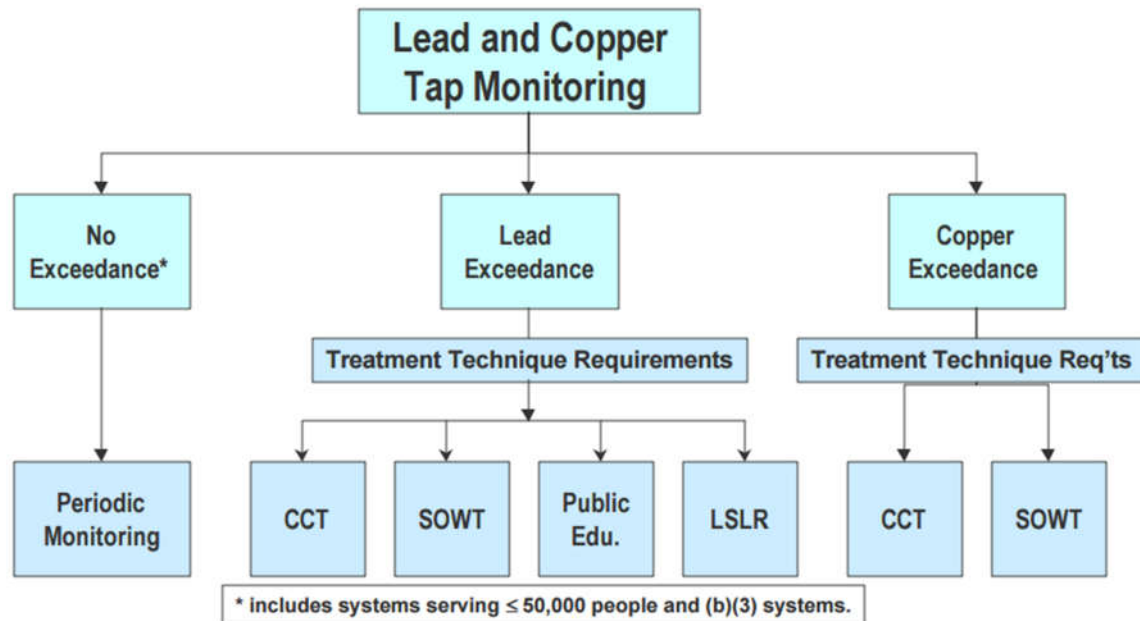
Primary Lab: Enviro Chem Inc	Address: 4320 Midmost Dr, Mobile, AL 36609 Phone: (251) 344-9106
Alternate Lab: TTL Inc.	Address: 3516 Greensboro Avenue Tuscaloosa, Alabama 35401 Telephone: (205) 345-0816

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10. Action Level Exceedance Determination:

Lead and copper analytical results are evaluated against an action level, not an MCL. The lead action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period is greater than 0.015 mg/L (i.e., if the 90th percentile level lead level is greater than 0.015 mg/L). The copper action level is exceeded if the concentration of copper in more than 10 percent of tap water samples collected during any monitoring period conducted is greater than 1.3 mg/L (i.e., if the 90th percentile copper level is greater than 1.3 mg/L). All samples that meet the proper site selection and sample collection procedures are used to determine the 90th percentile calculation, even if you collect samples from more sites than required. The 90th percentile is calculated separately for lead and copper. The procedure for determining the lead 90th percentile value is as follows:

- Place lead results in ascending order (from lowest to highest value).
- Assign each sample a number, 1 for lowest value.
- Multiply the total number of samples by 0.9.
- Compare the 90th percentile level to the action level of 0.015 mg/L (can also be expressed as 15 parts per billion (ppb)). If your 90th percentile value is higher than 0.015 mg/L, you have an exceedance.



a) Lead & Copper Action follow up Public Education:

Educational Materials will be distributed within 60 days of the end of the monitoring period due to an action level result based on statistical findings of Lead Testing Results. Educational efforts will continue

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until system no long exceeds action level including statement on water bills each billing cycle, press releases biannually and on www.rivierautilities.com.

