

## **Water Filtration and Testing Protocol**

**9/28/2017**

The Deputy Mayor for Education (DME) manages, with support from the Deputy City Administrator, the Water Filtration and Testing Protocol on behalf of the District of Columbia. The Water Filtration and Testing Protocol is implemented by the Department of General Services' (DGS) Environmental Health and Safety Unit (EHS) at District of Columbia Public Schools (DCPS) and the Department of Parks and Recreation (DPR) facilities. The District's Department of Energy and Environment (DOEE), the U.S. Environmental Protection Agency (EPA), and DC Water collaborate with program oversight and guidance.

The protocol will be reviewed annually to ensure that it reflects the most recent technological and scientific information available. The content of this protocol was developed by DGS, DCPS, DME, and the Office of the Deputy City Administrator to implement a program to minimize lead in drinking water in DGS maintained facilities. The contents of this protocol may be modified and reproduced for independent agencies. This document may not be used in any form for sale or unauthorized distribution.

### **General and Reference Material**

DGS has inventoried and installed filters on drinking water sources specifically identified by school leaders and DPR managers including all water fountains and water coolers and all sinks in break rooms, ECE classrooms, and health suites in DCPS buildings and DPR recreation centers. All installed filters have been tested to ensure the filters are effectively reducing lead in water to below actionable levels.

Guidance and best management practices used in the implementation of the protocol include, but are not limited to, those listed in Appendix A.

### **Purpose**

The purpose of this protocol is to provide a detailed description of the water filtration and testing implemented by DGS and its contractors to ensure consistency in the practices and procedures to minimize lead in drinking water. This is accomplished through a standard protocol and procedure developed based on U.S. Environmental Protection Agency (EPA) guidance and best management practices, as well as recommendations from the American Academy of Pediatrics (AAP).



## **Actionable Levels and Definitions**

The Childhood Lead Exposure Prevention Amendment Act of 2017, DC Code 22-0125 (the Act) sets the actionable level of lead at less than 5 parts per billion (ppb) in drinking water sources. If a level of lead in water is found to be above the actionable level, corrective action must be taken immediately. Additionally, actions are taken to reduce the level of concentration of lead in water from the source to below the actionable level before the water source can be used.

The Water Filtration and Testing Protocol, in accordance with the Act, mandates that corrective action must be taken for any drinking water source that has a lead in water concentration level that exceeds 5 ppb in DCPS and DPR facilities. The District's goal is to achieve less than 1 ppb in drinking water sources in DCPS and DPR facilities.

The Act defines a drinking water source as "a source of water from which a person can reasonably be expected to consume or cook with the water originating from the source".

All replacement devices and required plumbing components must be in accordance with the Reduction of Lead in Drinking Water Act of 2011. Filter selection is dependent on the device type and size.

## **Water Sample Collection Plan**

The Water Sample Collection Plan describes the specific task elements and activities, field and laboratory methods, data assessment, and reporting procedures to be followed for water quality monitoring during water testing and device remediation.

1. Water Testing and Device Identification
  - a. DGS will conduct testing of DCPS facilities during the school year and testing in DPR facilities during months of operation. Annually, a certified professional will collect samples from filtered devices in all DCPS and DPR facilities.
  - b. As new schools or recreation facilities are added to an agency's inventory and when school renovations are completed identified drinking water sources in the facility or portions of the facility will be inventoried, have filters installed, and will be tested according to this protocol.
  - c. For DGS maintained facilities a DGS representative, with the assistance of the environmental consultant, will photograph all identified water sources, label all identified sources with a unique bar-coded identifier, and enter all identifying data into the DGS Salesforce Water Testing Application. This program will track all activity and history associated with each source.

