Lead Sampling in Schools Technical Guidance – FAQs Version 2, April 2021

These Frequently Asked Questions are intended to assist School Districts (Districts) with the technical aspects of their Lead Drinking Water Sampling as required by the Board of Education lead testing regulations (N.J.A.C. 6A:26-12.4). The Board of Education regulations differ from the Federal Lead and Copper Rule; therefore, a school also classified as a nontransient noncommunity water system (served by its own well) must ensure sampling is conducted under each regulation. The New Jersey Department of Environmental Protection has developed a <u>crosswalk</u> for nontransient noncommunity schools to identify the distinct differences between each rule. The Frequently Asked Questions listed below are grouped by major topic ideas and contain a listing of common terminology where applicable.

<u>NOTE: Additional Technical Guidance is available at:</u> <u>http://www.nj.gov/dep/watersupply/dwc-lead-schools.html</u>

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SAMPLING TEAM

Who should be included on the sampling team?

The Sampling Team should include a School District Program Manager, Project Manager, Project Officers, and Laboratory Manager. The individual assigned to these titles should be able to perform the corresponding roles and responsibilities listed below.

- The District Program Manager is the overall authority in the execution of the District's lead sampling project. He/she is responsible for the initial notification to the District of the testing program, obtaining funds for testing, assigning of the Sampling Project Manager, requesting/enlisting the assistance from other District departments if needed, approving the District's <u>Quality Assurance Project Plan (QAPP)</u>, approving the Final Report for each school and coordinating with other District officials to make the results of the testing available to the public.
- The Project Manager is responsible for overseeing the execution of lead sampling at each of the
 District's schools. This involves the prioritization of schools to be sampled, and adherence with
 the District's <u>Sampling Plan</u> and QAPP. He/she serves as the liaison between the District, State
 agencies, local Health Departments, laboratories and public water systems (if applicable).
 He/she reports to the Program Manager.
- A Project Officer is assigned for each school. A Project Officer should be familiar with the school building layout and plumbing system.
- A Laboratory Manager certifies to the District that they have received, and will follow, the Sampling Plan and QAPP.

Who should be the School District Program Manager?

A District Administrator or someone in high authority that has access to grant funding and approval for the lead sampling project.

Who should be the Project Manager?

An individual that is readily available, extremely familiar with the functioning of the District, can report to the Program Manager, and is capable of performing <u>the role and responsibilities of the Project</u> <u>Manager</u>.

Can one person be the program manager, project manager, and project officer?

The District should consider the number of school facilities and volume of sampling required when establishing the amount of personnel to include on the sampling team. If it is a very small District with only a few school facilities, it is possible that one person can perform <u>the roles and responsibilities of the</u> <u>Program Manager, Project Manager, and Project Officer.</u>

PLUMBING PROFILE

Common Terminology:

Corrosive Water:

Corrosive water, sometimes referred to as 'aggressive' water, refers to the water's quality and potential to dissolve metals (i.e. lead) at an excessive rate.

Lead-Free:

As of 2014, the Safe Drinking Water Act (SDWA) establishes the definition for "lead-free" as a weighted average of 0.25% lead calculated across the wetted surfaces of a pipe, pipe fitting, plumbing fitting, and fixture and 0.2% lead for solder and flux. Further information is available at https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100LVYK.txt.

pH:

pH is a measure of the acidity or alkalinity of a solution.

Plumbing profile:

A plumbing profile details each school buildings' infrastructure including the types of plumbing materials, how water enters and flows through the building, and identification of drinking water outlets. A complete plumbing profile will assist in prioritizing sample sites, and with planning, establishing, and prioritizing remedial actions, as necessary.

Point of Entry (POE):

The location where the <u>service line</u> enters the building. In some cases, there may be more than one service lines entering the building, so be sure to identify all points of entry.

Point of Use (POU):

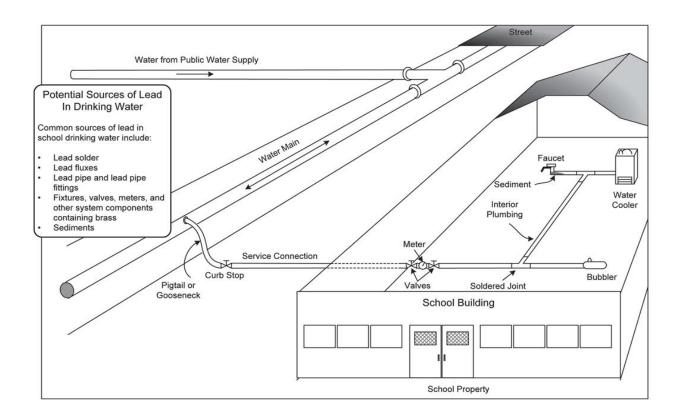
The point of use (POU) is the water outlet.

Potable Water Pipes:

Plumbing components (i.e. water pipes) that carry clean drinking water throughout the building.

Service Line:

The pipe that enters the building from the community public water system main or from the school facility's potable well. Below is a diagram example of the distribution system for schools served by a public water system.



Solder:

Solder is the melted metal compound used to fuse together two metal pipes.

FAQs:

What steps should a school take if there are no records of plumbing materials?

Contact the District's plumbing personnel, maintenance staff, and other individuals that may have been involved in plumbing repairs or replacements at that school in the past to assist in answering questions on the plumbing profile. Any plumbing infrastructure questions that cannot be answered should be identified on a <u>walk through of the school facility</u> by conducting an <u>on-site plumbing assessment</u>.

What is an onsite plumbing assessment and who should conduct one?

The onsite plumbing assessment is conducted at the school facility by District plumbing personnel, maintenance staff, or other experienced plumbing experts accompanied with an individual who is familiar with the school facility. The following should take place on an onsite plumbing assessment:

- 1. Identify the material of the <u>service line</u> at the <u>Point of Entry (POE)</u>.
- 2. Identify how the water flows in the <u>potable water pipes</u> throughout the school facility.
- 3. Identify the material of the <u>potable water pipes</u>.
- 4. Identify if <u>lead solder</u> is present in potable pipes.
- 5. Identify the material of the drinking <u>water outlets</u>.
- 6. Identify <u>if brass is used in the potable water plumbing</u> including drinking water fixtures, valves, and fittings.

