Montevallo Water and Sewer Board

Lead and Copper Sampling Plan

UPDATED MAY, 2016

PWS ID #AL0001160

PREPARED BY:

INSITE ENGINEERING

This Sampling Plan was prepared by InSite Engineering, LLC for the Montevallo Water Works and Sewer Board in part based on a template jointly prepared by the Iowa Department of Natural Resources, the Iowa Rural Water Association, and the United States Environmental Protection Agency. The material in this Plan reflects our best judgment based on the information that was made available to us at the time of preparation. Any use which a third party makes of this report, or any release or decisions made based on this report, are the sole responsibility of such third parties. InSite Engineering, LLC and the Montevallo Water Works and Sewer Board accept no responsibility for damages, if any, occasioned by any third party as a result of decisions made or actions taken based on this report.

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Section 1

Public Water Supply Lead and Copper Sample Site Plan Selection Criteria for Community Systems

All public water supplies must complete a materials evaluation of their system to identify their pool of sample sites. Samples must be collected from Tier 1 sites unless there are not sufficient sites, then Tier 2 sites may be used. If there are not sufficient Tier 1 and 2 sites then Tier 3 sites may be used.

Tier definitions are as follows:

- Tier 1 – includes single family structures that;
  - Contain copper pipes with lead solder which was installed after 1982 or;
  - Contain lead pipes or;
  - Is served by a lead service line

- Tier 2 – includes multi-family structures and buildings that;
  - Contain copper pipes with lead solder which was installed after 1982 or;
  - Contain lead pipes or;
  - Is served by a lead service line
  - Multi-family structures may be used as a Tier 1 site when multi-family structures comprise at least 20% of the structures served by the water system.

- Tier 3 – Includes single family structures that contain copper pipes with lead solder which were installed prior to 1983

Tier Categories - Use the following to identify the Tier and category of each site:

Tier 1

A. Single family – copper pipe with lead solder constructed after 1982
B. Single family – lead pipes
C. Single family – lead service line
D. Multi-family - copper pipe with lead solder constructed after 1982
E. Multi-family – lead pipes
F. Multi-family – lead service line

Tier 2

A. Building – copper pipe with lead solder constructed after 1982
B. Building – lead pipes
C. Building – lead service line

Tier 3

A. Single family – copper pipe with lead solder constructed before 1983

If not enough Tier 1, 2 or 3 sites are available, random sites may be chosen.

- Random location

Lead and Copper Sample Sites

Community: Montevallo Water Works and Sewer Board

PWSID#: AL0001160 **Number of Samples Required: 20**

NO.	Address	Tier Level	Lead Service?	Primary or Alt.
01		1	NO	P
02		2	NO	P
03		1	NO	P
04		1	NO	P
05		1	NO	P
06		1	NO	P
07		1	NO	P
08		1	NO	P
09		1	NO	P
10		1	NO	P
11		1	NO	P
12		1	NO	P
13		1	NO	P
14		1	NO	P
15		1	NO	P
16		1	NO	P
17		1	NO	P
18		1	NO	P
19		1	NO	P
20		1	NO	P
21		1	NO	A
22		1	NO	A
23		2	NO	A

NO.	Address	Tier Level	Lead Service?	Primary or Alt.
24		2	NO	A
25		1	NO	A
26		1	NO	A
27		1	NO	A
28		1	NO	A
29		1	NO	A
30		1	NO	A
31		1	NO	A
32		1	NO	A
33		1	NO	A
34		1	NO	A
35		1	NO	A
36		2	NO	A
37		1	NO	A
38		1	NO	A
39		1	NO	A
40		1	NO	A

Lead and Copper Sampling Procedures

All lead and copper samples must be first-draw samples and must be 1 liter in volume. The water must be motionless (not used) in the plumbing system of each residence or building for a minimum of six hours. While the water cannot be used for more than six hours, do not collect samples from sites which have not been used for an extended period of time; such as a site which has had no water use for several days, i.e., a weekend.

First-draw residential samples shall be collected from the cold, hard water kitchen or bathroom sink only. First-draw nonresidential samples shall be collected from an interior, cold, hard water tap from which water is typically drawn for consumption.

Sampling sites must not include faucets which have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants. This includes devices such as filters, softeners, RO systems, etc.

First-draw samples may be collected by the system or the system may allow residents to collect samples after receiving instruction on the proper sampling procedures.

