



Lead and Copper Monitoring and SMP ID Guidance

Instructions for Public Water Systems for selecting sample sites, completing Sample Monitoring Point (SMP) ID templates, and collecting samples.

All community and non-transient non-community water systems are required to collect tap water samples for lead and copper. Current monitoring requirements are specified on the Public Water System's Monitoring Schedule emailed to the PWS annually in December. Revised schedules are emailed monthly as needed. All current monitoring schedules are available on the Ohio EPA website: [Monitoring Schedules](#). Ohio Administrative Code (OAC) Rule 3745-81-86 details the requirements for sampling site selection, sample collection, number of samples, and frequency of monitoring. See: [OAC 3745-81-86 Monitoring Requirements](#). This guidance has been updated to reflect changes to the lead and copper rules, effective May 1, 2018, and describes collection of samples, selection of sampling sites, and submission of sample site information.

Minimum Number of Required Samples for Lead and Copper Tap Monitoring

Standard Six-Month Monitoring

Standard lead and copper monitoring is required during each of two consecutive six-month monitoring periods with each period beginning on either January 1 or July 1. The following number of sampling sites is required:

Population served:	1 to 100	101 to 500	501 to 3,300	3,301 to 10,000	10,001 to 100,000	>100,000
Required number of sites:	5	10	20	40	60	100

Reduced Annual and Triennial Monitoring

Annual and triennial monitoring is required during the warmer months, June 1 through September 30. The following number of sampling sites is required:

Population served:	1 to 100	101 to 500	501 to 3,300	3,301 to 10,000	10,001 to 100,000	>100,000
Required number of sites:	5	5	10	20	30	50

Sample Site Selection

The first-draw lead and copper samples must be collected from tier 1 sites. (Note: For those systems that have lead service lines, at least 50% of the samples must be collected from sites with lead service lines). Following the selection of sites with lead service lines, PWSs should use tier 1 sites with partial lead service lines, then sites with lead at the gooseneck. The final selection of tier 1 sites should be from sites with copper pipe joined with lead solder. If insufficient tier 1 sampling sites are available, then a system may complete its sampling pool with tier 2 sites. Only when a community water system is unable to find a sufficient number of tier 1 and tier 2 sampling sites may tier 3 sites be used. The various tiers are defined as follows:

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Community Water System sampling sites

Tier 1 - Single family structures that contain copper pipes with lead solder installed between January 1, 1983 and December 31, 1988* or contain lead pipes or are served by lead service lines. Multiple family residences (MFH) with such piping can be included if MFHs are at least 20 percent of the structures served by the water system. Residences with point-of-use or point-of-entry devices, such as water softeners, are usually excluded.

Tier 2 - Buildings, including multiple-family residences, that contain copper pipes with lead solder installed between January 1, 1983 and December 31, 1988* or contain lead pipes or are served by lead service lines.

Tier 3 - Single family residences that contain copper pipes with lead solder installed before January 1, 1983.

Non-Transient Non-Community Water System sampling sites

Tier 1 - Buildings that contain copper pipes with lead solder* installed between January 1, 1983 and December 31, 1988* or contain lead pipes or are served by lead service lines.

Tier 2 - Buildings that contain copper pipes with lead solder installed before 1983.

*Effective May 1, 2018, the Tier 1 definitions changed from “copper pipes with lead solder installed after 1982” to “copper pipes with lead solder installed after 1982 and before 1989.” Locations previously considered Tier 1 may no longer meet the Tier 1 definition. PWSs should evaluate their sampling pool and identify additional Tier 1 locations as necessary.

Beginning in 2018 PWSs must update tier 1 sites in the sampling pool to meet the new definition. Sites containing copper pipes with lead solder installed after December 31, 1988 will no longer count for compliance with tier 1 site selection requirements.