What information should be included in a plumbing profile?

Information that the plumbing profile should include, but is not limited to is:

- 1. When the facility was built;
- 2. If there were any additions to the original building;
- 3. If there were any plumbing renovations;
- 4. If there were any recent plumbing repairs and replacements;
- 5. Was lead <u>solder</u> used;
- 6. The material of <u>the potable water pipes</u>;
- 7. The material of the <u>service line</u>;
- 8. Are there any <u>dead-ends</u> or <u>low-use areas</u>;
- 9. If there are any <u>electrical wires grounded to water pipes;</u>
- 10. If there is any water treatment installed;
- 11. If a <u>blueprint of the building</u> is available;
- 12. The flow of cold water throughout the building;
- 13. If there are any complaints about bad (metallic) tasting water.

A document to help school facilities complete a Plumbing Profile can be found at <u>NJDEP's Lead in</u> <u>Schools – Plumbing Profile</u>.

What should a completed plumbing profile look like?

An example of a completed plumbing profile can be found <u>here</u> and a full completed school package can be found at <u>NJDEP's Lead in Schools website</u>.

Is a Plumbing Profile required for each school facility?

Yes. A Plumbing Profile is required for each school facility including the faculty and administrative buildings. If there have been additions at a school facility, such as a gym, a separate Plumbing Profile may be necessary for that addition.

How do you identify the type of solder used?

- 1. Review maintenance and plumbing records. The Lead Ban instituted in 1986 banned the use of pipe, solder, or flux, in public water systems and plumbing in facilities providing water for human consumption that is not "lead free". Plumbing constructed prior to 1987 may contain lead content not considered "lead free".
- 2. Contact District plumbing personnel for help onsite identifying the plumbing and solder materials. USEPA has recognized that three lead test kits can be used to identify if solder contains lead. <u>https://www.epa.gov/lead/lead-test-kits</u>

How do you identify the material of the service line?

- 1. Contact District plumbing personnel for help in identifying the material of the service line.
- 2. If applicable, contact the community public water system that supplies the school to verify the material of the service line.
- 3. There are lead check swabs that can be used to help identify lead. This product can aide in detecting if a service line contains lead. For more information on Lead Swab products visit https://www.epa.gov/lead/lead-test-kits.

What is the effect of grounding electrical wires to water pipes?

Grounding electrical wires to potable water pipes can affect the <u>corrosivity of the water</u> and has the potential to increase lead in the water supply.

What makes water corrosive?

Some factors that contribute to the corrosivity of water include:

- An <u>acidic pH</u>
- Low Alkalinity
- High dissolved oxygen concentration
- High temperature
- Electrical Conductivity

What is an acidic pH?

An acidic pH is a low <u>pH</u> number on the pH scale of 0 to 14; an acidic pH number will be below 7 on the pH scale.

What is corrosion? What does corrosion have to do with lead in the drinking water?

Corrosion is the degradation of a material due to a reaction with its environment. Corrosion in <u>potable</u> <u>water pipes</u> causes the metal of the potable water pipes to wear and leach into the water. If the pipe and/or plumbing material contains lead, then lead can enter the drinking water due to the corrosion of the potable water pipe.

How much lead enters the water from potable water pipes?

The extent of lead that may enter the potable water supply is dependent on several factors, including, but not limited to, the <u>corrosivity of the water</u> and contact time.

Where might water treatment be located at a school?

Water treatment can be located at point of use (POU) or at the point of entry (POE).

How can the most recent plumbing repairs and replacements be identified?

Review the maintenance and plumbing records of the school for any plumbing repairs or replacements. Contact the District plumbing personnel and maintenance staff to inquire about the plumbing repairs, replacements, and renovations at the school.

What are plumbing dead-ends?

Areas where the piping ends and there is no recirculation of the water, so the water may remain stagnant in the pipe for extended periods of time.

What are low-use areas?

Areas where there is not frequent use of the water supply, causing the water to possibly remain stagnant in the pipe for extended periods of time. For example, if an athletic building is only used during the fall season then it would be considered a low use area during all other times of the year.

If the school's plumbing is covered with material containing Asbestos or the walls and

ceilings contain asbestos building material, how should the District handle this situation? NJDEP is <u>not</u> requiring or recommending that schools open asbestos material. An on-site plumbing assessment and plumbing profile should be used to determine the plumbing materials in contact with the asbestos. The District may opt to get trained personnel to determine/confirm materials. If any material is believed to be asbestos contact a contractor, who is trained to handle asbestos. Contact NJ Department of Labor at (609)633-3760 or <u>asbestos@dol.state.nj.us</u> to determine what state training and accreditation requirements may exist for both the contractor and their workers. (<u>https://www.epa.gov/sites/production/files/documents/asbestosfaqs_0.pdf</u>)

If a school facility has an automatic flush system installed at the school, what information about the automatic flush system should be included on the plumbing profile? Information to include, but is not limited to is:

- 1. How the automatic flushing system operates;
- 2. Is there an auto-flush maintenance program;
- 3. Is the auto-flush system lead free;
- 4. Does the local health department inspect the auto-flush system;
- 5. How does the District verify the reliability of the auto-flush system; and
- 6. Identify which drinking water outlets are flushed by the auto-flush system.

SAMPLING PLAN

Common Terminology:

Follow-Up Flush Sample:

Sample collection that represents the water that has been sitting motionless in the interior plumbing connecting to the water outlet. The Follow-Up Flush Sample is collected after flushing the drinking water outlet for a period of time. <u>How do we collect a Follow-Up Flush Sample?</u>

Initial First Draw Sample:

Sample collection that represents the first use/consumption immediately following the stagnation of least 8 hours. <u>How do we collect an Initial First Draw Sample?</u>

Pre-Stagnant Flushing:

Flushing of a school facility and/or a drinking water outlet that takes place immediately before the water remains motionless for at least 8 hours.

