



Division of Drinking and Ground Waters

Guidelines for Lead Mapping in Distribution Systems for Individual Buildings

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I. PURPOSE:

The purpose of this document is to provide guidance on how to map a distribution system to identify areas that are known to contain or likely to contain lead service lines and identify characteristics of individual buildings that may contain lead piping, solder or fixtures.

II. BACKGROUND:

In June 2016, HB 512 was passed to enact section 6109.121 of the Ohio Revised Code (ORC) to establish requirements governing lead and copper testing for community and nontransient noncommunity public water systems and to revise law governing lead contamination from plumbing fixtures. The law also requires community water systems to identify and map areas of their distribution systems which may contain lead service lines and to identify the characteristics of buildings and areas of the distribution system with solder, fixtures or pipes containing lead. Nontransient noncommunity water systems are required to map areas of the system that have solder, fixtures and pipes containing lead.

III. APPLICABLE REFERENCES:

1. US EPA Lead and Copper Rule Monitoring and Reporting Guidance for Public Water Systems, EPA 816-R-10-004, March 2010, <https://www.epa.gov/nscep>.
2. US EPA Safe Drinking Water Act (SDWA), <https://www.epa.ohio.gov/sdwa>.
3. Ohio House Bill 512 <https://www.legislature.ohio.gov>.
4. Ohio EPA District Offices <http://epa.ohio.gov/districts.aspx>.

IV. IDENTIFYING CHARACTERISTICS OF BUILDINGS WITH LEAD PIPING, SOLDER OR FIXTURES – INDIVIDUAL BUILDINGS:

In 1986, the SDWA was amended to ban the use of lead solders which contain more than 0.2% lead. The lead ban provisions of the act became effective in Ohio in 1987. The amendments required the use of lead-free flux and pipes in new installations and repairs of public water systems, or any plumbing within a residential or nonresidential facility which provides water for human consumption. In addition, Section 1417 of the SDWA amendments called for the use of lead-free pipes and pipes fittings, which. These were defined at the time as having no more than 8.0% lead (note this 8.0% was lowered to 0.25% in 2014).

In 1996, the SDWA was further amended to state the following is unlawful:

1. For any person to introduce into commerce any pipe, pipe fitting, plumbing fitting or plumbing fixture, that is not lead free, except for a pipe that is used in manufacturing or industrial processing; or
2. Any person engaged in the business of selling plumbing supplies; except manufacturers, to sell solder or flux that is not lead free; or
3. Any person to introduce into commerce any solder or flux that is not lead free unless the solder or flux bears a prominent label stating that it is illegal to use the solder or flux in the installation or repair of any plumbing providing water for human consumption.

In 2011, SDWA Section 1417 was amended for the prohibition on use and introduction into commerce of lead pipes, solder and flux. This became effective on January 1, 2014. The amendments specifically modified the applicability of the prohibitions by creating exemptions, changed the definition of “lead-free” by reducing lead content from 8% to a weighted average of not more than 0.25% in the wetted surface material (primarily affects brass/bronze), eliminated the provision that required certain products to comply with “voluntary” standards for lead leaching, and established a statutory requirement for calculating lead content.

The exemptions to the SDWA Section 1417 are pipes, pipe fittings, plumbing fittings or fixtures, including backflow preventers, which are used exclusively for nonpotable services, such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption. The exemption also applies to toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, service saddles, or water distribution main gate valves that are 2 inches in diameter or larger. In addition to the SDWA, the Community Fire Safety Act of 2013 exempted fire hydrants from this requirement.

As a result of these amendments, buildings constructed after 2014 are the least likely to have plumbing containing lead materials, so these consumers are at the lowest risk of exposure to lead from drinking water.

Because it is practically impossible to determine the lead content of an installed fixture, fitting or pipe, it should be assumed that the manufacture or installation date is the primary indicator of the lead content. Therefore, the characteristics of buildings and piping solder or fixtures would be **buildings built prior to 1988 or that use plumbing material or solder manufactured before 1988 may have materials with greater than 8% lead and are at a higher risk of contributing lead to the drinking water than materials manufactured after 1988. In addition, buildings built and plumbing materials manufactured after 2014 were required to have less than 0.2% lead by weight and have the lowest risk for contributing lead to the drinking water. It should be noted however that, although prohibited, some use of leaded solder or leaded components may have occurred after the prohibitions became effective.**

Various public water systems have made available for use, diagrams and videos for identifying lead service lines at homes and businesses, for example.

- City of Cleveland, Lead Treatment web site, “Check your Property.” <http://www.clevelandwater.com/your-water/water-quality-and-treatment/lead-treatment>
- US EPA, Advice to Chicago Residents web site, “What do lead service lines look like?” <https://www.epa.gov/il/advice-chicago-residents-about-lead-drinking-water>

V. MAPPING REQUIREMENTS

Once identified, areas known or are likely to have lead service lines and areas of the distribution system with solder, fixtures or pipes containing lead must be plotted on a map of the entire distribution system. If a nontransient noncommunity water system serves buildings built prior to the 1986 lead ban, the system should include, at minimum, a statement on what plumbing materials are part of the water system.

The different areas on the map must be distinguished by different colors or other obvious mapping tools. An electronic copy of the map in a PDF or other generally used file type is the preferred product, but hard copy colored maps are acceptable. The maps must be capable of being copied in color for distribution to the required parties and consumers upon request.

The maps should identify major streets, landmarks, bodies of water or other methods of orientation so that the reader of the map could easily determine the general areas covered by the map. Areas that are known or are likely to contain lead service lines should be a different color to differentiate them from other areas of the system.

VI. SUBMITTAL REQUIREMENTS:

The following requirements are initially to be submitted to respective parties within six months of Sept. 9, 2016, and updated and resubmitted every five years following the first submittal.

1. Submit a copy of the map to the Ohio Department of Health (ODH) and the Department of Job and Family Services (ODJFS).
2. Provide a statement to the ODH and ODJFS stating the characteristics of buildings that may contain lead piping, solder or fixtures. This requirement could be met by including the **bold** statement in Section IV of this guidance on the map or as a statement accompanying the map.
3. Submit a report to the appropriate Ohio EPA, Division of Drinking and Ground Waters District Office containing at least both of the following:
 - a. The map detailed in Section V of this guidance, and
 - b. For community public water systems, a list of sampling locations that are tier I sites used to collect samples, as required by rules adopted under ORC Section 6109.121, including contact information for the owner and occupant of each sampling site. If there is not a sufficient number of tier 1 sites available, systems should include tier 2 sites to complete monitoring.

Public water systems are required to update and resubmit the above information every five years.

VIII. FINANCIAL ASSISTANCE:

Financial assistance is available for systems for fulfilling the mapping requirements of ORC Section 6109.121. For more information, please see the tab "Drinking Water Assistance Fund" on the following web site: <http://epa.ohio.gov/ddagw/financialassistance.aspx>.

VII. HISTORY:

The Division of Drinking and Ground Waters first issued this document on _____.