



Tips on O&M for POU Devices

Operation and Maintenance (O&M) guidance for Point of Use (POU) devices used for the removal of lead and copper in drinking water at schools and Early Education and Care Facilities (EECF) that are not public water systems (PWS)

Use this document in conjunction with MassDEP's **Best Management Practices for the Removal of Lead and Copper in Drinking Water: Installation of Point-of-Use Devices at Schools or Early Education and Care Facilities that are not Registered Public Water Systems** located at <https://www.mass.gov/media/1744356>

How POU Devices Reduce Lead in Water

Water dispensers or POU devices with filters attached to a faucet or to the piping under the counter, allows water to flow through either an adsorption media, or a filter, which captures contaminants such as lead or copper and other similar sized ions. In the case of filters, the contaminants are trapped on the filter and subsequently removed. In the case of adsorption media, the contaminants are attached to the grains of the media. In either case contaminants are retained by the POU device, thus reducing the contaminants in the finished drinking water.

Training

For information on basic drinking water operations training courses, you may contact the following organizations:

Massachusetts Department of Environmental Protection, Drinking Water Program
617-292-5770, program.director-dwp@state.ma.us

Mass Water Works Association
<http://masswaterworks.org>

Mass Rural Water Association
<http://massrwa.org/>

New England Water Works Association
<http://newwa.org/>

American Water Works Association
<https://www.awwa.org/conferences-education/distance-learning/elearning.aspx>

Sacramento State Office of Water Programs
<https://www.owp.csus.edu/courses/drinking-water.php>

National Environmental Services Center
http://www.nesc.wvu.edu/subpages/operator_certification.cfm

Installation

All parties installing, repairing or maintaining these devices should wash their hands and use clean sanitary tools and practices.

Devices should be located where they are protected from tampering and vandalism.

Flushing: Prior to installation of the POU device, the water line needs to be flushed (for at least 10 minutes) in order to remove sediment from the pipe, which could clog the device filter.

Certified Devices: Use only POU treatment devices and filter replacements that are certified to NSF International /ANSI standards for the removal of lead and copper. Current organizations certifying to these standards include NSF International, Water Quality Association (WQA), Underwriters Laboratory (UL), and the International Association of Plumbers and Mechanical Officials (IAPMO). Always verify with the organization that the device has been tested and certified for the removal of lead and/or copper. For more information see the Information /Assistance section below.

Follow State and Local Requirements: Installation of POU devices must be done by a licensed plumber in accordance with the Massachusetts Board of State Examiners of Plumbers and Gas Fitters - 248 CMR 1.00 - 11.00.

Install on Cold Water Lines Only: Install POU devices on the cold water supply lines of the facility's plumbing. Do not attach devices to hot water supply line to the filter.

Shut off Valve: Install a water shutoff valve on the incoming cold water supply line to aid in future servicing of POU device filter.

Check for Leaks: After installing new POU devices, open the water supply valve and check for leaks. Flush the system sufficiently (approximately three minutes) to effectively remove residue before putting the outlet back into use.

Cross Connections and Local Public Water Supplier: Inform your local PWS when the installation of a POU device is complete. They may wish to conduct a cross connection control survey.

Tag: Install a maintenance tag (see graphic below) on the POU device to record date, action taken and name of the employee that performed the work.

Sampling and Sampling Schedule

Lead and Copper

After POU Device Installation: Flush the cold water line to remove any debris from installation. Allow the outlet to stagnate overnight, for between 6 and 18 hours. The following morning, take a first draw sample followed by another sample collected after flushing the outlet for 30 seconds. The outlet must be free from Lead and copper results must be below the action level before the POU device can be placed into service. This initial sampling will verify the effectiveness of the POU device to remove lead and copper.

Routine Lead and Copper Sampling Schedule: Many monitoring scenarios are possible. For example, a school or EECF may want to consider monitoring every POU device during the first year of operation and then modify

the monitoring frequency based on device performance and amount of use. If sample results from each outlet indicate all POU devices are functioning properly, a reduced monitoring frequency could be implemented.