Sample Location Code:

A unique sample location code is assigned to each drinking water outlet. The code is an alpha numeric sequence that references specific information about the outlet as well as locational information of the outlet. For example, a sample location code of WHS-DW-1FL-RM25 could mean the water outlet is located at West High School (WHS), it is a drinking water fountain (DW), it is located on the 1st floor at Room 25. For additional examples of sample location codes, please visit <u>NJDEP's Lead in Schools – Sampling Plan</u> and review the Sampling Plan Template.

Sampling Plan:

The Sampling Plan is required by the Board of Education regulations and establishes a protocol for sampling lead at drinking water outlets used for consumption or food preparation in every school facility within the District. The data collected through the execution of the Sampling Plan will determine if immediate remedial measures are necessary and will assist in the prioritization of future water testing for lead in accordance with the Sampling Plan. A Sampling Plan Template is available at <u>NJDEP's Lead in</u> <u>Schools – Sampling Plan</u>.

Stagnant Water:

Water that has remained motionless.

Water Outlets:

Water outlets are fixtures in which water is delivered, such as faucets, fountains, food preparation appliances, etc. Ice Machines are also considered water outlets for this sampling initiative.

FAQs:

Who creates the Sampling Plan for the District?

The members of the <u>Sampling Team</u> are responsible for developing a Sampling Plan for the District.

Is a Sampling Plan required?

Yes.

What criteria may be used to prioritize schools in the District?

- The presence of lead plumbing or infrastructure as determined in the Plumbing Profile
- Age of the students
- Student population
- The use of the facility
- Past lead sampling test results

What school facilities should be sampled?

All school facilities in the District are required to be sampled, including faculty and administrative buildings, school athletic buildings, and school transportation buildings.

What is the timeline for sampling multiple school facilities in a District? For example, does the District have to sample all the school facilities within a week of each other?

There is no required timeline between conducting sampling at multiple schools within a District. However, all districts are required to test drinking water outlets as outlined in the Board of Education regulations in the designated Statewide testing year, which shall be every third year beginning with 2021 – 2022 school year and subsequently occurring in the 2024-2025 school year. The District should prioritize the school facilities to be sampled.

What water outlets should be sampled?

Every water outlet that is used for drinking or food preparation must be sampled. This includes:

- Kitchen faucets
- Food preparation faucets
- Drinking water fountains (indoors and outdoors)
- Water coolers (drinking water fountains with a chiller unit connected to the school water supply NOT supplied by bottled water)
- Sinks with bubblers
- Nurse's office sinks
- Teacher's lounge sinks
- Home economics sinks
- Ice machines

- Food and beverage preparation appliances that are directly plumbed into the water supply
 - o Kettles
 - Steamers used for food preparation
 - Soda dispensers
- Any other water outlet identified as being used for human consumption
 - Bathroom or classroom sinks that are being used to brush teeth and/or fill up water bottles
 - Water outlets being used to fill up athletic team jugs and/or used for drinking on athletic fields

Should eye wash stations be sampled?

Eye wash stations are not required to be sampled. According to cdc.gov, "bathing and showering should be safe, even if water contains lead over EPA's action level. Human skin does not absorb lead in water".

Should steamers used to cook food be sampled?

Steamers used to cook food should be sampled if connected to the school's plumbing system.

How should steamers be sampled?

There are two types of known steamers. The first is the stand alone (more common), which requires water to be poured into the reservoir (tray) located on the bottom of the steamer unit. To sample this type of steamer unit, identify which tap is used to fill the reservoir and then collect a cold water sample from that outlet.

The second type of steamer is a unit that is directly connected to a boiler, which EPA has not seen at a school. If your school facility has this set-up, contact the NJDEP Division of Water Supply & Geoscience's Lead Team at 609-292-2957 or at <u>watersupply@dep.nj.gov</u> for further guidance.

Only cold water should be used for drinking and food preparation.

What water outlets should not be sampled?

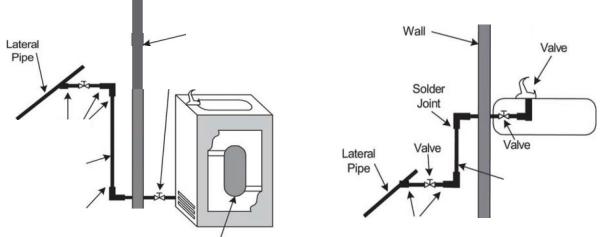
Do not sample non-drinking water outlets, such as bathroom faucets, hose bibs, showers, soak tubs, etc. unless the outlet has been identified as being used for consumption and/or food preparation.

If a drinking water outlet to be sampled is located in an area of the school facility where construction is taking place, does that outlet have to be sampled?

Yes; however, if the drinking water outlet is located in an area that has limited access and therefore is deviating from its normal use activity, then a <u>pre-stagnant flushing</u> should take place prior to the drinking water outlet being sampled.

What is the difference between a water cooler and a drinking water fountain bubbler?

A water cooler is connected to the drinking water supply plumbing and actively cools the water for drinking and has a reservoir that can consist of a small tank or a pipe coil. A drinking water fountain bubbler is connected to the drinking water supply and provides drinking water as needed; they can have a centralized chiller unit.



WATER COOLER

DRINKING WATER FOUNTAIN BUBBLER

Source: United States Environmental Protection Agency, 3Ts for Reducing Lead in Drinking Water in Schools

What is a sink with a bubbler?

A sink with a bubbler is a sink that has a bubbler attached. The bubbler on these fixtures should be where the water is drawn for sampling.



If students use the faucet to fill water bottles and the bubbler to drink from, which one should be sampled?

Both the faucet and the bubbler should be sampled.

