

MDHHS - Residential Sampling Protocol for

Lead in Drinking Water

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Michigan Department of Health and Human Services Residential Sampling Protocol for Lead in Drinking Water

Introduction

The Michigan Department of Health and Human Services, Division of Environmental Health, developed a Residential Sampling Protocol for Lead in Drinking Water to include sample collection, reporting, abatement, and clearance. This protocol is required for all Lead Services Section funded projects requiring water sampling.

The guidance contained within this document is subject to change due to collective efforts to review and revise existing protocols. Persons performing water sampling must take the Residential Sampling Protocol for Lead in Drinking Water training.

Project set-up

Before site-visit

- Contact the occupant to schedule the water sample collection. Inform the occupant about the Water Sample Collection Process and Requirements (Table 1). Consider conducting a pre-sampling questionnaire to assist with identifying an estimated number of sample collection supplies needed (see Appendix A for an example questionnaire).
- Contact the certified drinking water laboratory to request sample collection supplies. This includes 125 milliliter (mL) and 1 Liter (L) bottles.
- Contact the occupant to confirm water sample collection the day before sample collection and instruct them about the water sample collection process and requirements (Table 1).
- Prepare water sample collection materials. For an example list of project set-up materials see Appendix B.
- If necessary, contact the landlord to assist.

Table 1. Instructions for occupants prior to sampling

- 1. Instruct the occupant to flush all identified drinking water faucets for **at least one minute**. If flushing a hose bib, instruct occupant to use a hose to ensure water is directed away from the foundation. For vacant properties, flush all faucets for at least five minutes.
- 2. Instruct the occupant to have safe drinking water available during the stagnation period.
- 3. Instruct the occupant to fill a 5-gallon bucket to use for flushing the toilet, washing hands, etc.
- 4. Instruct the occupant to not use all household water for at least **six hours** prior to the water sample collection. Remind them this includes flushing toilets, doing laundry, taking a shower, watering gardens, etc.
- 5. Instruct the occupant to prepare faucets for sampling (emptying sink of dishes, clearing space on counter near sink, etc.)

Onsite sampling set-up

Upon arrival at the home, introduce yourself and confirm that an occupant over 18 years of age is present. Once confirmed, **explain the objectives of your visit and how you plan to collect water samples**. Consider providing the occupant with a copy of the MDHHS Lead in Water Sample Collection handout explaining the process (Appendix C).

To properly set up water sampling, you must first determine if you should collect water, then identify sampling locations and water meter(s), obtain measurements for large volume samples, and document sampling locations on the floor plan. Document if the stagnation period at any faucet has been greater than 24 hours.

Sample collection methodology for multi-family properties is developed on a case-by-case basis. Contact the Lead Services Section at 866-691-5323 for assistance with sample collection and reporting.

Should I collect water samples today?

Water should only be collected after a six hour or more stagnation period. Homes with evidence of water use may need to be rescheduled. Use the *"Should I collect water samples today?"* flowchart to determine if water samples can be collected during your visit, or if you need to reschedule.



* Evidence of water use may include cooking, water in the sink, washer or dryer running, dishwasher running, or fresh tea or coffee.

Rescheduling and disengagement

A minimum of two additional attempts to collect water samples is required. Document attempts in the *Water Sample Collection Record of Engagement* (Appendix D).

If attempts to collect water samples are unsuccessful, prepare and send a Letter of Disengagement (Appendix E).

Identify faucets for sampling

Determine which faucets to sample before sample collection. All potable water faucets must be sampled. To determine if a faucet should be sampled, use the *Identifying faucets for sampling* flowchart in conjunction with the *MDHHS LIRA-EBL Report* which can be found by visiting <u>https://www.michigan.gov/mileadsafe/professionals/resources</u>.



Locate the water meter or pressure tank

Locating the water meter or pressure tank is required to determine the number of large volume samples to collect.

If on municipal water, locate the water meter

Options to help locate the water meter include:

- Asking the homeowner if they know where the water meter is located.
- Searching the exterior house for the water meter gauge. The water meter is typically found inside the home near this location.
- Searching the lowest level rooms near the street side of the house for the water meter.
- Identifying the water heater and following the plumbing back to the water meter.

A visual inspection of the service line to identify its material can be completed while locating the water meter.

- If the pipe is black, white, or blue and the piping is joined with a clamp, screw, or glue, the service line is likely made of plastic or PVC.
- If the pipe is copper in color and not magnetic, the service line is likely made of copper.
- If the pipe is lead, it may have a solder bulb near the valve (*see Image 1*). Make sure to document and photograph evidence of lead service lines.
- Differentiate galvanized steel and lead service lines by:

Galvanized Steel	Lead
Magnetic	Not Magnetic
Difficult to Scratch / Dent	Easy to Scratch / Dent
Threads into Fitting	Bulges near Valve

What if the service line material cannot be verified? What if the service line is behind a wall, under flooring, or otherwise obstructed?