MassDEP recommends that all outlets used for drinking water, cooking, and medical care offices (including those with a POU device) be sampled and tested every three years and when there are changes to the fixture or plumbing, e.g., repair and filter replacement. In order to implement this routine sampling program, one-third of all outlets (including those with POU devices) would be sampled each year for lead and copper on a rotating basis.

Sampling Procedures: Proper lead and copper sampling procedures can be found at <http://www.mass.gov/media/1104781>. Only qualified laboratory testing can reliably confirm the amount of lead or copper in the drinking water. Home test kits may not provide an accurate measurement of water quality. MassDEP recommends using a Massachusetts certified laboratory. The laboratory should be certified to test for lead and copper for potable water. For a list of Massachusetts certified laboratories see <http://public.dep.state.ma.us/Labcert/Labcert.aspx>.

Bacteria

Maintaining bacterial quality from source to tap is a cornerstone of potable drinking water practice. To ensure that installation and repair practices are sanitary, an *E.coli* bacteria sample is recommended after installing or repairing a POU device. When a sample for *E.coli* is collected the outlet should be free from *E.coli* before the POU device is placed into service.

E. coli is a type of fecal coliform bacteria commonly found in the intestines of animals and humans. *E. coli* is short for *Escherichia coli*. The presence of *E. coli* in water may indicate inadequate sanitation practices during installation and repair. If a school receives its water from a MassDEP registered public water supplier, the bacterial water quality across the entire public water system is demonstrated by the public water supplier during routine bacteria testing. Recommended *E.coli* testing, after installation and repair of a POU device, is intended solely to ensure that the installation or repair is sanitary.

See <https://www.epa.gov/sites/production/files/documents/samplingprocedures.pdf> page 7 for information on *E.coli* sample collection. MassDEP recommends using a Massachusetts certified laboratory. The laboratory should be certified to test for *E.coli* bacteria for potable water. For a list of Massachusetts certified laboratories see <http://public.dep.state.ma.us/Labcert/Labcert.aspx>.

What to do if MassDEP Issues a Public Health Order or Notice to the Supplying PWS

The POU devices should be taken out of service and an alternate supply of water provided. When the Order or Notice is lifted or removed by MassDEP the filters should be replaced, the devices flushed and *E.coli* samples collected. The outlets must be free from *E.coli* before the POU devices are placed into service.

Cleaning and Maintenance

Cleaning: All POU treatment devices and the area around them should be maintained in a clean and sanitary manner at all times. All parties maintaining and cleaning these devices should wash their hands and use clean sanitary tools and practices.

Maintenance and Records: All POU treatment devices should be maintained in accordance with manufacturer's specifications. A record of maintenance should be kept on an Equipment Maintenance Log (see graphic below). The log information should include the following: service performed, date, time, and name of the employee who performed the work. The maintenance log should be kept on file and should include the following information:

- Manufacturer
- Model
- Serial Number
- Date of installation
- Name of installer
- Replacement Filter type

PDF copies of completed maintenance logs may be kept online in the MassDEP School and EECF **LCCA Program Management Tool** located at: <https://script.google.com/a/macros/madwpdep.org/s/AKfycbxP99K-Cd5B3ioE7nswN0peOEndcGrXwV6zJcS5iHxzGO55B1k/exec>. **For assistance with the LCCA Program Management Tool** please contact program.director-dwp@stste.ma.us. All information reported to MassDEP via the **LCCA Program Management Tool** will be made public on MassDEP's website.

Cleaning and maintenance schedules may also be posted on premises.

Waste Disposal

Dispose of all waste (water or materials) in accordance with state and local requirements. For example, reverse osmosis water treatment devices require a backwash that produces a waste brine that must be disposed of in accordance with state and local requirements.

How to Properly Use POU Devices Certified to NSF International /ANSI standards for the removal of lead and copper

Water filters included with the POU devices need to be changed regularly in order to reduce lead and other contaminants in drinking water for which they are certified. Follow the manufacturer's instructions that come with your POU device and replace filter cartridges and other items as recommended using NSF certified filters.