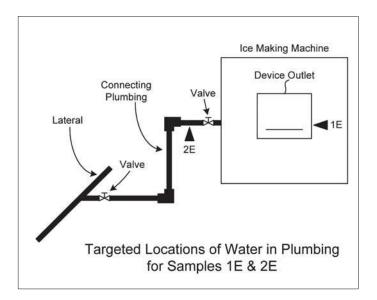
When sampling a water cooler that has a bottle filling station, do I sample the bubbler or the bottle filler?

Sample both the bubbler and the bottle filler to determine possible lead content in both.

How can an ice machine be sampled?

You can sample an Ice Machine two ways. The first way is by collecting ice cubes from the machine in a 250 ml or larger sample container using gloves or non-metal scoop.

The second way is by disconnecting the ice machine from the plumbing and look for a screen at the inlet and remove the screen. If debris is present, send a sample of any debris to the laboratory for analysis then clean off the remaining debris before sampling. Collect the sample from the disconnected plumbing as close to the ice machine as possible. If a tap or valve is available, collect the sample immediately after opening the tap or valve.



Source: United States Environmental Protection Agency, 3Ts for Reducing Lead in Drinking Water in Schools

What order should drinking water outlets be sampled?

The drinking water outlet closest to the <u>POE</u> must be sampled first then the closest drinking water outlet downstream of that outlet. Continue sampling downstream from the POE.

Why begin sampling at the water outlet closest to the <u>POE</u>?

To ensure the required water stagnation time is not compromised, so as not to draw water from other water outlets to be sampled.

When is pre-stagnant flushing required?

When the drinking water outlet to be sampled has recently deviated from its normal use. For example, if a drinking water outlet that is normally used every day is located in a portion of the school that is temporarily closed to students and staff, that drinking water outlet would require pre-stagnant flushing. Pre-stagnant flushing is used to mimic normal use of the drinking water outlet to accurately capture the content of lead during normal use patterns of the water outlet. If a school is closed to the students and staff for greater than 48 hours (i.e. holiday, vacation, etc.) then a <u>school wide systematic pre-stagnant flushing</u> would be required.

What is a school wide systematic pre-stagnant flushing?

The school's water outlets will be flushed in a matter to stimulate normal water use activity at least 8 hours prior to sampling the drinking water in the school. See Section 8 Sampling Procedures in the Sampling Plan Template for reference on how to conduct a school wide systematic pre-stagnant flushing. The Sampling Plan Template is available at NJDEP's Lead in Schools – Sampling Plan.

How does a District document if they performed pre-stagnant flushing?

Maintain a flushing log that includes which sample locations were flushed, the duration of the flush, the date they were flushed, and the reason why pre-stagnant flushing was necessary. Also document if

school wide systematic flushing was necessary on the flushing log. A flushing log is available at <u>NJDEP's</u> <u>Lead in Schools – Preparing to Sample</u>.

Why does water have to be <u>stagnant</u> to sample?

The amount of lead leached into water is partially dependent on contact time with the plumbing materials. Therefore, allowing water to be stagnant for a minimum of 8 hours mimics typical operations/use of the water remaining stagnant overnight when the school facility is not occupied.

What is the proper amount of stagnation time?

The water must remain motionless within the school's plumbing for a minimum of 8 hours and a maximum of 48 hours before sampling.

When can a school facility be sampled?

A school facility can be sampled at any time that the <u>proper stagnation time</u> has been allotted. For example, the school facility can be sampled on the weekend, on a day the school is closed, first thing in the morning before the school opens, etc. However, a school facility should take normal use into consideration and not sample when the school has been closed for an unforeseen extended period of time.

Keep in mind to meet the requirements of the Board of Education regulations, sampling must be conducted during the designated Statewide testing year.

If a school facility has an <u>automatic flush system</u> installed at the school, when should the school collect samples, before or after the auto-flush?

If the school has outlets to be sampled that are flushed with the auto-flush system and outlets that are not flushed with the auto-flush system, all outlets should be sampled prior to the auto- flush. It is recommended to also collect samples, at a later date, after the auto-flush units flushed as well. If all outlets are flushed with the auto-flush system, all outlets should be sampled after the auto-flush. This will be representative of normal water use.

If a school facility is located in a leased building and only occupies some of the building, does the District have to conduct sampling on all the drinking water outlets in the entire leased building?

No, collect the samples from the portion of the building that is being occupied by the school's students and staff after the stagnation period. The District should communicate with the landlord and let him or her know about the lead in drinking water sampling program and explain the sampling protocol and that stagnation time is required.

Where can I find NJ certified laboratories?

NJ certified laboratories can be found at

<u>https://www13.state.nj.us/DataMiner/Search/SearchByCategory?isExternal=y&getCategory=y&catNam</u> <u>e=Certified+Laboratories</u>.

What are immediate remedial measures?

Immediate remedial measures include taking a drinking water outlet out of service and making an alternate source of drinking water available, if necessary. If the District elected to sample non-drinking

water outlets, posting 'Do Not Drink; Safe for Handwashing Only' signs at these water outlets is acceptable. According to State Board of Education regulations N.J.A.C.6A:26-1.2 and 12.4, Districts are required to remove all drinking water outlets that have an elevated result.

What is the difference between sampling at the outlet closest to the <u>Point of Entry (POE)</u> and sampling at the POE <u>service line</u>?

A sample at the POE service line will capture the lead content in the source water that has been in contact with the school facilities' service line material for the stagnation time of at least 8 hours and will aide in investigating if the source of lead is possibly the service line. A sample from the drinking <u>water</u> <u>outlet</u> closest to the POE will be representative of the water being consumed at that drinking water outlet.

How to sample the outlet closest to the **Point of Entry (POE)**?

An <u>Initial First Draw</u> sample at the <u>POE</u> outlet will capture the water that has remained in contact with that drinking water fixture, a <u>Follow-Up Flush</u> sample from the POE outlet will capture the water in the interior plumbing immediately preceding the fixture.

What is the sampling procedure if the school facility has residential students/staff, such as a hospital care or rehabilitating care for housing special needs students?