- Document unknown material with explanation
- Document any unusual conditions or recent repairs, etc...

If on a well-system, locate the pressure tank

Options to help locate the pressure tank include:

- Asking the homeowner if they know where the pressure tank is located.
- Searching the lowest level rooms for the pressure tank.
- Identifying the water heater and following the plumbing back to the pressure tank.



Image 1

Obtain measurements for large volume samples

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Determine the appropriate number of sequential 1-L samples to collect to represent interior and exterior plumbing from the kitchen or primary potable faucet (see Figure 1 for example).

Table 2. Measurements and calculations for municipal water or well-system sample collection

ater	Interior plumbing: Measure the horizontal distance from the water meter to the kitchen or primary potable faucet, in feet. To account for the vertical rise, add 10 feet per additional floor (e.g., basement, second level). Calculate the vertical rise based on each additional floor from the service line to the sampling location. If the samples are collected from an outlet on the same floor as the service line, there is no need to factor in vertical rise.
pal w	Interior plumbing = $\frac{Distance from water meter to faucet + 10 feet per additional floor}{1}$
lf on munici	Exterior plumbing: Measure the distance from the water meter to the opposite side of the street, at the curb, in feet. Add 15 feet to ensure the water main is reached. Divide this distance by 15 and round the result up to the nearest whole number. Exterior plumbing = $\frac{Distance from water meter to opposite curb + 15 feet}{15}$
	Total number of sequential 1-L samples for municipal water systems: Add the interior plumbing and exterior plumbing calculation results together.
	Total number of sequential 1-L samples = interior plumbing + exterior plumbing
⁻ on a well- system	Interior plumbing: Measure the horizontal distance from the pressure tank to the kitchen or primary potable faucet, in feet. To account for the vertical rise, add 10 feet per additional floor (e.g., basement, second level). Divide this distance by 15 and round the result up to the nearest whole number. Distance from pressure tank to faucet + 10 feet per additional floor
Ħ	Interior plumping =

Develop and document the floor plan

Develop a floor plan for the property. The floor plan must include:

- Sample locations •
- Large volume sample measurements and calculations
- Location of the water meter and service line; or location of the pressure tank, if on a well • system



Opposite curb

Figure 1. Example floor plan with measurements to determine number of large volume samples (including vertical rise and adding an additional 15 feet to ensure sample reaches water main).

1-Liter bottle = 15 feet sample of interior plumbing		
Interior:	30 feet + 28 feet + 10 feet (vertical rise) = 68 feet	
	68 feet / 15 feet = 4.53 ≈ 5 large volume samples	
Exterior:	32 feet + 15 feet / 15 feet = $3.13 \approx 4$ large volume samples	
Total:	5 (int.) + 4 (ext.) = 9 large volume samples	

Sample collection

Sample identification codes

Each water sample must be given a unique identification (ID) code. Refer to the sample identification codes (Table 3) for correct coding.

A Lead in Water Protocol Quick Reference Guide is included in Appendix F.

Table 3. Sample identification codes		
Faucet location	<pre>BF1 = bathroom faucet, cold KF1 = kitchen faucet, cold EF1 = exterior faucet, cold LF1 = laundry faucet, cold BTF1 = bathtub faucet, cold OF1 = other faucet, cold</pre>	
Order of sample collection	First draw samples = P1 and P2 Sequential samples = A1 , A2 , A3	
Sample volume	125-milliliter (mL) (first draw samples) 1-Liter (L) (sequential samples)	

For example:

FAUCET	ID CODE	SAMPLE VOLUME (bottle size)
Bathroom faucet (bathroom 1), first	BF1-P1	125-mL
draw	BF1-P2	125-mL
Bathroom faucet (bathroom 2), first	BF2-P1	125-mL
draw	BF2-P2	125-mL
Kitchon faucat first draw	KF1-P1	125-mL
	KF1-P2	125-mL
	KF1-A1	1-L
Kitchen faucet, sequential	KF1-A2	1-L
	KF1-A3etc.	1-L

Collect water samples

Sample preparation

- 1. Follow water laboratory labeling requirements. Use unique identification codes provided in Table 3.
- 2. Prior to collecting the first sample:
 - □ Verify cold water faucet handle with resident.
 - □ Write the unique ID code on each sample bottle and bottle cap.
 - □ Remove caps from each bottle. Place open side up to avoid contamination.
 - □ If there is an aerator present, **do not** remove before sample collection.
 - □ If there is a water filter on the faucet, either remove the filter or bypass the filter.
 - □ If there is an inline filter (underneath the sink) or a whole house filtration system, document presence and sample according to protocol.
 - □ Remove caps from each bottle. Place open side up to avoid contamination.