Many POU devices have meters or indicators that signal when the filter needs to be replaced. Review the manufacturer's specifications for details on filter change frequency and filter capacity.

Consider setting a reminder on your calendar when manufacturer recommends changing the POU device filter.

Collect samples after each filter change and analyze them to verify the effectiveness of the POU device to remove lead. Follow proper sampling procedures. Only qualified laboratory testing can reliably confirm the amount of lead in drinking water. Home test kits may not provide an accurate measurement of water quality.

Why POU Device Filters must be Changed

Many POU devices use filters are comprised of carbon, charcoal, or a blend of filter media to help reduce impurities. These systems generally reduce contaminants in one of two ways:

- Some contaminants are filtered mechanically, meaning the particles are large enough to be trapped in the pores of the filter. Eventually, the pores of the filter become so clogged with debris that water is unable to move through the filter effectively.
- Other contaminants adhere or adsorb to the surface of the filter media. Over time, the surface area of the filter media becomes filled and no more contaminants can be adsorbed.

While the former is easy to spot (the flow rate of the water being produced by the system slows dramatically), it's not as easy to tell when the surface area of the filter media has become full and needs to be changed.

How Often Should POU Device Filters be Changed

The recommended filter change cycle for a POU device varies from one product to the next. Filtration systems usually have established "service cycles," however extra precaution should be taken when tap water contains high levels of contaminants.

- NSF/ANSI 53 certification requires manufacturers to state the filter capacity, which is the volume of water that can pass through a filter before it must be changed.
- To ensure the filter continues to reduce contaminants, replace it when it has reached the manufacturer's recommended filter capacity. The filter capacity will be listed in the specifications on your product's owner's manual or on the product packaging. Many products also have indicators for when the filter must be changed.

Choosing the Right POU Device Replacement Filter

Filters are not universal.

- While a non-certified filter may look similar in size and even appear to fit inside the housing of a POU device, even the smallest size difference could allow contaminated water to go around the filter rather than through it.
- Non-certified filters may not be of the same quality as the manufacturer's recommended replacement. This could result in the water not being filtered effectively or even the introduction of chemicals into the water from materials that were never verified to be acceptable for drinking water.

To ensure your POU device is performing effectively, use the proper replacement filter and change your filter at the recommended interval.

Please Keep in Mind

Minerals are present in all natural waters (sometimes referred to as total dissolved solids or TDS) and do not indicate the presence or absence of lead. The presence of TDS (minerals) in filtered water is not an indicator that POU device is no longer reducing lead.

Information about NSF Certified Product Listings

Products listed by NSF International Certified Drinking Water Products for Lead Reduction:

- are certified for lead reduction in drinking water;
- may be certified for the reduction of other contaminants/impurities in addition to lead;
- are tested at 20°C/68°F but have not been tested for contaminant reduction at elevated temperatures, such as shower or bath water temperatures;
- MUST be maintained through regular replacement of cartridges or filters according to the instructions provided by the filter manufacturer; and
- Certified POU devices have been tested to be effective up to 150 parts per billion (ppb) lead. Filter performance has not been evaluated for performance above 150 ppb and should not be relied on when lead levels in tap water exceeds 150 ppb.

Resources

U.S. EPA Safe Drinking Water Hotline

Website: www.epa.gov/your-drinking-water/safe-drinking-water-hotline

Phone: 1 800.426.4791

MassDEP

For more information on POU see: <http://www.mass.gov/eea/agencies/massdep/water/drinking/home-treatment-devices-point-of-entry-point-of-use-tre.html>

Email: Program.director-dwp@state.ma.us

NSF International

Website: www.nsf.org/info/leadfiltrationguide

Email: info@nsf.org

Phone: 1 800.673.8010

Water Quality Association

Website: <https://www.wqa.org/>

Phone: 1 630.505.0160