The plumbing infrastructure of the school facility must be evaluated to see how the District can best capture first draw water samples at drinking water outlets following a stagnation time that would likely result in the longest standing time. These sampling procedures should be spelled out in details in the District's Sampling Plan.

Drinking Water Outlet Inventory

Common Terminology:

Drinking Water Outlet Inventory:

A Drinking Water Outlet Inventory is a list of all the drinking water and food preparation outlets in each school facility to be sampled. The Drinking Water Outlet Inventory should include specific information for each drinking water outlet, including: type, location, sample location code, if it is operational, if there are signs of corrosion, if it has a filter, if is brass, if it has an aerator/screen, if it is motion activated, if it has a chiller unit, and the make and model if it is a drinking water fountain or water cooler. The Drinking Water Outlet Inventory form is available for Districts to utilize.

Filter Inventory:

A list of filters present on drinking water outlets to be sampled. The Filter Inventory should include the location of the filter, the make and model of the filter, the date the filter was installed, the replacement frequency of the filter, if the filter can remove lead, and if the filter is NSF certified. The Filter Inventory form is available for Districts to utilize.

FAQs:

Do all the drinking water outlets to be sampled have to have a unique <u>sample location code</u> assigned?

Yes, so that the District can identify each single sample location and carry out any necessary remediation measures.

Where can I find the EPA Water Cooler Recall List?

Certain makes and models of water coolers were manufactured with lead-lined tanks and were recalled in 1990. A list of the recalled water coolers can be found in the EPA 3T's document, and at http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=30005UPU.txt .

What makes a drinking water outlet "permanently not operational"?

An outlet that is no longer in service and the school plans to remove, or replace it. If the outlet is replaced, the replaced outlet will need to be sampled after installation.

What makes a drinking water outlet "temporarily not operational"?

An outlet that is not currently in service (maybe due to necessary repairs) but the school plans to put the outlet back into service at a later date, at which time that outlet will be sampled.

What are signs of corrosion?

Not all signs of corrosion are visible but some visible signs consist of frequent leaks, rust-colored water, or stained fixtures, dishes, or laundry.

Is there anything that can be done to drinking water outlets that display signs of corrosion?

The District can contact their plumbing personnel and/or maintenance staff to identify the source of the corrosion and conduct repairs so the water outlet can be sampled. These drinking water outlets either have to be repaired and sampled, replaced and sampled, or taken permanently out of service.

Why is a **<u>Filter Inventory</u>** needed?

The Filter Inventory provides a document to assist the District when evaluating sample results and determining appropriate remedial measures. For example, if there is an elevated result the District can refer to the Filter Inventory to see if there is already a filter installed on the outlet and see details about that filter, such as when it was installed and when it is due for a replacement. Using this information, the District can determine appropriate next steps.

What if the installation date of the filter on a drinking water outlet is unknown?

If you are unable to identify the date a filter was installed at a water outlet, assume the worst case scenario and document "Unknown" on <u>the Filter Inventory</u>.

How can you identify if a filter is NSF certified?

If the writing on the filter does not indicate that the filter is NSF certified, visit the NSF website at http://www.nsf.org/certified-products-systems to search certified products. You can also use this resource to identify lead-free potable products, such as faucets.

Why is identifying the presence of brass important when sampling for lead in drinking water?

Brass products contain alloys with less than a weighted average of 0.25% lead calculated across the wetted surface. The degree of lead that is leached into the water from brass material is dependent on the <u>corrosiveness of the water</u>. Older brass faucets may contain higher percentages of lead in their interior construction and may pose contamination problems. For additional information about lead-free components, see <u>"lead-free"</u> definition.

How can lead content be identified in brass fittings, valves, plumbing, or fixtures?

The District can use Lead Check Swabs (<u>https://www.epa.gov/lead/lead-test-kits</u>) to detect lead content in brass fittings, valves, plumbing, or fixtures. The District should also take into consideration the age of the building, the age of the plumbing infrastructure including faucets and fixtures, and when/where plumbing repairs were conducted.

How do you know if a drinking water outlet has an aerator/screen attached?

The aerator or screen is located at the tip of modern indoor water faucets and usually can be removed by simply screwing it off. The aerator/ screen should not be removed for lead sample collection.

FLOOR DIAGRAM

Common Terminology:

Floor Diagram:

A schematic of the building that identifies the POE(s) of the building, all drinking water outlets, and indicates the flow of water throughout the building. Check <u>here</u> for an example of a Floor Plan.

FAQs:

Who should complete the Floor Diagram?

A Project Officer should complete the Floor Diagram during the <u>Walk Through</u> for the <u>plumbing profile</u> of the school.

Are actual Blueprints of the school facilities required?

No, a Fire Plan map of the facility or a drafted schematic of the facility will be sufficient to use for creating the Floor Diagram.

WALK THROUGH

Common Terminology:

Walk Through:

When members of the team physically inspect the school facility. There are three team members identified within the NJDEP's technical guidance.

1. Plumbing Profile Walk Through

Confirm the plumbing materials and identify drinking water outlets in each room in the school facility. All areas of the facility, including, but not limited to, classrooms, offices, bathrooms, kitchens, and recreational areas should be visited and observed. Any leaks or other observations should be documented.

- Floor Diagram/ Drinking Water Outlet Inventory Walk Through Complete the floor diagram and <u>Drinking Water Outlet Inventory</u> in the school facility. <u>An onsite assessment of each drinking water outlet</u> in the school facility is to be performed with findings and observations properly documented.
- 3. <u>Sampling Event Walk Through</u> Prior to the beginning of the stagnation time, conduct a Walk Through of the facility to make sure that no water outlets are running and the no other personnel are present. Prior to collecting samples on the sampling event day, conduct another Walk Through of the

facility to make sure no water outlets are running and no other personnel are present. This ensures that the water stagnation time has not been compromised.

FAQs:

Who goes on the Walk Through?

The Project Officer and school maintenance staff should be present on each of the Walk Throughs to provide information on the specific school's <u>drinking water outlet inventory</u> and usage. If additional information is required from the school's staff, the Project Officer should contact the necessary school staff to retrieve the information.