A water supply system shall collect each first-draw tap sample from the same sampling sites used in the previous round of sampling unless a change of sampling site is documented and submitted to ADEM. (See section 3)

Sites and Situations to Avoid

Do not use

- A mop sink, outside faucet or a tap that is not generally used or intended for human consumption
- A site which is vacant *(don't make special arrangements to get access to site)*
- A site which has undergone recent (within the last 6 months) plumbing improvements or changes including faucets at the specific sample location
- A tap that has any type of treatment
- A site where the owner or resident is uncooperative

Lead and Copper Sampling Instructions for Homeowner or Resident

Please read these instructions before opening the sample bottle

These samples are being collected to determine the levels, if any, of lead and copper in your tap water. This sampling is required by the U. S. Environmental Protection Agency and the State of Alabama, and can only be properly accomplished through a collaboration between the public water system and its customers.

Sampling Requirements

- Do not rinse or overfill the bottle
- Samples should be collected from the cold, hard water kitchen or bathroom faucet. Do not use an outdoor faucet. If you have sampled before, please use the same kitchen or bathroom faucet you have used previously.
- Before sampling, run the faucet for 2-3 minutes during general use, such as filling a glass of water, brushing teeth, or washing face, then do not use water from the faucet for at least 6 hours. For single family homes, do not use water in the whole house during the no use period. For other sampling sites that cannot discontinue water use at the entire site for 6 hours, the faucet that will be sampled is tagged out for the minimum six hours.
- Collect the sample after at least 6 hours of no use before the water in the house or building is used for anything else.

Sampling Steps

1. Open the bottle and hold under the faucet.
2. Turn the cold, hard water on to a low flow and collect the first water that comes out of the faucet. (DO NOT RUN WATER FROM THE TAP BEFORE FILLING THE BOTTLE)
3. Fill the bottle to the shoulder.
4. Place lid on bottle and tighten cap securely.
5. Fill in label completely except for the sample ID.
6. Place bottle in shipping or pickup container.
7. Return the sample to the water supply as soon as possible.

Please note on the sample sheet and notify your water supply of the following conditions:

- If any plumbing repairs or pipe replacements have been done in the last 5 years.
- If you have a water softener or other home treatment or filter.

If you have any questions contact the following:

Name: Michael Harmon, General Manager Phone #: 205-665-9045

TO BE COMPLETED BY THE RESIDENT

Water was last used: Time _____ Date _____

Sample was collected: Time _____ Date _____

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

_____ Date _____

Signature

Thank you for your help!

Section 2

Calculating the 90th Percentile During Initial, Follow-up, Routine and Reduced Monitoring

If you collect 5 samples, calculate your 90th percentile as follows:

- Rank your samples in order of concentration (mg/l) from lowest to highest.
- Find the average of the two highest results by adding the results together and dividing by two.
- The resulting number (average) is the 90th percentile

EXAMPLE

Sample Site #	Sample Results
1	0.001
2	0.001
3	0.006
4	0.008
5	0.014

0.008 + 0.014 = 0.022 0.022/2 = 0.011

90th percentile = 0.011 mg/l

This is the number to record on Form 141A.

If you collect 6 or more samples, calculate your 90th percentile as follows:

- Rank your samples in order of concentration (mg/l) from lowest to highest.
- Take the total number of samples collected and multiply by 0.90. The result will tell you which sample to record.
- If the number is not a whole number, round to the nearest whole number.
    - 12.7 would be rounded to 13.0 – 12.2 would be rounded to 12.0
- If the number is exactly in the middle of two whole numbers, round to the nearest even number.
    - 12.5 would be rounded to 12.0 – 13.5 would be rounded to 14.0

EXAMPLE IF YOU COLLECTED 10 SAMPLES

10 X 0.9 = 9

Sample #9 is the 90th percentile and should be recorded on Form 141A

Sample Site #	Sample Results
1	0.001
2	0.001
3	0.001
4	0.001
5	0.001
6	0.004
7	0.005
8	0.006
9	**0.008**
10	0.010

The 90th percentile is 0.008 mg/l and should be recorded on Form 141A.

Please note these are examples only, you will have to insert your own results to determine your 90th percentile.