- Deliver printed materials (pamphlets and brochures) to all bill paying customers and put new mandatory language on or in water bills.
- Deliver printed materials to local public health agencies, even if they are not located within its distribution system. The printed materials must include an “informational notice” that encourages the local health agencies to distribute materials to any potentially affected customers; or CWS users.
- Contact its local health agencies via phone or in person to obtain a list of additional community-based organizations that serve target populations and deliver public education materials to these organizations.

IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER

Riviera Utilities found elevated levels of lead in drinking water in some home/buildings. Lead can cause serious health problems, especially for pregnant women and children 6 years and younger. Please read this information closely to see what you can do to reduce lead in your drinking water.

Health Effects of Lead

Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of the body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and a high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

Sources of Lead

Lead is a common metal found in the environment. Drinking water is one possible source of lead exposure. The main sources of lead exposure are lead-based paint and lead-contaminated dust or soil, and some plumbing materials. In addition, lead can be found in certain types of pottery, pewter, brass fixtures, food, and cosmetics. Other sources include exposure in the work place from certain hobbies (lead can be carried on clothing or shoes).

New brass faucets, fittings, and valves, including those advertised as “lead-free”, may contribute lead to drinking water. The law currently allows end-use brass fixtures, such as faucets, with up to 8 percent lead to be labeled “lead free”. However, plumbing fixtures labeled National Sanitation Foundation (NSF) certified may only have up to 2 percent lead. Consumers should be aware of this when choosing fixtures and take appropriate precautions.

The ground water sources for Riviera Utilities does not have any lead in its source water or water mains in the street.” When water is in contact with pipes [or service lines] or plumbing that does contain lead for several hours, the lead may enter drinking water. Homes built before 1986 are more likely to have

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plumbing containing lead. New homes may also have lead; even “lead-free” plumbing may contain some lead.

EPA estimates that 10 to 20 percent of a person’s potential exposure to lead may come from drinking water. Infants who consume mostly formula mixed with lead-containing water can receive 40 to 60 percent of their exposure to lead from drinking water.

Don’t forget about other sources of lead such as lead paint, lead dust, and lead in soil. Wash your children’s hands and toys often as they can come into contact with dirt and dust containing lead.

Steps You Can Take To Reduce Your Exposure To Lead In Your Water

- 1. Run your water to flush out lead.** If water hasn’t been used in several hours, run water for 15-30 seconds [or insert a different flushing time if data indicating a different flushing time would better reduced lead exposure in your facility and if the Primacy Agency approves the wording] or until it becomes cold or reaches a steady temperature before using it for drinking or cooking, if it hasn’t been used for several hours. This flushed lead-containing water from the pipes.
- 2. Use cold water for cooking and preparing baby formula.** Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water. Do not use water from the hot water tap to make baby formula.
- 3. Do not boil water to remove lead.** Boiling water will not reduce lead.
- 4. Look for alternative sources or treatment of water.** You may want to consider purchasing a water filter or bottled water. Read the package to be sure the filter is approved to reduce lead or contact NSF International at 800-NSF-8010 or www.nsf.org for information on performance standards for water filters. Be sure to maintain and replace a filter device in accordance with the manufacturer’s instructions to protect water quality.
- 5. Test you water for lead.** If you think you may have elevated lead levels in your home drinking water, have it tested. Call the Safe Drinking Water Hotline (800-426-4791) for more information. [Include information on your water system’s testing program. For example, do you provide free testing? Are there labs in your area that are certified to do lead in water testing? Include applicable contact information for the system or lab.]
- 6. Get your child’s blood tested.** Contact your local health department or health care provider to find out how you can get your child tested for lead, if your concerned about exposure.
- 7. Must discuss lead in plumbing components and the difference between low lead and lead free.** New brass faucets, fittings, and valves, including those advertised as “lead-free”, may contribute lead to drinking water. The law currently allows end-use brass fixtures, such as faucets, with up to 8% lead to be labeled as “lead free.” Visit the National Sanitation Foundation Web site at www.nsf.org to learn more about lead-containing plumbing fixtures.

What happened? What is being done?

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[insert information about how and when the exceedance was discovered in your facility and provide information on the source (s) of lead in the drinking water, if known.]

[insert information about what your system is doing to reduce lead levels in your facility.]

[Your system may also want to provide information on the history of lead levels in tap samples; have they declined substantially over time? Have they been low and risen recently? Is there a known reason for any change?]