What is an onsite assessment of drinking water outlets?

An onsite assessment of drinking water outlets is conducted during the Walk Through of the facility and each water outlet is identified and assessed. During the assessment, the required information for the <u>Drinking Water Outlet Inventory</u> is recorded.

What actions should be taken if a drinking water outlet is identified as not operational? During the Walk Through for the <u>Drinking Water Outlet Inventory</u>, the drinking water outlets should be turned on and assessed. If a drinking water outlet is found not to be operational then that should be documented on the Drinking Water Outlet Inventory. If the water outlet is <u>temporarily not operational</u> and can be repaired prior to the sampling event, then it should be repaired and sampled; however, if the water outlet cannot be repaired prior to the scheduled sampling event, then it should be repaired and sampled at a later date. If the District decides to take the drinking water outlet out of service permanently then it should not be sampled and should be decommissioned.

Quality Assurance Project Plan (QAPP)

Common Terminology:

QAPP: A QAPP is a plan established to ensure the quality and efficiency of a project.

FAQs:

What is the purpose of a QAPP?

A QAPP provides the District with a high level of confidence in the sampling results by ensuring that all the sampling procedures, analytical methods, and Quality Assurance Control measures have been followed.

Who needs to be involved and agree to the QAPP?

All parties involved in the sample collection and analysis of the lead in drinking water sampling program are required to read, sign, and agree to follow the procedures described in the QAPP. This includes District staff, all laboratories, and any other contracted services.

What should the QAPP include?

The QAPP must include a listing of all the parties involved in the sampling and analysis of the lead in drinking water sampling program, the sampling procedure, and the analytical methodology required. The QAPP Template is available at http://www.nj.gov/dep/watersupply/dwc-lead-schools.html.

If multiple laboratories are involved in the lead sampling at a District, is a new QAPP required for each laboratory?

The QAPP template provided on <u>NJDEP's Lead in School website</u>, provides an additional page to allow for more than one laboratory to sign agreeing to follow the sampling procedures, analytical methods, and Quality Assurance Control measures established by the District. Therefore, one QAPP can be sufficient even if multiple laboratories are involved in the sampling and analysis.

If the laboratory cannot accommodate all the samples and needs to send samples to another certified lab to be analyzed, is a new QAPP required?

The same QAPP that the first laboratory signed can be used for the additional laboratory. The new laboratory would be required to sign the same QAPP on the additional space provided on the NJDEP's QAPP Template. By signing the QAPP, the new laboratory agrees to follow the sampling procedures, analytical methods, and Quality Assurance Control measures established by the District.

Is a new QAPP required for additional sampling events?

If a second sampling event is scheduled to take place and the District is using the same parties that previously signed the QAPP, a new QAPP is not necessary as long as the sampling procedures described within the QAPP have not changed.

What information should the laboratory provide the District?

The laboratory report should include, at a minimum, completed columns on the Excel Template for Lead Results located at <u>NJDEP's Lead in Schools – QAAP</u>. The results must be reported in micrograms per liter or part per billion, and to three significant figures.

What analytical methods can the laboratory use to analyze the lead samples? The NJ Certified laboratory can use any USEPA approved lead analysis method for drinking water listed

in the <u>NJDEP Guidance for Lead and Copper-Approved Analytical Methods and Reporting Requirements</u>.

PRIOR TO SAMPLING

Who should be notified of the lead sampling in a school building?

Staff, students, and parents/guardians should be notified prior to the sampling event at a school facility. A letter template is available <u>here</u>.

How can a District ensure that the water in the school building is stagnant for 8-48 hours?

Notify school staff of the times that access to the school will be prohibited to allow for the proper stagnation time. The District can also require the last staff person to leave the school facility prior to stagnation to document in writing that no one was in the school facility after a specific time. Signs should be posted at the school facility including information about the scheduled lead in water sampling event.

When should irrigation sprinkler systems be turned off?

Irrigation sprinkler systems should be turned off prior to the stagnation time for sampling.

Why should motion activated sensor outlets be turned off prior to stagnation time for sampling?

To ensure that they are not accidentally activated and negatively impact the stagnation period. For example, if a school facility has motion activated sinks and during the walk through to verify that there is no running water in the facility, the motion activated sink is activated compromising the <u>stagnation</u> <u>time</u>.

SAMPLE COLLECTION/ SAMPLING EVENT DAY

Common Terminology:

Field Blank:

A field blank is <u>ASTM Type 1 reagent water</u> that is prepared in the actual sample containers in the sampling environment and is kept with the samples throughout the sampling event.

FAQs:

Who should be present during the sampling event?

The Project Officer, the Sample Collector, and someone who is familiar with the school building and holds keys or means to access all of the rooms in the facility.

What if a water outlet is found to be running prior to sampling on the sampling event day?

<u>Do not</u> proceed with sampling and reschedule the sampling event because the sampling environment has been compromised and the <u>proper stagnation time</u> has not been met.

What if a toilet is flushed prior to sampling on the sampling event day?

<u>Do not</u> proceed with sampling and reschedule the sampling event because the sampling environment has been compromised and <u>the proper stagnation time</u> has not been met.

What sampling procedures should we follow if the school has more than one <u>service line</u> and the water from the sources have no capability to blend under normal operations? Locate where each service line enters the school facility, create a separate Floor Diagram for each service line displaying only the areas that are serviced by that service line, and create a separate <u>Drinking Water Outlet Inventory</u>. Separate <u>Floor Diagrams</u> are necessary to clearly see the flow of water from that service line and understand which water outlets are supplied by that service line. The sampling order of drinking water outlets will follow <u>the same sampling procedures as school facilities</u> with one POE.

What should be the order of sampling if the school has more than one <u>service line</u> and the water from the service lines are blended?