Sample collection

- 3. Collect the small volume samples: Place the open P1 bottle under the faucet. Open the faucet to produce a moderate, steady stream of cold water. Fill the P1 bottle to the neck of the bottle. Without a break in stream, immediately fill the P2 bottle. Do not turn off the faucet between the P1 and P2 samples.
- 4. Turn off faucet following P2 sample collection.
- 5. Cap each sample bottle.
- 6. If at the kitchen (or primary potable faucet), collect the large volume samples: Place the open A1 bottle under the faucet. Open the faucet to produce a moderate, steady stream of cold water. Fill the A1 bottle to neck of the bottle. Without a break in stream, immediately fill remaining sequential A bottles.
- 7. If possible, remove and check aerator for particles after all samples are collected. Photograph the aerator. Document presence or absence of particles in report.
- 8. Follow laboratory submission requirements.

Additional sample collection activities

Consider performing additional actions to help interpret water sample results.

XRF readings

Taking XRF readings can be a useful screening tool to help determine the presence of lead in metal.¹ If taking XRF readings, perform on solder joints, valves, service lines, and other accessible plumbing components. Readings are intended to be representative of the plumbing system, not a comprehensive investigation. They can, however, be used to help determine areas for interior plumbing abatement.

Photos

Taking photos of plumbing components can be useful to help document plumbing materials and their condition. When taking photos, capture the service line (including the water meter) or pressure tank, water filter (including filtration systems), aerators, sampling locations (faucets and plumbing), exposed basement plumbing, and anything else relevant to the water system.

Sample submission to laboratory

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) Drinking Water Laboratory for Lead and Copper is recommended for sample analysis, however private EGLE certified laboratories are permitted (visit <u>https://www.michigan.gov/documents/deq/Lead Copper Lab Certs 526434 7.pdf</u> for a list of certified laboratories).

All water samples must be submitted to the lab within 10 calendar days of collection. Please contact laboratory in advance to delivering samples.

A chain-of-custody form must be completed with sample submission. Obtain a chain-of-custody form from the drinking water lab performing the analysis. A sample chain-of-custody form is in Appendix G.

¹ The XRF instrument is not designed to analyze non-painted surfaces. According to the State of California (Department of Toxic Substances Control, Feb 2012), the XRF can be an effective screening tool to determine lead content in metal.

Reporting, interpretation, and abatement specification development

All results from water sample collection and any additional sample collection activities must be included in a final report.

If lead sample results exceed allowable limits, the following must occur as soon as possible:

- Sample result exceedances must be communicated to the homeowner.
- Communicate protective actions homeowners can take to reduce risk of further lead (see Appendix H for protective actions).
- Communications to homeowners must be documented in the Michigan Comprehensive Lead Exposure Abatement Registry (MiCLEAR).

All Lead Services Section funded projects requiring water sampling must use the *MDHHS Lead Inspection and Risk Assessment / Environmental Investigation Report* template (find the template by visiting <u>https://bit.ly/35sAImq</u>).

If copper exceedances are detected (greater than 1,300 ppb):

- Attach the Copper in Drinking Water factsheet (see Appendix I) to the report.
- Email a copy of the laboratory analysis results to <u>MDHHS-HHS-Results@Michigan.gov</u>.

Information to assist with interpretation

XRF readings and photos can help verify the existence of lead within plumbing components and help identify the location of the lead hazard.

Abatement specification development

Refer to the abatement specification library in Appendix J for assistance.

Table 4. Abatement specification guidance and requirements by abatement location

Faucets All potable water faucets manufactured prior to 2014 will be replaced regardless of water sample results if funded by Medicaid CHIP. This includes the faucet and the water shut off valve for kitchen and bathroom faucets.
Other non-potable faucets manufactured prior to 2014 identified as drinking water sources with an associated sample result greater than or equal to the EPA lead action level may be replaced. If a non-potable faucet is not replaced, place a DO NOT DRINK tag on the faucet.
All replaced plumbing components must comply with NSF/ANSI 61 (or equivalent) standard. Visit https://bit.ly/3x7fbMp for help in identifying lead free certification marks for drinking water system and plumbing products.

Interior Interior plumbing replacement is required when results for large volu plumbing sequential samples, representative of the interior plumbing, are greater than equal to the EPA lead action level. If able, replace interior plumbing compone identified by an exceedance. Use XRF plumbing sample results to help loc interior plumbing abatement locations.	ime 1 or
	ents cate
If whole house plumbing replacement must occur, the water heater should replaced.	l be
Any galvanized plumbing located between an exceedance and the faucet m be replaced.	าust
 Service line Complete (private and public) service line replacement must occur when: Results for large volume sequential samples representative of the service line are greater than or equal to the EPA lead action level and is identify the water utility provider or a visual assessment as lead or galvani steel. 	vice fied ized
 In Flint, service line material is identified as lead or galvanized so (regardless of sample results). 	teel
Any galvanized plumbing that is between the exceedance and the fau (including the interior plumbing) must be replaced.	ıcet
RequiredThe following disclaimer must be included in the faucet, interior plumbing,specificationservice line replacement specifications:	and
 disclaimer Contractor is responsible for obtaining required permits. Permits r vary by location. 	nay
 All products must be installed and/or applied per manufacturer's writ specifications and recommendations. 	ten
 All replaced plumbing components must comply with NSF/ANSI 61 equivalent) standard. 	(or
All packaging, documentation, and associated accessories (e.g., aerakets) keys) must be left on-site for the resident and/or landlord.	ator

Abatement

Perform abatement according to specifications.