For more information

Call us at 251-943-5001, or visit our website at www.rivierautilities.com/water.php. For more information on reducing lead exposure around your home/building and the health effects of lead, visit EPA's website at www.epa.gov/lead, or contact your health care provider.

IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER

Riviera Utilities found elevated levels of lead in drinking water in some home/buildings. Lead can cause serious health problems, especially for pregnant women and children 6 years and younger. Please read this information closely to see what you can do to reduce lead in your drinking water.

Health Effects of Copper

Copper in our diet is necessary for good health. You eat and drink about 1000 micrograms (1000 µg) of copper per day. Drinking water normally contributes approximately 150 µg/day. Immediate effects from drinking water which contains elevated levels of copper include vomiting, diarrhea, stomach cramps, and nausea. The seriousness of the effects can be expected to increase with increased copper levels or length of exposure. Long-term exposure (more than 14 days) to very high levels of copper in drinking water has been found to cause kidney and liver damage in some people. Children under one year of age are more sensitive to copper because it is not easily removed from their system. People with liver damage or Wilson's disease are highly susceptible to copper toxicity. On the average, drinking water accounts for less than 5% of our daily copper intake. The U.S. Environmental Protection Agency (U.S. EPA) has determined that copper levels in drinking water should not exceed 1300 µg/l. No adverse health effects would be expected if this level is not exceeded. Measures should be taken to reduce exposure to copper if this level is exceeded.

Sources of Copper

Copper and its compounds are common in the environment. You may be exposed to copper by breathing air, eating food, or drinking water containing copper. You may also be exposed by skin contact with soil, water, or other copper-containing substances. Copper forms different compounds when it joins with one or more other chemicals. These may be naturally-occurring or manmade. Most copper compounds found in air, soil, and water are strongly attached to dust, or embedded in minerals, and cannot easily enter the body. These forms are not likely to affect your health. Other forms become dissolved in water and are not attached to other particles. In this form, copper is more likely to affect your health. Levels of copper found naturally in ground water and surface water are generally very low; about 4 micrograms of copper in one

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liter of water (4 µg/l) or less. Copper levels may increase significantly if corrosive water comes in contact with copper plumbing and copper-containing fixtures in the water distribution system. This normally occurs if corrosive water remains motionless in the plumbing system for six hours or more. Copper in drinking water increases with the corrosivity of the water and the length of time it remains in contact with the plumbing. Higher copper levels have sometimes been noted in new homes constructed with copper plumbing. Copper levels tend to decrease with time as coatings form a natural barrier between the water and the plumbing materials.

Steps You Can Take To Reduce Your Exposure To Copper In Your Water

The easiest and most effective method for reducing exposure to copper is to avoid drinking or cooking with water that has been in contact with your house plumbing for more than six hours. When first drawing water in the morning or after a work day, flush the system by running the cold water faucet for 2-3 minutes, or until the water gets as cold as possible. (If you live in an apartment complex, flushing the system may take longer). Water used for showering or washing also helps flush the system. It is still a good idea to flush each faucet where water is drawn for drinking or cooking purposes since some fixtures contain copper. Another option for reducing your exposure to copper is to drink water from a known “safe” source. This may be a useful option, particularly if it will be used by young children as drinking water, or for making infant formula. If you are experiencing elevated copper levels in drinking water, it is possible that lead levels are also elevated. This is especially true if the plumbing system in your home or apartment contains lead solder joints, lead service lines, or brass fixtures. Since lead and copper enter drinking water under similar conditions, it is advisable to test for lead when testing for copper.

What happened? What is being done?

[insert information about how and when the exceedance was discovered in your facility and provide information on the source (s) of copper in the drinking water, if known.]

[insert information about what your system is doing to reduce copper levels in your facility.]

[Your system may also want to provide information on the history of copper levels in tap samples; have they declined substantially over time? Have they been low and risen recently? Is there a known reason for any change?]

For more information

Call us at 251-943-5001, or visit our website at www.rivierautilities.com/water.php. For more information on reducing copper exposure around your home/building and the health effects of copper, visit EPA’s website at www.epa.gov, or contact your health care provider.