90th Percentile Summary Form

(use this format if your lab does not provide a 90th percentile summary for you)
Add additional columns or pages as needed

PWSID#: AL0001160 **Public Water Supply Name: Montevallo Water & Sewer Board**

Results of lead monitoring:

	Date Collected	Sample Location	Lead Result	Tier ID
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

90th percentile for lead: _____

Results of copper monitoring:

	Date Collected	Sample Location	Lead Result	Tier ID
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

90th percentile for copper: _____

Keep this form for your records. If you change sample locations or exceed the 90th percentile, also submit this form to ADEM.

Section 3

Making Changes to Sampling Site Locations

The utility will make an assessment of its ability to sample a sufficient number of appropriate sites from this lead and copper plan well in advance of the monitoring period. Making contact with the resident early and determining whether their home still meets the selection criteria as a sample location will eliminate this variable. Furthermore, lead and copper samples should be collected early in the monitoring period to ensure samples arrive at the lab in a timely fashion and are analyzed well before the end of the monitoring period.

Changes to sampling sites are allowed when the water system can no longer gain access to the site or if the original site location no longer meets the Tier selection criteria. For example, if a home is vacant or demolished, if a softener is added or plumbing upgrades have been made - the structure no longer meets the Tier criteria.

This change in location must be submitted to ADEM using the Samples Site Identification and Certification/Change of Sampling Sites form provided on the next page.

Additional changes can also be made if the utility adds new sampling sites provided they meet the requirements of a proper sampling location. The utility should submit a site change request before taking routine lead and copper samples.

This lead and copper plan must be updated whenever there is an addition or deletion of a site and should be updated to identify sites that meet the requirements of proper sampling locations that can be readily substituted if needed during future monitoring events.

PWSID # **AL0001160** NAME OF PUBLIC WATER SUPPLY: **Montevallo Water**

Month & Year Samples were collected: _____

SAMPLES SITE IDENTIFICATION AND CERTIFICATION

RESULTS OF MONITORING

Samples Required _____ # Samples Submitted _____

90th Percentile Lead _____ **mg/L**
90th Percentile Copper _____ **mg/L**

CHANGE OF SAMPLING SITES

Original Site Address:

_____
_____
_____

New Site Address:

_____
_____
_____

Distance between Sites (approximately):

_____

Targeting Criteria: NEW: _____ Tier_____
OLD: _____ Tier_____

Reason for Change (attach additional pages if necessary):

_____
_____

SIGNATURE (name & title) Today's Date: _____

_____

EPA Form 141-A, page 3

Lead & Copper Rule
Reduced Monitoring Site Selection

Reduced sampling sites shall be selected using the following procedure:

1. From the two most recent six-month rounds of testing, select the round of testing that had the OVERALL HIGHEST lead result.

2. Using the selected round, arrange the sampling sites in order, based on the lead test result, from highest to lowest.

3. Beginning with and including the site with the highest lead result, select and include every other site for reduced monitoring (i.e., highest result, 3rd highest, 5th highest, 7th highest, etc.).

4. After selecting every other site (see #3 above), if it is determined that a specific selected site can no longer be included in the sampling pool, replace the site with the next site on the original list (i.e., replace the 7th highest site with the 6th highest site).

5. This reduced sampling plan must be kept in your file for future reference. You must return to these same sites for each reduced sampling period.

If either the lead or copper action level IS EXCEEDED at the 90th percentile during any reduced monitoring period, you are required to conduct water quality parameter monitoring in accordance with subparagraphs 567 IAC 41.4(1)"d"(2), (3), or (4) during the monitoring period in which the action level was exceeded, and resume standard or base monitoring for at least two consecutive six-month monitoring periods.

Section 4

Lead and Copper Consumer Notice and Certification Form

PWS Name: Montevallo Water & Sewer Board PWSID#: AL0001160 Date: _____

LEAD & COPPER CONSUMER NOTICE
ANALYTICAL RESULTS FOR LEAD & COPPER TAP WATER MONITORING

Our public water supply system is required to periodically collect tap water samples to determine the lead and copper levels in our system. Your residence was selected for this monitoring as part of our system's sampling plan. This notice is provided to you with the analytical results of the tap water sample collected at your home.

Sample address: _____ Sample collection date: _____

Analytical Lead result, in mg/L (milligrams per liter): _____

Analytical Copper result, in mg/L (milligrams per liter): _____

Definitions
Action Level (AL): The action level is a concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a public water supply system must follow. The lead action level is 0.015 mg/L. The copper action level is 1.3 mg/L.