Clearance and clearance reporting

Clearance includes water sampling for abated plumbing components only. Failed clearance results and protective actions homeowners can take to reduce risk of further lead exposure must be

communicated to the homeowner as soon as possible (see Appendix H for protective actions). Communications to homeowners must be documented in the Michigan Comprehensive Lead Exposure Abatement Registry (MiCLEAR). A final clearance report must be sent to the homeowner within 10 business days of receiving passing clearance results. Find the clearance template by visiting <u>https://bit.ly/35sAImq</u>.

To perform a clearance, prepare the home. To prepare:

- 1. Flush all water sample locations for 5 minutes.
- 2. Remove, clean, and replace aerators (view the "How to clean your aerators" factsheet by visiting <u>https://bit.ly/2Tladqx</u>).
- 3. Flush water sample locations for another 5 minutes.
- 4. Do not use water for at least 6 hours.
- 5. Collect samples for water clearance (use Table 5 to perform sampling of abated plumbing components).

Table 5. Clearance sa	mple collection
Plumbing component abated	Sample collection method
Faucets	Collect two 125-mL first draw samples from each replaced faucet location using the sampling protocol for small volume samples. One clearance attempt is required for non-potable faucets, such as exterior hose bibs. If failed, place DO NOT DRINK tag on faucet.
Interior plumbing	Collect the total number of sequential 1-L samples calculated in the environmental investigation to represent the <i>interior</i> plumbing. Use the sampling protocol for large volume samples.
Service line	Collect the total number of sequential 1-L samples calculated in the environmental investigation to represent the <i>interior and exterior</i> plumbing. Use the sampling protocol for large volume samples.

Failed clearances may represent incomplete refreshing of the system prior to sampling. Resample in accordance with Table 5. If laboratory results still exceed lead action levels after the third clearance sampling, contact the Lead Services Section at 866-691-5323 for assistance with sampling plan.

Works cited

Department of Toxic Substances Control. (Feb 2012). *Testing and Evaluation of Lead Content in Plumbing Products, Materials and Components.* State of California. Retrieved from http://www.dtsc.ca.gov/PollutionPrevention/upload/lead-in-plumbing-testing-protocol.pdf

Appendices

- Appendix A Example Questionnaire
- Appendix B Project Set-up Materials
- Appendix C MDHHS Lead in Water Sample Collection handout
- Appendix D Water Sample Collection Record of Engagement
- Appendix E Letter of Disengagement
- Appendix F Lead in Water Protocol Quick Reference Guide
- Appendix G Sample Chain-of-Custody Form
- Appendix H Protective Actions
- Appendix I Copper in Drinking Water factsheet
- Appendix J Water-Specific Abatement Specification Library
- Appendix K Drinking Water Environmental Sampling Protocol

Residential Water Sampling: Pre-sampling questionnaire

This questionnaire is designed to assist you in <u>estimating</u> the total number of 125 mL and 1 L bottles needed for sampling. On-site measurements and calculations will still need to be performed the day of sampling.

Contact Information/ Appointment Details:

Contact Name:	
Contact Phone Number:	
Address:	
Appointment Date and Time:	
Water Supply:	Municipal / Well

Determine the approximate number of 125 mL first-draw bottles:

Number of Kitchen Faucets:	
Number of Bathrooms:	
Number of other potable faucets	
(bar, exterior, etc.):	
Estimated # of 125 mL First Draw	
Bottles Needed (2* # of faucets):	

Determining the approximate number of 1 L sequential bottles:

To answer the *italicized* questions, consider using mapping or GIS software such as Google Earth Pro to measure distances needed to calculate the <u>approximate</u> number of large 1 L sequential samples. Estimates are to help anticipate the maximum number of 1 L bottles required for sampling.

Does the home have multiple floors? • Basement?	Yes: Add 10 additional feet per floor
Second Floor?Third Floor?	additional floors * 10 ft/floor= ft
Distance from curb to house in feet	
Width of the house in feet	
Length of the house in feet	
Total distance measured in feet	
Estimated # of 1 L Sequential Bottles Needed: (total distance/15)	

Supply Checklist for Residential Sampling Protocol for Lead in Drinking Water

Supplies Needed for Residential Lead in Water Samp	oling
125 mL first draw bottles and caps	
1 L large volume sequential bottles and caps	
Bottle labels	
Writing utensils	
Pens	
Sharpies	
Measuring devices	
Measuring wheel	
Tape measure	
Caliper	
Box or container for transport	
Rubber bands	
Chain of Custody forms	
Request for Analysis forms (EGLE Drinking Water Lab)	
LIRA/EI report template water questionnaire	
Optional	
Gloves	
Folding table	
Disinfecting wipes	

Lead and Copper Water Collection

We will be collecting water from your home using a process called sequential sampling. The picture below is an example of this type of water collection.