## 2. Water Sample Collection Event Preparation

- a. Prior to testing, water should not flow through the device for at least six (6) hours but not more than 18 hours unless typical use of the device is infrequent. Sampling of water sources in a facility are to be completed annually.
- b. DGS, in collaboration with an environmental consultant, will coordinate to establish testing schedules. DGS and their consultants will use provided master keys and applicable early entry information to complete testing. The consultant is responsible to ensure the integrity of the collection sample, including certifying that water has not flowed through the device for the appropriate period prior to testing. The head custodian or facility logistics personnel, at the instruction of the environmental consultant, is asked to assist in preventing anyone from using the identified source prior to the sampling and to ensure that each identified source is ready for sampling on the morning of water collection. To collect a representative sample, drinking water is only collected on days following normal operation days, therefore, Sundays, Mondays, and days after holidays are not typically used for collection,
- c. The environmental consultant will generate a chain of custody using the Salesforce Water Testing Application and labels with the unique sample identification number assigned in the application. Note: first and second draw sample bottle labels are automatically generated and associated to the water source ID, by the Water Testing Application for accurate association and reporting of results for that device.

## 3. Collection of Water Samples

- a. All sampling will be performed by a MDE (Maryland Department of the Environment) certified water sampler<sup>1</sup>. Prior to a sampling event the environmental consultant shall visit a facility to ensure all devices are operational.
- b. Laboratories used for testing lead in water must be certified and capable of a detection limit of 1 ppb and electronic file response. Results must be delivered to the agency within a reasonable amount of time without hold or as designated in the contract.
- c. Each filtered device will be tested using two (2) 250-milliliter non-preserved wide mouth polypropylene bottles which have been cleaned and acid washed for sample collection. The certified water sampler collects a sample from first stream/flow of water at each device, or “First draw.” After the first draw sample is

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<sup>1</sup> To ensure the integrity of the water tests DGS is requiring personnel collecting samples to be certified in water collection. The District of Columbia does not provide such a certification.

collected, the tap remains discharging for a full 60 seconds. The certified water sampler then collects another sample, known as the “2nd Draw”. This 2nd draw sample aids in further identification of potential lead sources.

- d. The label with the ID number is attached to the bottle. The identifying digits of the ID number are written on the bottle cap.
  - e. Once sampling is complete the occupants can return to water use during the initial testing. Devices are tagged out and shut off if lead in water is found to be above the actionable level and remediation is required. During remediation, devices will remain tagged out and shut off until water testing results show lead below actionable levels.
  - f. After all water samples are collected at a location, a quality control check is performed by an agency representative or an environmental consultant supervisor to ensure the correct representative samples of the water sources have been tested, samples are correctly identified, and the chain of custody paperwork is accurate.
  - g. The samples, along with a chain of custody, are delivered to a certified drinking water laboratory with use of storage containers for reduction of risk of damaging during transportation. Samples can be held (within applicable holding times) or grouped together for logistical purposes during mass filter installation phases. In addition, where multiple facilities have a low number of samples to collect, samples can be submitted once all collection is complete. This allows for significant reduction of paperwork and transportation.
4. DGS final laboratory analysis results:
- a. An electronic file of the lab results is emailed to the DGS representative. The file is uploaded into the Salesforce Water Testing Application.
  - b. After the quality control process at the lab, a final copy of the lab results with all required signatures is emailed to the DGS representative.

### **Remediation Procedures and Communication**

5. Upon receipt of a water test result in which the level of lead is greater than the actionable level of less than 5 ppb, devices will be shut off and “tagged out” within 24 hours of receiving an actionable result and occupant use prohibited in a practical manner (shutting off both cold and hot water supplies where applicable).
  - a. Tag Out Procedure
    - i. Any water source with a test result above the actionable level will be shut off and tagged out at the device by DGS within 24 hours of receipt of test

results. If at any time a device is discovered to have the water supply operable after initial tag out but prior to test results below actionable level, the water is to be turned off immediately. This tag also serves as a notification to consumers not to drink water from the device. The tag includes:

- Both written and visual notification in contrasting colors.
  - Contact information for DCPS or DPR staff
- ii. When the tag is placed a unique DGS identification number and the name of person applying the tag is entered onto the tag. The water supply is shut off or checked to ensure that the water supply remains shut off during remediation. A second signature is entered when the tag is verified to be correct and the device remains out of service.
  - iii. The tag is only to be removed by a DGS representative after receipt of test results that demonstrate concentrations of lead less than the actionable level. Water is run through the device when it is returned to service to ensure proper operation.
  - iv. DGS will notify DCPS or DPR Operations staff that a water source has tested above actionable level and that the device will be tagged out and shut off within 24 hours
- b. Upon receipt of a water test result in which the lead concentration is greater than the actionable level, the following communication steps will be taken by DGS:
- DGS will provide the Chief Operating Officer of DCPS or the Deputy Director for Administrative Services of DPR the test results and remediation steps within 5 business days of receiving the test result; and
  - Update the publicly available test results within 5 business days of receiving the results to reflect the latest information, including any remediation steps that have been taken and will be taken.
- c. Following the tag out of devices with lead concentrations above actionable, a DGS representative, consultant, or plumbing contractor will perform the following remediation steps:
- i. Confirm the filter is properly installed on the device and that all plumbing connections are secure. After confirmation of proper installation, the consultant/contractor will perform a filter replacement and aerator change (if applicable to the devices). After the plumbing/filter check with applicable aerator replacement is complete a certified water sampler is dispatched by a DGS representative to collect samples using the same

testing protocol as stated in Sections 2 and 3. After sampling, the water supply to the device is turned back off. A tagged out device will only be turned on for an adequate time to retest, and will be taken out of service pending additional test results.

If the result of the post-repair testing event remains above the actionable level, the water source remains turned off and tagged and the consultant/contractor will perform the second remediation step:

- ii. The device is replaced with a new unit and retested. Replacement comprises replacing all components of the device from the filter to the point of discharge. Replacement parts will be required to comply with the standards for lead content in plumbing set forth by the Reduction of Lead in Drinking Water Act of 2011. After replacement is completed, a certified water sampler is dispatched by a DGS representative to collect samples using the same testing protocol as stated in Sections 2 and 3. After sampling, the water supply to the device is turned back off.

If the results of post-replacement results are below the actionable level, the device is returned to service; however, if the results remain above actionable level, the third remediation step to be taken is:

- iii. DGS will consult with industry professionals and DC Water experts regarding additional remediation steps specific to that water source. After the additional remediation steps are taken, a certified water sampler is dispatched by a DGS representative to collect samples using the same testing protocol as stated in Sections 2 and 3. After sampling, the water supply to the device is turned back off.

If the results of post-consultation remediation steps remain above actionable levels, the final step in the remediation process to be taken is:

- iv. Re-designate the source to a non-drinking water source and clearly label the source with a conspicuous sign that indicates that water from that device shall not be consumed or used for cooking.
  1. The decision to designate a water source as non-drinking will be made by the Chief Operating Officer of DCPS or the Deputy Director for Administrative Services of DPR after an analysis of programmatic and hygienic need and consultation with DGS regarding the inability to remediate the water source to below the actionable level. The change in designation must occur within 30 days of receipt of the post-consultation test results

## 6. DGS Communications with DCPS

- a. DGS communicates all test results and notification of device tag outs via email from the DGS Communications Division to DCPS Office of the Chief Operating Officer. DGS will maintain test results on its website ([dgs.dc.gov](http://dgs.dc.gov)) for each school facility.

#### 7. Communications with DPR

- a. DGS communicates all test results and notification of device tag outs via email from the DGS Communication Division to the Deputy Director for Administrative Services of DPR. DGS will maintain test results on its website ([dgs.dc.gov](http://dgs.dc.gov)) for each recreation center.