Locate where each service line enters the school facility and the point at which they are blended. If the water is blended prior to entering the school's distribution system, then proceed with the standard order of sampling beginning at the drinking water outlet closest to the blending point of entry and continue sampling moving away from the blending point. If the point that the two service lines blend is located within the distribution system, document the direction the cold water flows throughout the building and sample from all drinking water outlets serviced by each service line moving downstream as best as possible. Begin sampling at the closest downstream water outlet to one service line and follow the flow of water going downstream from the service line. When you reach the point that the two service lines.

What if an outlet does not work when the Sample Collector turns on the outlet to collect the sample?

Document on the Chain of Custody that the outlet did not work, arrange to have the outlet repaired and sampled or permanently decommissioned.

What kind of sample containers should be used to collect the water sample for lead testing? 250 ml <u>pre-cleaned</u> HDPE wide mouth bottles must be used to collect water samples for lead testing.

What does "pre-cleaned sample containers" mean?

When a sample container is certified pre-cleaned it reduces the likelihood that the bottle does not contribute to the analytical result. For example, the sample container bottle can be certified to be <0.05ppb, which is below the lead action level of 15ppb, so the sample results are confident and not questionable. EPA (OSWER Directive 9240.0-05A) document "Specifications and Guidance for Contaminant-Free Sample Containers" provides information on "pre-cleaned" and is available at https://nepis.epa.gov.

What kind of gloves should be used to collect samples?

Non- colored latex or nitrile disposable gloves should be worn when collecting samples. A fresh pair of gloves should be worn for each drinking water outlet that is sampled.

What actions should be taken if the water is discolored during sample collection?

When it is observed that the water is discolored during sample collection, do not collect and analyze that sample. Document on the Chain of Custody that the water was discolored and the drinking water outlet was not sampled. The drinking water outlet should be repaired and sampled at a later time or taken permanently out of service.

How open should the outlet be when collecting a water sample?

The stream of water from the outlet should be similar to when filling up a glass of water.

How do we collect an Initial First Draw Sample?

Wearing gloves, collect the first 250ml of water that has remained motionless in the drinking water outlet for a minimum of 8 hours and a maximum of 48 hours in a <u>pre-cleaned</u> 250ml wide-mouth sample container. For detailed instructions, see <u>How to Collect Samples</u>.

How do we collect a Follow-Up Flush Sample?

Wearing gloves, allow the water to run for 30 seconds at a drinking water outlet that does not have a chiller and allow the water to run for 15 minutes at a drinking water outlet that does have a chiller, before collecting a sample of water in a <u>pre-cleaned</u> 250ml wide-mouth sample container. For detailed instructions, see <u>How to Collect Samples</u>.

How long should a drinking water outlet be flushed for before collecting a Follow-Up Flush Sample?

All water outlets, except water coolers with a chiller unit, should be turned on and allowed to run for a timed 30 seconds before capturing a Follow-Up Flush Sample. A water outlet with a chiller, see <u>"How</u> long should a water cooler with a chiller unit be flushed before collecting a Follow-Up Flush sample?"

How long should a water cooler with a chiller unit be flushed before collecting a Follow-Up Flush Sample?

A water cooler with a chiller unit should be turned on and allowed to run for a timed 15 minutes before collecting the Follow-Up Flush Sample.

Why do water coolers with a chiller unit have to be flushed for 15 minutes before collecting the Follow-Up Flush Sample?

A water cooler with a chiller unit has a bladder that holds chilled water, by allowing the water cooler to run for 15 minutes the bladder is emptied and the water that flows after is representative of the interior plumbing. The results of this Follow-Up Flush Sample will investigate if the potential source of lead is coming from the interior plumbing.

Can the aerator be cleaned prior to collecting the <u>Follow-Up Flush Sample</u>?

Do not clean the aerator prior to collecting the Follow-Up Flush sample. The lead sampling is an investigation, only one variable should be changed at a time so that the school facility has the ability to clearly identify what is the source of lead contamination and what remediation measure will be effective. If the <u>Initial First Draw sample</u> and the Follow-Up Flush sample has been taken, then another sample can be taken after the aerator has been cleaned to identify if the aerator contributed to the lead contamination.

What is ASTM Type 1 reagent water?

ASTM Type 1 reagent water is highly purified water provided by the laboratory.

What is the purpose of a field blank?

The purpose of the field blank is to assess the potential for sample contamination in the field.

Are the sample results invalid if a field blank was not taken?

The District should consult with the hired NJ Certified Laboratory if the analytical method and their procedures require a field blank.

Where do I get the field blank?

The field blank <u>ASTM Type I reagent water</u> is provided by the NJ Certified Laboratory.

How do I prepare the field blank?

The field blank is prepared by pouring the <u>ASTM Type I reagent water</u>, obtained from the certified laboratory, into a 250 ml sample bottle. This bottle should be labelled as "field blank" with date and time collected and the school name. This information should also be recorded on the chain of custody just like all other samples collected. Additionally, see <u>"Do I have to prepare the field blank prior to beginning my sampling?"</u>

Is the field blank necessary? How would a field blank be susceptible to lead contamination by just pouring the reagent water from one bottle into another?

Yes, the field blank is necessary. There are many ways a sample can become contaminated during sample collection and handling. Lead is found in ambient soil and dust due to past use of leaded gasoline and paint, so contamination is always a concern. The field blank is a way to identify any such contamination that could bias the sample results.

Do I have to prepare the field blank prior to beginning my sampling?

The field blank can be prepared at any time in the sampling environment during the sampling event. If is recommended to prepare the field blank prior to collecting the first sample to ensure that the preparation of the field blank is not forgotten.

If the District is sampling multiple school facilities on the same day is only one field blank sufficient?

No, a field blank should be prepared at each school facility that is being sampled to assess any potential contamination.

Why is only cold water used for sample collection?

Cold water is typically used for drinking and food preparation. Therefore, by collecting cold water samples you more accurately capture a representative sample of what is typically consumed. Hot water is more <u>corrosive</u>, and should not be used for consumption.

What is the difference between Same Day Sample Collection and Different Day Collection Methods?