Maximum Contaminant Level Goal (MCLG): The maximum contaminant level goal is the level of a contaminant in drinking water below which there is no known or expected risk to health. The MCLG allows for a margin of safety. The lead MCLG is zero. The copper MCLG is 1.3 mg/L.

What are the health effects of lead and how can I reduce my exposure?
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The utility is responsible for providing drinking water that meets all federal and state standards, but cannot control the variety of materials used in plumbing components.

When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using the water and using only cold water for drinking or cooking. Information on lead in drinking water and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at *http://www.epa.gov.*
When replacing your bathroom or kitchen faucet, consider a "lead-free" faucet that meets NSF/ANSI Standard 61 Annex G (California), which is less than 0.25% lead by weight.

What are the health effects of copper and how can I reduce my exposure?
Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short period of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor. Flushing your tap before using the water as previously described will also reduce copper levels.

Who can I contact at my water system for more information?
Phone number at our public water supply system: 205-655-9045

Consumer Notice Instructions: Community PWS
Per the Lead & Copper Rule consumer notice requirements, you must complete the lead consumer notice, distribute the notice to each home or building that was tested with its specific lead result, and submit a certification of your activities and a copy of the notice to ADEM.

Consumer Notice Content
You are required to provide the consumer notice to consumers who occupy homes or buildings that are part of your system's lead & copper monitoring program with the analytical results when their drinking water is tested for lead, including those who do not receive water bills. The Consumer Notice must include the mandatory language in the example provided with these instructions. It must be multilingual, where appropriate.

Distribution of the Consumer Notice
Within 30 days of receiving the analytical results from the laboratory, you must provide the required notice to the people served at each residence or building that was a part of the sampling plan. ADEM recommends you provide the required notice as soon as available, especially if the result is elevated to allow the customer to take corrective actions in a more timely manner. This can be accomplished through direct mail, including it with the water utility bill, or by hand delivery.

Multi-family dwellings: Where testing occurs in buildings with many units, such as an apartment building, the notice must be provided to each individual unit that was tested. The notice does not have to extend to the entire building.

If you wish to use an alternate method that would still meet the requirements, contact the ADEM-Water Supply Operations Section to discuss the method, prior to conducting the notice. (See your current Operation Permit for the contact information.)

Date completed:_____ *(enclose a copy of notice)*

Delivery Certification

I certify under penalty of law that I am familiar with the information submitted in this document and that it is true, accurate, and complete.

Name (print or type)_____ **Title** _____

Signature_____ **Date**_____

MATERIALS INVENTORY

The Montevallo Water Distribution System includes approximately 100 miles of water mains along with the valves, fire hydrants, and other appurtenances required to deliver potable water to its customers.

The distribution system contains pipe manufactured from various materials in the approximate quantities listed below:

Pipe Size	Approximate Quantity By Material Type				Approximate Total Qty
	PVC	Galvanized	Cast Iron	Ductile Iron	
<4″	14.5 mi	12 mi	--	--	26.5 miles
4″	1.25 mi	--	0.5 mi	0.25 mi	2.0 miles
6″	30 mi	--	2.5 mi	14 mi	46.5 miles
8″	2 mi	--	1 mi	11 mi	14 miles
>8″	--	--	2.5 mi	5.5 mi	8 miles

There are no known lead service lines or lead joint pipes in the system. However there are various appurtenances that may contain lead or copper as follows:

- Lead
  - Lead solder
  - Lead caulking
  - Lead alloys
  - Home plumbing with Lead components
- Copper
  - Copper tubing or piping
  - Copper alloys
  - Copper service lines
  - Home plumbing with Copper components

These items may exist in the following locations:

- Lead caulk could exist in very small sections of original piping along Main Street. All repairs that have been made since 1990 have used lead free materials; and the remainder of this line is scheduled to be replaced in the 2016 Main Street Revitalization Project.
- ALDOT requires all service lines that cross State Highways to be made of Type K copper. As a result of this policy, most "long-side services" that cross under Highway 119 or Highway 25 are type K copper. Some of the oldest of these services may contain some lead solder at fittings.
- Brass water meters manufactured prior to the "Reduction of Lead in Drinking Water Act" of January 4, 2014 may contain lead alloys.