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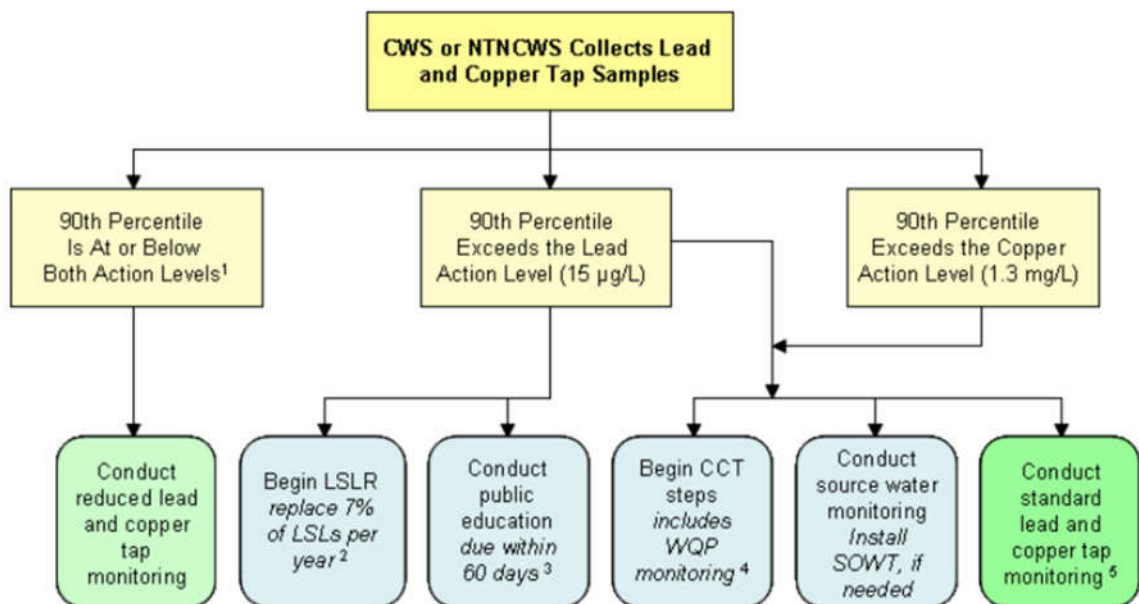
b) Lead Action follow up monitoring for ACTION Level.

- Replace 7% of Lead Service Lines per year
- Conduct public education within 60 days
- Evaluate Corrosion Control Scheme
- Conduct Source Water monitoring
- Conduct Standard Lead and Copper tap monitoring

c) Copper Action follow up monitoring for ACTION Level

- Evaluate Corrosion Control Scheme
- Conduct Source Water monitoring
- Conduct Standard Lead and Copper tap monitoring

Exhibit I-4. Follow up Actions Resulting from Lead and Copper Tap Monitoring



¹ Includes systems serving \leq 50,000 people and (b)(3) systems; (b)(2) systems also must conduct WQP monitoring.

² Required if lead action level is exceeded after treatment.

³ Counted from the end of the monitoring period with the lead ALE.

⁴ Includes non-(b)(3) systems serving more than 50,000 people, irrespective of their 90th percentile levels.

⁵ Systems that meet their OWQPs and do not exceed the lead action level can qualify for reduced lead and copper tap monitoring.

Riviera Utilities

CONSUMER NOTICE

Lead and Copper Water Sample Results

The _____ Water System, I.D. _____,

is providing you with the lead and copper test results on the water sample collected at your location. Please share this notice with everyone who uses or drinks the water.

The results at _____

are: **lead** _____ **mg/L** and **copper** _____ **mg/L**.

The maximum contaminant level goal (MCLG) is the level of a contaminant in drinking water below which there are no known or expected risks to health. MCLGs allow for a margin of safety. The regulatory limits for lead and copper are called action levels. An exceedance occurs when the concentration of the lead or copper in more than 10 percent of the tap water samples exceeds an action level.

- The MCLG for lead is "0" and the action level is 15 ppb (or .015 mg/L).
- The MCLG and action level for copper is 1,300 ppb (or 1.3 mg/L).

Lead or copper action level exceedances will trigger corrosion control treatment or other requirements. We will notify all water users if our system exceeds the lead action level.

For more information, please contact: _____

(Riviera Utilities)

Contact number: 251-943-5001

(phone number)

(address)

This notice is sent to you by _____ Water System on ___/___/___