GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF GENERAL SERVICES

Initial Water Filtration Testing Protocol

The Deputy Mayor for Education (DME) manages, with support from the Deputy City Administrator, the "Initial Water Filtration Testing Protocol" on behalf of the District of Columbia. The testing and remediation program for potential elevated lead levels in drinking water is implemented by the Department of General Services' (DGS) Environmental Health and Safety (EHS) Unit within the Facilities Management Division (FMD) for 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 collaborated with program oversight and guidance.

The protocol will be reviewed at least every six (6) months to ensure the protocol reflects the most recent technological and scientific information available. The content of this protocol was developed by DGS, DCPS, the Office of the Deputy Mayor for Education, and the Office of the Deputy City Administrator to implement a program to reduce lead in drinking water in DGS maintained facilities. The contents of this protocol may be modified and reproduced for independent agencies[1].

Purpose

The District of Columbia's goal to promote a healthy and safe environment for students, staff, and community members in District facilities (DCPS and DPR) is being accomplished in part through a 4-phase remediation and filtration program to test and reduce the level of lead in drinking water sources. DGS has successfully completed the first two phases, is finishing the third phase, and is embarking on the fourth phase shortly. This protocol will outline the operations aspects of the first three phases. This protocol will be updated as the fourth phase of the 4-phase remediation program is undertaken.

- Phase I – Expanded Annual Water Testing (Spring 2016)
- Phase II - Filtering and Re-Testing of Traditional Drinking (Summer 2016)
- Phase III – Consumer Labeling, Filtering and Testing of Non-Traditional Drinking Sources (Summer 2016 – Winter 2017)
- Phase IV - Ongoing Water Testing and Remediation Protocol (Spring 2017)[2]

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

[2] See Appendix B for phase descriptions

The purpose of this protocol is to provide a detailed description of the Testing and Remediation Program tasks implemented by DGS and its contractors to ensure consistency in the practices and procedures to be implemented for the reduction of lead in drinking water and to set a standard for response actions when the actionable level is exceeded. The protocol outlines the procedure to screen selected drinking water sources in District facilities for human exposure to lead through drinking water. This procedure 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).

The protocol defines "traditional" drinking water sources as drinking fountains (both bubbler and water cooler).

The protocol defines "non-traditional" drinking water sources as health suite sinks, staff break room sinks, icemakers, kitchen sinks used for food preparation, classroom sinks, and early childhood education classroom sinks.

The EPA recommends that a facility take corrective action for an outlet that has a lead level in drinking water that exceeds 20 parts per billion (ppb) for school buildings served by a municipal water system. The District of Columbia will exceed the EPA standard and take corrective action for any traditional drinking water sources whose water test results in a lead level that exceeds 1 ppb in DCPS and DPR facilities.

The filtering of both traditional and non-traditional drinking water sources is considered a conservative remediation effort and should be considered a short-term resolution until water sources can be tested repeatedly with acceptable levels of lead content or until other remediation efforts are deemed effective.

To date, DGS has inventoried and installed filters on all traditional drinking water sources as well as the majority of non-traditional drinking water sources specifically identified by school leaders and DPR managers including 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 (remediation steps beyond the filter have been utilized to reach this goal). All filter results are being held to the actionable level response actions stated within this document. Remediation steps are being implemented in response to results of the filter testing.

All replacement fixtures and required plumbing components will be in accordance with the Reduction of Lead in Drinking Water Act of 2011. Filter selection should be dependent on the device type and the responsibility of the agency overseeing their program. A sediment filter should be used on medium- and high-flow devices (kitchen, break room, health suite, and classroom sinks) to extend the life of the filters and maintain the effectiveness of the lead filter. Stainless steel lines will be preferred for flex connecting lines.

All testing activities will be communicated to stakeholders such as parents and building personnel prior to testing. Communication to stakeholders, including test results, will be provided by DCPS and DPR depending on at which facility the testing occurs. DGS will communicate via e-mail test notification and results to DCPS and DPR and results will be posted on the DGS website with links to the Department of Energy and Environment (DOEE), DCPS, and DPR websites.

Testing and Remediation Program

1. **Water Sample Collection Plan**

    a. This 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 within the testing and remediation phases.

    b. Upon initial filter installation, devices will be tested to ensure lead is below actionable levels. Facilities will be tested at times when occupant drinking water use is most typical. DGS will conduct testing of DCPS facilities during the school year and DPR testing during months of operation. Each year a certified professional will sample filtered devices.

    c. As new schools or recreation facilities are added to an agency's inventory and when school renovations are completed the traditional and non-traditional drinking sources in the facility or portions of the facility will be inventoried and filters installed according to this protocol.

        1. For DGS maintained facilities an EHS 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. When additional non-traditional drinking water sources are identified by DCPS or DPR, a written request will be provided to DGS for filter installation and all identifying data will be entered into the DGS Salesforce Water Testing Application.

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. Testing of all water sources in a facility are to be completed annually. Partial testing occurs during phase/device specific filtration efforts at each facility.

b. The environmental consultant coordinates via DGS to establish testing schedules dependent on facility filter installations. 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[3]. 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 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.

[3] 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.

e. Once sampling is complete the occupants can return to water use during the initial testing. Water is only shut off if elevated levels are identified and remediation is required.

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 number of 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 EHS 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 EHS representative.