- More than one bottle of water (water sample) will be collected to learn if your plumbing inside or outside of your home may be adding to the metal(s) in your water.
- We take measurements inside and outside of your home to know how many bottles of water to collect.
- Water samples will be collected from faucets used for drinking in your home, such as a kitchen or bathroom faucet.
- The first two samples taken from each faucet are called first-draws. These samples are to test water coming from the faucet.
- Samples taken after the first-draw are called sequential samples. These samples are to test water coming from the plumbing inside and outside (service line) of your home.



For More Information

Please visit Michigan.gov/MiLeadSafe for more resources



MDHHS Residential Sampling Protocol for Lead in Drinking Water (Appendix C)

WATER SAMPLE COLLECTION RECORD OF ENGAGEMENT

This form is to be used for recording attempts to collect water samples. If the protocol is followed and collection of water is unsuccessful, the client shall be disengaged. Once disengaged, no further attempts to collect water samples are required. This form is to be maintained in the project case file as documentation of disengagement.

123 Main St

Property Address

John Doe

Property Owner/Occupant Name

Initial Sampling Event Contact Attempts:					
	Date:		Result:		
Phone Call #1	3/5/2021	5/2021		No answer, left voicemail	
Phone Call #2	3/7/2021	7/2021		Scheduled appointment	
Disengagement Letter	-			-	
Initial Sampling Event:					
Appointment Date:	3/15/2021	Appointment Time:		13:00	
Was the sampling successful?	No				
If no, what was the reaso for the failed attempt?	on Occupant ran water prio	Occupant ran water prior to water sampling			

First Rescheduled Sampling Event Contact Attempts:				
	Date:		Result:	
Phone Call #1	3/16/2021		No answer, left message	
Phone Call #2	3/18/2021		No answer, left message	
Disengagement Letter	3/25/2021		Disengagement letter sent	
First Rescheduled Sampling Event:				
Appointment Date:		Appointment Time:		
Was the sampling successful?				
If no, what was the reasc for the failed attempt?	n			

Second Rescheduled Sampling Event Contact Attempts:			
	Date:		Result:
Phone Call #1			
Phone Call #2			
Disengagement Letter			
Second Rescheduled Sam	pling Event:		
Appointment Date:		Appointr	nent Time:
Was the sampling successful?			
If no, what was the reaso for the failed attempt?	'n		
Disengagement			
Date that disengagement letter was sent:	t		

Your Name Street Address City, ST ZIP Code Date

Recipient Name Title Company Name Street Address City, ST ZIP Code

Dear Recipient Name:

This is our final attempt to reach you to schedule lead in water sampling. If we do not hear from you, we will assume you no longer wish to have your water sampled.

We would like to continue to help keep your family safe from lead. Please call **###-####** if you would like to have your water sampled for lead in the future.

Sincerely,

Your Name Title Company



Water should only be collected after a six hour or more stagnation period. Homes with evidence of water use may need to be rescheduled. Use the *"Should I collect water samples today?"* flowchart to determine if water samples can be collected during your visit, or if you need to reschedule.



Sample collection bottle prep

- \Box Write ID code on bottle
- \Box To ensure clarity for the lab:
 - \circ Zero = Ø
 - One = I (vertical line)
 - Seven = 7 (cross through)
- □ Example identification codes:

FAUCET	ID CODE	SAMPLE VOLUME (bottle size)
Bathroom faucet	BF1-P1	125-mL
(bathroom 1), first draw	BF1-P2	125-mL
Bathroom faucet	BF2-P1	125-mL
(bathroom 2), first draw	BF2-P2	125-mL
Kitchen faucet, first-	KF-P1	125-mL
draw	KF-P2	125-mL
Kitahan fawaat	KF-A1	1-L
Kilchen Taucel,	KF-A2	1-L
sequentiai	KF-A3etc.	1-L

- □ Remove cap (place open side up)
- □ Filter? Remove or bypass.
- $\hfill \square$ Inline filter or whole house filtration system? Document.



Example floor plan

Floor plan with sampling locations and measurements to determine number of large volume samples (including vertical rise and adding an additional 15 exterior feet to ensure sample will reach water main).

