



Guidance for Schools Selecting a Remedial Measure for Removal of Lead

Note: This guidance is for NJ Schools who receive water from a Public Water System and are selecting a remedial measure for removal of lead.

NJ schools must carefully consider the selection of lead removal strategies for their drinking water outlets, as different strategies may be selected for different outlets within each school. These decisions may involve the purchase of water treatment equipment and the selection of contractors. It is essential to evaluate the lead testing results to determine appropriate remedial measures. Work through Department of Environmental Protection’s (DEP’s) [Data Review/ Remediation Flow Chart](#) with each test result for assistance with interpreting the lead test results and determining the source of lead contamination.

In NJ, a drinking water outlet with a result of greater than or equal to 15.5 ppb must be immediately taken out of service. If a school determines it is necessary to use the drinking water outlet in the future, permanent remediation must be taken and will vary depending on the test result at each individual location and the plumbing materials of the school facility. At some locations, the removal of faucets or pipes with lead will be the appropriate strategy. At other locations, the purchase of a treatment system to address your specific water quality concern will be the strategy. A consultant or water treatment professional should aid the school in evaluating the individual results and determining the appropriate remedial measures.

Complete the following checklist prior to moving on with this guidance.

- Evaluate each sample location’s result by working through DEP’s *Data Review/ Remediation Flow Chart*.
- If applicable, verify that all sample locations with a result exceeding 15 ppb is removed from service.

Key steps checklist when selecting remedial measures.

<input type="checkbox"/>	<p>#1 Identify Remedial Options Identify appropriate options for remediating the source of lead contamination. Using the DEP’s <i>Data Review/ Remediation Flow Chart</i> was the lead contamination identified as localized, localized and widespread, or widespread.</p>
	<p><input type="checkbox"/> <u>Localized (Initial results greater than or equal to 15.5 ppb and Follow-Up Flush sample less than 15.5 ppb) Remedial Options:</u></p> <ul style="list-style-type: none"> a) Faucet replacement; and/or b) Implementation of a flushing program
	<p><input type="checkbox"/> <u>Localized and Widespread (Initial results and Follow-Up Flush results greater than or equal to 15.5 ppb) Remedial Options:</u></p> <ul style="list-style-type: none"> a) Faucet replacement; and/or b) Implementation of a flushing program <li style="text-align: center;">AND c) Associated interior plumbing replacement; and/or

	<p>d) Install Treatment; and/or e) Lead service line replacement</p> <p><input type="checkbox"/> <u>Widespread (Initial results less than 15.5 ppb and Follow-Up Flush results greater than or equal to 15.5 ppb) Remedial Options:</u></p> <p>a) Associated interior plumbing replacement; and/or b) Install Treatment; and/or c) Lead service line replacement</p>
<p><input type="checkbox"/></p>	<p>#2 Key Points when Considering Remedial Options Identified</p> <p><u>Faucet Replacement</u></p> <p><input type="checkbox"/> Make sure that the proposed equipment has been tested or validated by independent organizations such as NSF International (www.nsf.org) or the Water Quality Association (www.wqa.org).</p> <p><input type="checkbox"/> Receive quotes for the cost of equipment, including price of purchase and installation.</p> <p><u>Implementation of a flushing program</u></p> <p><input type="checkbox"/> Determine the amount of time required to flush the sample location. This depends on the type of water outlet being flushed. For example, if the water outlet is a water cooler with a chiller unit, it would require a flushing of at least 15 minutes to empty the stagnant water in the reservoir.</p> <p><input type="checkbox"/> Select the time and day(s) the flushing will occur. This depends on the usage of the water outlet. For example, if the water outlet requiring flushing is a food preparation sink used to fill pots and is only used once every week for Thursday pasta day then this water outlet may be flushed every Thursday morning at 9:00am prior to the time lunch preparation begins.</p> <p><input type="checkbox"/> Determine who will be responsible for implementing the flushing program.</p> <p><input type="checkbox"/> Maintain records of the flushing program being implemented. These records should include a list of the sample locations requiring flushing, how long they are being flushed for, a maintenance log on when they are being flushed, the sample results for those sample locations, and the assigned responsible school personnel.</p> <p><i>If considering an automatic flushing system:</i></p> <p><input type="checkbox"/> Evaluate the results to identify the areas requiring flushing.</p> <p><input type="checkbox"/> Select a reputable dealer.</p> <p><input type="checkbox"/> Obtain second opinions.</p> <p><input type="checkbox"/> Be sure to know all the costs of the equipment, including prices of purchase, installation, operating, and required routine maintenance.</p> <p><input type="checkbox"/> Understand what maintenance will be required, the frequency of the maintenance, and who will be responsible for doing it. Prepare necessary operation and maintenance logs, including test results, any maintenance or repairs on the system, and the assigned responsible school personnel.</p> <p><input type="checkbox"/> Understand how to determine if the equipment is operating satisfactorily.</p> <p><input type="checkbox"/> Determine the expected life of the automatic flushing system.</p> <p><input type="checkbox"/> Determine if the automatic flushing system will flush all the targeted areas.</p> <p><input type="checkbox"/> Take post installation lead samples to verify that the automatic flushing system is effective. These samples will be taken after the automatic flushing system has been</p>