5. **Response to an Actionable Level**

a. If the analysis of a sample collected from a drinking water outlet indicates the presence of lead in concentrations greater than the actionable level, devices with actionable level results will be "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). Tag-out procedures are defined in Section 6.

b. Following the tag out of devices with lead concentrations above actionable, a consultant/contractor will be dispatched by an EHS representative, consultant, or plumbing contractor to 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) by the. This is considered the first step of remediation. After the plumbing/filter check with applicable aerator replacement is complete a certified water sampler is dispatched by an EHS 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. Any tagged out device

will only be returned back on for adequate time to retest, and will be taken out of service pending additional test results.

c. If the result of the post-repair testing event remains above the actionable level, the device remains turned off and tagged out until the device is replaced with a new unit and retested. Replacement will consist of 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 an EHS 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.

d. 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, DGS should consult industry professionals and DC Water experts for possible remediation steps. If the steps can be performed without restraint, a certified water sampler is dispatched by an EHS 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 remediation cannot be proven effective by sampling the device will be permanently removed from service. DGS procedures are detailed below if testing results remain greater than the action level.

e. As results are received, DCPS and DPR requested format reports are compiled. The compilation report is then provided to DGS Communications for review and delivery to DCPS or DPR. After DGS internal review the result reports are sent to DCPS or DPR for review and communication to the school or recreation center community. After DCPS or DPR review, a confirmation is sent to DGS that the report has been provided to facility administration.

6. **Tag Out Procedure**

a. Any water source with a test result above the actionable level will be shut off and tagged out at the fixture by DGS within 24 hours of receipt of test results. At any time if a device is discovered to have the water supply operable, the water is turned off immediately. This tag also serves as a notification to consumers not to drink water from the device. The tag includes:

   i. Both written and visual notification in contrasting colors.
   ii. Contact information for DCPS or DPR

b. 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. A second signature is

entered when the tag is verified to be correct and the device remains out of service.

c. The tag is only removed by an EHS representative after receipt of test results that demonstrate less than the actionable level. Water is run through the device when it is returned to service to ensure proper operation.

d. After a device is tagged out, notification will be provide d to DCPS or DPR leadership within 24 hours of tag out

7. **Communications with DCPS**

a. DGS communicates all results via email from the Communications Division to DCPS School Operations. DCPS will be responsible for communicating test results to parents, principals, and staff. DCPS has final approval of posting format (this format will be used for other agencies unless otherwise requested). DGS maintains all test results on its website (dgs.dc.gov) for each school.

b. DGS will post results online after confirmation is received that results have been delivered to school administration for distribution.

8. **Communications with DPR**

a. DGS communicates all DPR results via email from the Communication Division to the DPR Deputy Director of Operations dissemination list (recreation center staff, patrons etc.). DPR will be responsible for posting of the lead results within the recreation centers. DGS will post the results online after DPR confirms that results are posted within the recreation centers. DGS will maintain a roster of test results on its website (dgs.dc.gov) for each recreation center.

9. 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 posts to the DCPS and DGS websites.

b. Information available to DC residents will include the test date, the specific device to be tested, the level of lead concentration the District deems actionable, and the expected date DCPS will receive results from DGS. 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.

c. Annual test results and any subsequent test results will be provided to school

leadership and will be made available to DC residents within one week of test result receipt through 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.

10. 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.

b. Information available to DC residents will include the test date, the specific device to be tested, the level of lead concentration the District deems actionable, and the expected date DPR will receive results from DGS. 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.

c. Annual test results and any subsequent test results will be provided to recreational center leadership and will be made available to DC residents within one week of test result receipt through 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.

Appendix A

- 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
- *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

Appendix B

Phase I – Expanded Annual Water Testing (Spring 2016)

During the 2015-2016 school year, tests of fountains and water coolers found < 1% of tested drinking sources in which water had actionable levels of lead > 15 parts per billion (ppb). DCPS and DGS implemented a remediation program to test and reduce the level of lead in all drinking sources to the lowest possible level, which is an unprecedented < 1 ppb. DCPS stands alone as the only school district in the country to reduce the lead levels in its drinking sources to this amount. We are pleased to share that after completing Phase II (described below) 100% of drinking water fountains and coolers have been successfully filtered and have tested below the District's actionable level of remediation of < 1 ppb.

Phase II - Filtering and Re-Testing of Traditional Drinking Sources (Summer 2016)

Prior to the start of the 2016-2017 school year, DCPS and DGS installed 2,458 new lead filters on all water coolers and water fountains. Initial testing and some additional remediation of the installed lead filters have found all lead levels to be < 1 ppb. Since the beginning of the 2016-2017 school year, 100% of water from fountains and coolers in our schools has been safe to drink.

Phase III – Consumer Labeling, Filtering and Testing of Non-Traditional Drinking Sources (Summer 2016 – Winter 2017)

During the summer of 2016 prior to school beginning, DCPS and DGS identified and labeled all non-traditional sources such as sinks with info-graphics that discouraged drinking from these sources. In the fall and winter of 2016, DCPS and DGS began to install lead filters on the non-traditional drinking sources. DGS has installed 1,192 filters on break room sinks and sinks in Early Childhood Education classrooms throughout all DCPS schools. Once installed, the non-traditional sources are tested again which found approximately 13% (155 sinks) were above < 1 ppb. All of these devices remain turned off and tagged out, and are not in use by students or staff while further steps are taken.

Phase IV - Ongoing Water Testing and Remediation Protocol Going Forward (Spring 2017)

DCPS, DGS, the Office of the Deputy Mayor for Education, and the Office of the City Administrator are revising DGS's internal water testing and filtering protocol (in effect since 2007) to support the new District effort of remediating to < 1 ppb of lead in traditional drinking water sources.

DCPS and DGS are developing an annual testing schedule that will be shared with all DCPS families and posted online. Twice per year, DCPS will share information with families regarding annual testing timelines, results from the tests, and subsequent steps that will be taken such as tagging out and turning off devices. These communications will also be posted on the DCPS website throughout the year.