1-Liter bottle =	- 15 feet sample of interior plumbing
Interior:	30 feet + 28 feet + 10 feet (vertical rise) = 68 feet
	68 feet / 15 feet = 4.53 ≈ 5 large volume
Exterior:	32 feet + 15 feet (main) / 15 feet = $3.13 \approx 4$ large volume

Total:

5 (int.) + 4 (ext.) = 9 large volume samples





MDHHS – Water Sampling Chain of Custody

Site Name and/or Address: 100 Main St

Sample Collector: John Doe

Report Results To: _____John Doe_____

Phone: <u>123-456-7890</u>

Email Address: ___JohnDoe@mail.com_

				Analysis Reque	ested	
Date	Time Collected	Sample ID	Preservatio	on Pb & Cu	Remarks	
3/2/21	13:00	KF-P1	-	X	Kitchen faucet (125 mL)	
	13:00	KF-P2		X	Kitchen faucet (125 mL)	
3/2/21	13:15	BF1-P1		X	Bathroom faucet (125 mL)	
	13:15	BF1-P2	-	X	Bathroom faucet (125 mL)	
3/2/21	13:23	BF2-P1		X	Bathroom faucet (125 mL)	
	13:23	BF2-P2	-	X	Bathroom faucet (125 mL)	
3/2/21	13:30	KF-A1		X	Kitchen faucet (1 L)	
	13:30	KF-A2	-	X	Kitchen faucet (1 L)	
	13:30	KF-A3	-	X	Kitchen faucet (1 L)	
	13:30	KF-A4	-	X	Kitchen faucet (1 L)	
	13:30	KF-A5	-	X	Kitchen faucet (1 L)	
	13:30	KF-A6	-	X	Kitchen faucet (1 L)	
Date	Time	Submitted by			Received by	
3/3/21	9:00	9:00 John Doe Jane I		Jane Doe		

Protective actions to reduce further exposure communications

Discuss high results

No amount of lead in drinking water is safe. Discuss high results and provide recommendations to the resident using the information below.

Provide recommendations to reduce lead in drinking water

Flush your pipes before using your water.

If you have not used your water for several hours, flushing your pipes may reduce the amount of soluble (dissolved) lead in your drinking water. To flush the pipes in your home, do any of the following for at least five minutes:

- Turn a faucet on all the way.
- Take a shower.
- Run a load of laundry.
- Run your dishwasher.

Before using the water from any specific faucet for drinking or cooking, run the water again until it goes from room temperature to cold. This flushes out any water that had been sitting in that sink's pipes and faucet.

Using a filter can reduce lead in drinking water.

Both particulate and soluble lead can be safely removed from drinking water by using a water filter certified to reduce lead in drinking water. Look for filters that are tested and certified to NSF/ANSI Standard 53 for lead reduction. Follow the manufacturer's instructions to install the filter and maintain it.

Use cold filtered or flushed water for:

- Drinking, cooking, or rinsing food.
- Mixing powdered infant formula.
- Brushing your teeth.

Do not use hot water for drinking or cooking.

Do not cook with or drink water from the hot water tap. Lead dissolves more easily into hot water.

Clean your aerator.

Aerators (the mesh screens on your sink faucet) can trap pieces of particulate lead.

Clean your drinking water faucet aerator at least every six months.

If there is construction or repairs to the public water system or pipes near your home, clean your drinking water faucet aerator every month until the work is done.

Uses for water that has not been flushed or filtered:

If you have lead in your drinking water, you can use water that is not flushed or filtered for:

- Showering or bathing (avoid swallowing the water).
- Washing your hands, dishes, and clothes.
- Cleaning.

Copper in Drinking Water

What is copper?

Copper is found naturally in the environment in ground water and in surface water that is used for drinking water. It also comes from human-made sources, such as farming, mining and wastewater release. Copper is needed for all living things to survive. A person's diet should include small amounts of copper. While copper is important to our health, high amounts can be harmful.

What health problems can copper cause?

Drinking water with high amounts of copper can cause:

- Upset stomach.
- Vomiting.
- Diarrhea.
- Stomach cramps.
- Severe illness, such as kidney and liver damage (when consumed over a period of time).

Infants may be more sensitive to elevated copper levels. Formula-fed children under 12 months already get their needed copper from infant formula.

In addition, people with rare diseases, like Wilson Disease, can have problems getting rid of copper from their body. They should follow their doctor's recommendations, which may include avoiding extra sources of copper in certain foods, multivitamins and drinking water.



How does copper get into my drinking water?

While copper can be found naturally in drinking water, it often comes from a home's pipes or faucets. When copper pipes get older, they may start to break down, letting the metal get into the water.

How much copper is permitted in my water?

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the U.S. Environmental Protection Agency (EPA) limits how much copper and other chemicals can be in municipal drinking water. Currently, the action level is 1.3 parts per million (ppm) for copper in drinking water. When at least 10 percent of tested homes on the same public water supply have copper above 1.3 ppm, the water supplier takes action to lower the amount of copper.

How do I know if copper is in my drinking water?