Special cases

- Some water systems do not serve enough residences or buildings with lead or soldered copper pipes to fill their sampling pool with tiered sampling sites. Examples include a mobile home park with mobile homes that have plastic piping or a factory or office building with galvanized piping, plastic piping, or copper piping with no lead solder. Such water systems still must monitor for lead and copper; if available, these systems should select sampling sites with brass faucets. Otherwise, select representative locations throughout the distribution system. These locations will be designated “Tier Other.”
- Small PWSs with less than 5 taps shall collect at least one sample from each tap and then collect additional samples from those taps on different days during the monitoring period to meet the required number of sites.
- Public water systems with centralized water softening must collect samples during normal operating conditions.
- Home or point of use devices that are not controlled by the public water system can be problematic (e.g., softeners). Sites with these devices should not be used unless no other alternatives are available.

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Sample Monitoring Point (SMP) ID Spreadsheet

The 2018 revised lead and copper rules include new notification deadlines and requirements for lead and copper sample results that apply to both the PWS and Ohio EPA. Each PWS must identify unique SMP IDs for all lead and copper sample sites. The SMP IDs follow a standard format, LC201, LC202 etc. and are associated with specific consumer addresses within the PWS. Additional information about the sample site will help Ohio EPA and the PWS with evaluating sample results and verifying tier levels. This requirement applies to all community and non-transient non-community public water systems. Ohio EPA has prepared an SMP ID spreadsheet template to capture the required information. It is the responsibility of the PWS to maintain sample site information and to provide updated sample site information to Ohio EPA. The routine sampling sites used for lead and copper tap monitoring should remain the same for each monitoring period. If there is an unavoidable reason for changing routine sites, the PWS must provide written explanation to Ohio EPA.

SMP ID Template

An SMP ID spreadsheet must be completed and submitted to Ohio EPA prior to lead and copper monitoring. The SMP ID spreadsheet template is available for download on Ohio EPA's Lead and Copper page located under the Monitoring Tab at: [Sample Monitoring Point IDs](#) . Instructions for each column of the spreadsheet are detailed in the table below. Complete a row for each sample site using all available information.

PWSs should have sites identified for the minimum number of required sites for standard 6-month monitoring (listed above). This will provide backup sites if the PWS is on reduced annual or triennial monitoring and provide the correct number of sites if the PWS returns to 6-month monitoring.

Required fields, designated by a "Yes" in the table and an asterisk on the Excel spreadsheet, must be completed. When required fields for tier determination are completed, the "Tier Site" field will be automatically generated.

Column Title in Spreadsheet	Required Field?	Detailed Instructions
PWS ID	Yes	Public water system ID number. Starts with "OH" and followed by 7 numbers. Reference the PWS ID on nearly any communication with Ohio EPA Division of Drinking and Ground Waters. Included in Monitoring Schedules, reminder postcards, or letters from Ohio EPA.
PWS Name	Yes	Public Water System Name
PWS Type	Yes	COMM (Community public water system) or NTNC (Non-transient non-community public water system). This field is required for tier determination.
SMP ID	Yes	Sample Monitoring Point ID. This field is pre-populated with sequential SMP IDs from LC201 through LC300. Additional rows may be added as needed. Compliance monitoring sites should each have a unique SMP ID. Special purpose monitoring sites do not need to be included on this list.