run but before the water outlets are used to represent the water that is now being normally used at the facility.

- Determine insurance and retribution from the company if the automatic flushing system does not work. Understand any warranty provided with the system.
- Identify if additional subcontractors are involved and their roles, responsibilities, and associated cost.

Associated interior plumbing replacement

- Make sure the proposed plumbing has been tested or validated as lead free by an independent organization, such as NSF International (www.nsf.org) or the Water Quality Association (www.wqa.org).
- Receive quotes for the cost of equipment, including price of purchase and installation.

Install Treatment

Treatment options range from simple treatment techniques including flushing and the addition of point-of-use filters to more sophisticated options including point-of-use reverse osmosis or whole facility point-of-entry treatment.

It is important to highlight that if the faucet and/or plumbing feeding that tap is the source of lead, installing a filter or other form of removal treatment prior to that tap **will not** address the lead leaching from the faucet.

Additionally, some water treatment equipment effects the entire water quality not just the concerned water quality, therefore be aware of the water quality characteristics effected. For example, reverse osmosis treatment systems not only remove lead but also removes other components in water such as calcium and effect the water's pH, hardness, manganese, and total dissolved solids. Therefore, the school should sample the treated water for these parametersto ensure the water meets drinking water standards.

- Identify areas where treatment is the appropriate remediation. If few areas require treatment, consider single-outlet (point-of-use) treatment, such as NSF certified lead removal filters.
- Identify if a lead service line or a large quantity of lead content is present in the plumbing. If there is a lead service line or a large quantity of lead content in the plumbing, consider a whole facility (point-of-entry) treatment.
- Make sure that the proposed equipment has been tested or validated by independent organizations such as NSF International (www.nsf.org) or the Water Quality Association (www.wqa.org).
- Be sure to know all the costs of the equipment, including prices of purchase, installation, operating, and required routine maintenance.
- Understand what maintenance will be required, the frequency of the maintenance, and who will be responsible for doing it. Prepare necessary operation and maintenance logs and assign responsible school personnel.
- Understand how to determine if the equipment is operating satisfactorily. For example, some treatment equipment has an automatic shut off valve if it is malfunctioning.
- Determine the expected life of the treatment system.
- Determine if the system will treat enough water to meet your needs. For example, if the treatment equipment includes a storage tank, make sure the storage tank is a sufficient size to accommodate the school's water usage.
- Determine the upper limit that lead can be removed by treatment equipment. Compare the school's data results to see if treatment will be effective.