- Copper in water can cause blue-green stains on plumbing, such as sinks, faucets and pipes. It can cause a metallic or bitter taste in drinking water.
- Testing is the best way to know if copper is in your drinking water.
- Call your local health department or a certified laboratory to get a test kit. To learn more about test kit availability, fees and instructions, visit <u>Michigan.gov/EGLElab</u> and click on "Drinking Water Laboratory."

How can I reduce copper in my drinking water?



Keep your water moving.

If you have not used your water for several hours, run your water by doing any of the following for several minutes:

- Turn water faucet on all the way and let it run.
- Take a shower.
- Run a load of laundry.
- Run your dishwasher.

Before using the water from any faucet for drinking or cooking, run the cold water again for at least several seconds or until it goes from room temperature to cold.



Using a filter can reduce copper in drinking water.

Identifying the right filter for your household is important. If you have questions, call your local health department or the MDHHS Drinking Water Hotline. They can help you identify a filter that fits your household needs and budget.



- You can consider a filter that reduces copper at the point water is used, such as a faucet. This is called a **point-of-use** filter.
- A filter that removes copper at the point where the water enters your home may also be an option. This is called a **point-of-entry** filter.
- When buying a filter, look for the certification number NSF/ANSI Standard 53 for copper reduction and NSF/ ANSI Standard 42 for particulate reduction (Class 1). Make sure the box says that it reduces copper. Follow the manufacturer's instructions for filter installation and maintenance.



Do not use hot water for drinking or cooking.

• Do not cook with or drink water from the hot water tap. Copper dissolves more easily into hot water.

Clean your aerator.

- Aerators (the mesh screens on your sink faucet) can trap pieces of copper.
- Clean your drinking water faucet aerator at least every six months.
 - If there is construction or repairs to the public water system or pipes near your home, clean your drinking water faucet aerator every month until the work is done.

When can I use water from a faucet that has not been run for several minutes or is not filtered?

If you have copper in your drinking water, you can use water that is not cold or filtered for:

- Showering or bathing.
- Washing your hands, dishes and clothes.
- Cleaning.

For More Information

Michigan Department of Health and Human Services MI-TOXIC Hotline 800-648-6942 Michigan.gov/EnviroHealth, click "Care for Mi Drinking Water."

List of Michigan Local Health Departments Malph.org/Resources/Directory Michigan Department of Environment, Great Lakes, and Energy Michigan.gov/EGLE

Laboratory Services Michigan.gov/EGLELab, choose "Drinking Water Laboratory"



The Michigan Department of Health and Human Services (MDHHS) does not discriminate against any individual or group because of race, religion, age, national origin, color, height, weight, marital status, genetic information, sex, sexual orientation, gender identity or expression, political beliefs or disability. Michigan Department of Health and Human Services Healthy Homes Section Lead Safe Home Program

Project Specifications

Water Remediation Specification Library

All Plumbing Components

Contractor must retain receipts, photographs, and packages of plumbing materials for verification of current lead standards upon completion of project involving plumbing replacement materials. Contractor to have faucet replacements completed and ready for post abatement water testing at time of clearance.

- Components to be from lead-free product lines or non- metal. (Must meet minimum NSF/ANSI 61-G and NSF/ANSI 372). Components intended for non-potable uses not acceptable.
- Faucet documents/paperwork to be presented to RFC for verification of proper components.
- All aerator keys/wrenches to be provided to homeowner.
- Contractor responsible to ensure proper drainage as of job completion-verify before starting work and notify RFC if problems.

Bathtub

Remove the existing bathtub and dispose of it of according to State, Federal, and local requirements. Provide and install a new tub unit with vinyl/plastic shower surround wall kit. Install new vinyl trim as needed and caulk tight. Tub shall be installed with appropriate support and to ensure proper drainage. No exposed wood shall remain in tub shower area. Include filler, mixing valve (and fixture connections), shower head, and drain assembly.

- If drywall to be utilized it must be moisture/mold resistant. Prime with low VOC primer. Homeowner responsible for finish paint.
- Components to be from lead-free product lines or non- metal. (Must meet NSF/ANSI 61-G and NSF/ANSI 372).
- Faucet documents/paperwork to be presented to RFC for verification of proper components.
- All aerator keys/wrenches to be provided to homeowner.
- Contractor responsible to ensure proper drainage as of job completion-verify before starting work and notify RFC if problems.

Bathtub (Paint Only)

Remove all loose paint on exterior painted side of bathtub including claw feet (if applicable). Apply prime coat and two coats of a rust inhibitor paint.

Bathroom Vanity / Sink

Remove existing vanity and sink and replace with new vanity, sink and trim. Repair all plumbing leaks as necessary. Replacement sink shall include vanity sink base, countertop with backsplash (manufactured marble) with centered, water conserving set faucet with built in flow restrictors, trip waste, fixture stops, supplies, and trap. Fixture stops shall be installed underneath the sink. Supply lines shall meet the approval of the local building official. Vanity shall have built in shelf or trays on the interior walls of the cabinet. Those base units 30 inches or wider shall have three drawers located on one side of the base. Vanity sides, base and trim shall be constructed of waterproofed plywood covered with 1/32-inch plastic laminate.