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Tier Site (Automatic!)	Automatic	Tier level of sample site (Tier 1, Tier 2, Tier 3 or Other).
Street Address	Yes	Street address of sample location, or facility for NTNC
City	Yes	City name for the sample site location, or facility for NTNC
State	Yes	OH
Zip	Yes	Five-digit zip code for the sample site location, or facility for NTNC
Tap Location	Yes	Location within dwelling/building where sample is collected. For example: restroom, kitchen, or drinking fountain.
Plumbing Age Year	No	Actual year of plumbing installation.
Plumbing Age	Yes	<p>Plumbing installation date range for the location. Click on drop arrow to the right of the cell to drop down a list of possible selections. Select the date range for the date of interior plumbing installation:</p> <ul style="list-style-type: none"> • Age ≤ 82 for plumbing installed before January 1, 1983 • 83 ≤ Age ≤ 88 for plumbing installed between January 1, 1983 and December 31, 1988. • 89 ≤ Age for plumbing installed after December 31, 1988. <p>This field is required for tier determination.</p>
Type of Interior Plumbing	Yes	Type of plumbing inside structure. Click on drop arrow to the right of the cell to drop down a list of possible selections. Options include plastic, copper, lead, galvanized, PEX, or Cast iron. This field is required for tier determination.
Service Line Material	Yes	Type of pipe material connecting the dwelling/building to a water main. Click on drop arrow to the right of the cell to drop down a list of possible selections. Options include lead, copper, or other. This field is required for tier determination.
Structure Type	Yes	Type of structure at the sample site. Click on drop arrow to the right of the cell to drop down a list of possible selections. Options include SFH (Single family home), MFH (Multi-family home), or BLDG (Building: office, school, business, etc.) This field is required for tier determination.

After Completing the Template

After completing the SMP ID Template, save a copy of the Excel file for your records (and future updating) and email one Excel file per PWS to the appropriate Ohio EPA District Office. Once the completed template is received by Ohio EPA, the information will be uploaded to our database.

Updating SMP IDs

Send any changes to the sample site information provided in the SMP ID Template to Ohio EPA. Update the Excel file with the new information and email the revised SMP ID spreadsheet to the appropriate district office. Do not delete or replace locations on the SMP ID spreadsheet, even if the PWS does not intend to sample at that location. Instead, add new locations at the bottom of the existing list.

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When adding new sites, continue the SMP ID numbering sequentially (i.e. if the existing SMP ID spreadsheet ends with LC215, add new locations beginning with LC216, LC217, LC218, etc.) Do not replace existing SMP IDs.

Sample Collection

Once acceptable sampling sites have been selected and the completed Lead and Copper SMP ID Template has been submitted to Ohio EPA, the same sampling locations should be used for each subsequent monitoring period. If the locations that are sampled change from one monitoring period to the next (such as if a resident is no longer willing to participate), notify your district office representative of the change in sampling locations and the reason for the change. If locations must be added to the SMP ID spreadsheet, follow the instructions above for site selection and spreadsheet updates.

The PWS owner/operator is strongly encouraged to verify that samples collected by customers are collected from appropriate locations prior to submission to laboratories. Samples collected from unknown or unacceptable taps, such as hot water faucets, showers, mop sinks, hose bibs, etc., should not be submitted to the laboratory for analysis. If samples from these locations are analyzed, their results will be used in the calculation of the lead and copper 90th percentiles and cannot be invalidated.

Samples must be collected after the water has stood motionless in the line for at least six hours. Samples collected from a residence must be collected only from the cold-water kitchen tap or the cold-water bathroom sink tap. Nonresidential samples must be collected from interior taps typically used for water consumption. (Schools, day care centers and businesses are encouraged to sample from at least some water fountains.) Samples collected from other taps, such as outside spigots and mop sinks, are not acceptable for lead and copper monitoring. Samples can be collected either by an employee, operator or the customer, making sure that the proper sampling protocol is followed. Detailed instructions for the sample collector are available from Ohio EPA's Lead and Copper website located under the Monitoring tab at: [Compliance Sample Collection](#). Each one-liter sample must be analyzed for both lead and copper by a laboratory certified by the State.

It is the responsibility of the PWS to maintain sample site information and to provide updated sample site information to Ohio EPA. The routine sampling sites used for lead and copper tap monitoring should remain the same for each monitoring period. If there is an unavoidable reason for changing routine sites, the PWS must provide written explanation to Ohio EPA.

Contact

For more information, contact the Lead and Copper team at DDAGWLeadCopper@epa.ohio.gov.