	<ul style="list-style-type: none"> <input type="checkbox"/> Take post installation lead samples to verify that the system is removing the lead. Compare these sample results to previous sample results prior to installation of treatment. <input type="checkbox"/> Determine insurance and retribution from the company if the treatment does not work. <input type="checkbox"/> Identify if additional subcontractors are involved and their roles and responsibilities. <input type="checkbox"/> Determine what long term testing is required to continue to evaluate treatment effectiveness. <input type="checkbox"/> Keep a log book to keep track of water test results, and maintenance and repairs on your treatment system. Understand any warranty provided with the treatment system. <input type="checkbox"/> If applicable, determine the proper disposal of treatment when replacing or repairing.¹ <p>Lead Service Line Replacement</p> <ul style="list-style-type: none"> <input type="checkbox"/> Confirm if the school has a lead service line or large quantity of lead content in the plumbing. <input type="checkbox"/> Contact the water supplier to confirm the lead service line. <input type="checkbox"/> Identify if it is a partial (curb to school) or full (water main to school) lead service line. <input type="checkbox"/> Make sure the proposed plumbing has been tested or validated as lead free by an independent organization, such as NSF International (www.nsf.org) or the Water Quality Association (www.wqa.org). <input type="checkbox"/> Receive quotes for the cost of equipment, including price of purchase and installation. <p>NOTE: <u>If any drinking water outlets, including faucets, pipes impacting lead levels at outlets, or service lines are replaced, a lead testing must be conducted following the replacement.</u></p>
a)	<p>#3 Long Term Maintenance of Permanent Remedial Measure</p> <p>Long term maintenance and its cost should be considered when determining a permanent remediation. Any type of treatment device requires regular maintenance. This could involve changing filters, cleaning scale buildup, or disinfecting the unit. Failure to properly maintain a unit will reduce its effectiveness and may, in some cases, make the water quality worse. A maintenance program will be needed to ensure the effectiveness of the treatment equipment.</p>
b)	<p>#4 Best Management Practices</p> <p>a) Filter Maintenance Program</p> <p>If the school has water outlets that have a filter installed, it is best management practices to implement and maintain a Filter Maintenance program.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify water outlets with filters installed. <input type="checkbox"/> Evaluate lead test results at these filter outlets. <input type="checkbox"/> Record the date the filter was installed. <input type="checkbox"/> Using the test results verify if any filters need to be replaced. <input type="checkbox"/> Conduct additional sampling as needed. <input type="checkbox"/> Create a maintenance log to keep track of water outlets with filters, including when the filters are installed, frequency of replacement, what make/model the filters are, and any test results at these outlets. <p>b) Aerator/ Screen Maintenance Program</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify which water outlets have aerators/screens. <input type="checkbox"/> Evaluate lead test results at these aerator/screens outlets. <input type="checkbox"/> Using the test results help identify if any aerators/screens need to be cleaned. <input type="checkbox"/> Conduct additional sampling as needed.

¹ Contact the treatment’s manufacturer to receive specific disposal instructions.

	<ul style="list-style-type: none"><input type="checkbox"/> Select what day the aerators/screens will be cleaned. If there are a large amount of sample locations with aerators/screens, this task can be split on different days. For example, the drinking water faucets on the 1st floor will get cleaned June 29th and the drinking water faucets on the 2nd floor will get cleaned on June 30th.<input type="checkbox"/> Select the frequency the aerators/screens will be cleaned. This can be determined by evaluating the uncleaned aerators/screen for how much debris is present and evaluating the sample results.<input type="checkbox"/> Assign the task of cleaning the aerators/screens to the appropriate school personnel.<input type="checkbox"/> Create a maintenance log including the list of sample locations with an aerator/screen, the frequency and day they are cleaned, who is responsible for the task, and sample results.
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For additional assistance or questions, please contact NJDEP, Bureau of Water System Engineering at 609-292-2957 or via email at watersupply@dep.nj.gov .