Faucets – Bathroom Vanity

Remove the existing faucet/fixture and replace with new. Install new lead-free Delta Lavatory Faucet model B2596LF or B3596LF2 (Windemere Collection). Include all required fixture connections/accessories such as new pop-up assembly (if needed) and shut-off valves (required).

- Components to be from lead-free product lines or non- metal. (Must meet minimum NSF/ANSI 61-G and NSF/ANSI 372).
- Faucet documents/paperwork to be presented to RFC for verification of proper components.
- All aerator keys/wrenches to be provided to homeowner.
- Contractor responsible to ensure proper drainage as of job completion-verify before starting work and notify RFC if problems.

Faucets – Bathtub / Shower

Remove the existing faucet/fixture and replace with new. Install new lead-free equivalent replacement lavatory faucet such as a Moen, Delta, Pfister, Kohler or equivalent. Include filler, mixing valve (and fixture connections), shower head, and drain assembly. Include for creation and/or repair of access as needed.

Faucets – Kitchen

Remove the existing faucet/fixture and replace with new. Install lead-free Delta Kitchen Sink Faucet model numbers 100-DST or 100-BH-DST for non-sprayer locations. Or model numbers 400-DST, 400-BH-DST, 400-DST-A or 400-DST-L for sprayer equipped locations. Include all required fixture connections/accessories up to and including the shut-off valves (required).

- Components to be from lead-free product lines or non- metal. (Must meet minimum NSF/ANSI 61-G and NSF/ANSI 372).
- Faucet documents/paperwork to be presented to RFC for verification of proper components.
- All aerator keys/wrenches to be provided to homeowner.
- Contractor responsible to ensure proper drainage as of job completion-verify before starting work and notify RFC if problems.

Faucets – Laundry

Remove existing and replace with new lead-free unit. Install lead-free Delta Kitchen Sink Faucet model numbers 100-DST or equivalent.

- Components to be from lead-free product lines or non- metal. (Must meet minimum NSF/ANSI 61-G and NSF/ANSI 372).
- Faucet documents/paperwork to be presented to RFC for verification of proper components.
- All aerator keys/wrenches to be provided to homeowner.
- Contractor responsible to ensure proper drainage as of job completion-verify before starting work and notify RFC if problems.

Faucets – Laundry (if concrete laundry tub present)

Remove existing concrete laundry tub and faucet. Replace with new equivalent sized PVC (fiberglass, polypropylene acceptable) utility/laundry tub. Install lead-free Delta Kitchen Sink Faucet model numbers 100-DST or equivalent.

Faucets – Exterior Hose Bibs

Remove existing and replace with new lead-free unit as manufactured by Prier (478-10-LF) or equivalent. Unit to be frost/freeze free per code. Install at currently working locations only.

• Components to be from Lead Free product lines or non- metal. (Must meet minimum

NSF/ANSI 61-G and NSF/ANSI 372).

- Faucet documents/paperwork to be presented to RFC for verification of proper components.
- All aerator keys/wrenches to be provided to homeowner.

Faucet Aerator

Remove the existing faucet aerator and replace with new.

PLUMBING-Supply (Lead, Green)

Remove existing supply plumbing system on the house side of the meter. (Service line not to be disturbed at this time.) Replace with PEX manifold distribution system complete. Supply lines to individual fixtures to be continuous uninterrupted runs. Provide for manifold (combined hot and cold manifold preferred-individual hot and cold manifolds acceptable), appropriately sized PEX tubing, faucets (refer to list below for faucet locations) necessary fixture connections, hammer arrestors and other hardware as needed. System to meet all flow rates and pressure requirements as specified per code. System installation shall be properly permitted and shall receive all standard inspections as required per federal, state and local code.

Install new lead-free faucets (direct replacement for existing fixture and faucet as closely as reasonable) such as manufactured by Moen, Delta, Pfister, Kohler or equivalent

Replace faucets at the following locations:

- Components to be from lead-free product lines or non- metal. (Must meet minimum NSF/ANSI 61-G and NSF/ANSI 372).
- Do not use components intended for heating systems.

Sewer Line Repair

Repair existing sewer line. Soil and waste piping and fitting shall be extra heavy or service weight cast iron or galvanized steel pipe, or PVC DWV Schedule 40 plastic pipe. Other materials may be acceptable when meeting the approval of the local building official. Piping shall be at least 3" in diameter.

Shut-off Valve

Remove the existing faucet/fixture connection shut off and replace with new. Install new lead-free shut off (direct replacement for existing lavatory) such as Sioux Chief, Shark Bite, Arrowhead or equivalent.