#### 8. Communication to DCPS Parents, Staff, and Stakeholders

- a. DCPS will communicate annual testing schedules to parents, staff, and stakeholders at the beginning of the school year through take-home letters, e-mail, and other methods of communication as well as post the information to the DCPS and DGS websites. Also available will be the outline of the District's water testing protocol, specifically highlighting remediation steps to be taken in the event of lead concentration in a device exceeding actionable levels.
- b. DGS will make available to DC residents online and in a searchable format the following data, both per school and in aggregate:
  - The date and results of the most recent lead test performed;
  - The date the current filter was installed;
  - The date when the filter will next be replaced;
  - The barcode identification number; and
  - Any remediation steps that will be or have been taken.
- c. If a water test shows a result of lead concentration above the actionable level, DCPS, within 2 business days of receiving notification from DGS, will publish the information on the DCPS website and send the information to parents or guardians of children attending the public school through email or other written communication including a link to the DGS test results website. If any devices have lead concentration above actionable levels, the type of device and location of device will be highlighted in the available information and a remediation schedule will be provided as well as the tag out date of the device.

#### 9. Communication to DPR Parents, Staff, and Stakeholders

- a. DPR will post annual testing schedules at the recreational center and on the DPR and DGS websites. Also available online will be a link to the District's water

testing protocol, specifically highlighting remediation steps to be taken in the event of lead concentration in a device exceeding actionable levels.

- b. DGS will make available to DC residents online and in a searchable format the following per school and aggregate data:
  - The date and results of the most recent lead test performed;
  - The date the current filter was installed;
  - The date when the filter will next be replaced;
  - The barcode identification number; and
  - Any remediation steps that will be or have been taken.
  
- c. If a water test shows a result of lead concentration above the actionable level, DPR, within 5 business days of receiving notification from DGS, publish the information on the DPR website and link to the DGS test results website. If any devices have lead concentration above actionable levels, the type of device and location of device will be highlighted in the available information and a remediation schedule will be provided as well as the tag out date of the device.



## Appendix A

- Childhood Lead Exposure Prevention Amendment Act of 2017, DC Code 22-0125  
<http://lims.dccouncil.us/Download/37185/B22-0029-SignedAct.pdf>
- The Safe Drinking Water Act (SDWA), passed by Congress in 1974 and amended in 1986, 1996 and 2011;  
<https://www.gpo.gov/fdsys/pkg/USCODE-2010-title42/pdf/USCODE-2010-title42-chap6A-subchapXII.pdf>
- Lead and Copper Rule – Code of Federal Regulations 40 CFR Part 141;  
<http://www.ecfr.gov/cgi-bin/text-idx?SID=531617f923c3de2cbf5d12ae4663f56d&mc=true&node=sp40.23.141.i&rgn=div6>
- Council of the District of Columbia Healthy Schools Act of 2010, DC Law 18-209, Section 38-825.01(a)(1)(E);  
<http://dchealthyschools.org/wordpress/wp-content/uploads/2011/11/Healthy-Schools-Act-as-Amended-20110810.pdf>
- *3Ts for Reducing Lead in Drinking Water in Schools*; EPA Guidance Document October 2006.  
[https://www.epa.gov/sites/production/files/2015-09/documents/toolkit\\_leadschools\\_guide\\_3ts\\_leadschools.pdf](https://www.epa.gov/sites/production/files/2015-09/documents/toolkit_leadschools_guide_3ts_leadschools.pdf)
- *Drinking Water Best Management Practices For Schools and Child Care Facilities Served by Municipal Water Systems*, EPA 816-B014-002  
<https://nepis.epa.gov/Exe/ZyNET.exe/P100HGM8.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2011+Thru+2015&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C11thru15%5CTxt%5C00000008%5CP100HGM8.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL>
- American Academy of Pediatrics, *Prevention of Childhood Lead Toxicity Report* (Pediatrics Volume 138, No. 1, July 2016)  
<http://pediatrics.aappublications.org/content/138/1/e20161493>
- *Summary of the Reduction of Lead in Drinking Water Act and Frequently Asked Questions*, EPA Guidance Document 2013.  
<https://www.epa.gov/dwstandardsregulations/section-1417-safe-drinking-water-act-prohibition-use-lead-pipes-solder-and>
- *How to Identify Lead Free Certification Marks for Drinking Water System & Plumbing*

*Products*, Brochure, produced by the EPA

<https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100LVYK.txt>