The difference between the two sample collection methods is when the <u>Follow-Up Flush Sample</u> is collected. The Same Day Sample Collection method requires the Follow-Up Flush Samples to be collected on the same day as the <u>Initial First Draw Sample</u>. The Different Day Sample Collection method requires the Follow-Up Flush Sample to be collected on a different sampling event day than the Initial First Draw Sample in which all the pre-stagnation procedures will have to occur again.

Which sample collection method should a District conduct, the <u>Same Day or Different Day</u> <u>Sample Collection Method</u>?

The District can choose the sample collection method that is convenient for them and their situation. However, the NJDEP does recommend different day sample collection if possible.

POST SAMPLING EVENT

If both the Initial First Draw Samples and the Follow-Up Flush Samples are collected on the same day, can the School hold the Follow-Up Flush Samples until they receive the sample results for the Initial First Draw Samples?

No, both the Initial First Draw Samples and the Follow-Up Flush Samples must be transported to the laboratory. However, the District can request the lab not to analyze the Follow-Up Flush Samples unless directed by the District.

Under what conditions must a sample be stored?

The District should discuss sample storage condition needs with the NJ Certified laboratory they hired to conduct the analysis of their samples. The sample storage conditions vary depending on the method of preservation the laboratory institutes.

DATA REVIEW

When are Follow-Up Flush Samples required?

Follow-Up Flush Samples are required if the Initial First Draw Sample result is greater than the <u>lead</u> <u>action level</u>.

What is considered above the lead action level?

If a result for a sample is greater than or equal to 15.5 ppb, it is greater than the lead action level.

Why is the <u>applicable lead action level</u> different from EPA 3T's 20ppb?

Some schools have their own well and are considered to be public water systems; therefore, they have to comply with the Federal Lead and Copper Rule under the Safe Drinking Water Act, which establishes a lead action level of 15 ppb. To be consistent, the Board of Education regulations refer to the action level within the Safe Drinking Water Act. There is no safe level of lead, the lead action level is a level that requires action to be taken and is not health based.

If the sample result is greater than the lead action level, does the District have to install a filter?

The immediate remedial action required after an exceedance of the lead action level is to remove the water outlet from service. The District should review all the data results and plumbing profiles before deciding on remediation measures. Depending on the data and the plumbing profile some remediation measures may not be efficient at reducing the lead levels, so it is important to evaluate these documents before deciding on remediation measures. For additional guidance on selecting remedial treatment measures, visit <u>NJDEP Lead in School Website</u>.

Do low sample results mean there is no lead in the school facility's plumbing system? Low sample results do not mean that there is no lead in the school facility's plumbing system. The plumbing profile should be thoroughly completed to inform a District if there is a presence of lead material in the school facility's plumbing system. Results for the <u>Initial First Draw samples</u> at a school facility that has lead in the school plumbing may be low because that sample is only representative of the water sitting in contact with the fixture and the fixture may contain no or limited lead, but the interior plumbing may contain lead. For additional information, see <u>Drinking Water Best Management</u> <u>Practices For Schools and Child Care Facilities Served by Municipal Water Systems</u>.

If the school facility has lead plumbing/<u>solder</u>, does that mean it is going to have samples greater than 15ppb?

No, the lead content in water that has been in contact with lead plumbing or solder can vary due to many factors, including: length of contact time, corrosiveness of the water, and conditions of the plumbing infrastructure.

IMMEDIATE REMEDIAL MEASURES

What drinking water outlets should be taken out of service?

Drinking water outlets that have an elevated sample result greater than the <u>lead action level</u>, must be removed from service until permanent remediation is taken.

When should a District post "Do Not Drink; Safe for Handwashing" signs?

If the District chose to sample water outlets that are not drinking water outlets and the non-drinking water outlet has a sample result greater than the lead action level, it is recommended to post a "Do Not Drink" sign on the water outlet until permanent remediation is taken.

PUBLIC NOTIFICATION

When should the public be notified of the sample results?

Within 24 hours of reviewing and verifying the final laboratory results, the District shall (1) make the test results of all water samples publicly available at the school facility(ies) and on the District's website and (2) if any results exceed the <u>lead action level</u>, the District shall provide written notification to the parents/guardian of all students attending the facility, facility staff, and the Department of Education. This written notice shall also be posted on the District's website.

What should be included in the written public notification when the lead action level is exceeded?

- The required written notification shall include a description of the following:
 - Measures taken by the District to immediately end use of each drinking water outlet where water quality exceeds the lead action level;
 - Any additional remedial actions taken or planned by the District;
 - Measures taken to ensure that alternate drinking water has been made available to all students and staff members at the facility(ies) where the water outlet(s) is located; and
 - Information regarding the health effects of lead.
- A template letter for public notification is located at <u>NJDEP's Lead in School Public Notification</u>.

How should the public be notified?

- The District shall make the test results of all water samples publicly available at the school facility(ies) and make the most recent required statewide testing available on the District Board of Education's website.
- If any of the results exceed the lead action level, the District shall provide written notification to the parent/guardians of all students attending the facility, facility staff, and the Department of Education (DOE).
- Additionally, in November 2019, the DOE launched a <u>webpage containing summaries of test</u> results to provide community members with access to a database containing information regarding the results of lead testing in NJ school districts, charter schools, and other entities covered by the DOE's safe drinking water act rules at N.J.A.C.6A:26-12.4.

NEXT STEPS

Is follow up testing necessary after replacement of any drinking water outlet or any other alteration to plumbing or service lines that may impact lead levels at the outlet? The District shall sample for lead after the replacement of any drinking water outlet or any other alteration to plumbing or service lines that may impact lead levels at the outlet.

How frequently does lead sampling in school facilities have to occur?

In accordance with the Board of Education's regulation, all districts shall continue to test drinking water outlets as outlined in N.J.A.C.6A:26-12.4 by June 30 of the designated statewide required testing year, which shall be every third year beginning with the 2021 – 2022 school year and subsequently 2024-2025 school year.