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## 40 C.F.R. § 141.86

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### Monitoring requirements for lead and copper in tap water.

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(a) *Sample site location.* (1) By the applicable date for commencement of monitoring under paragraph (d)(1) of this section, each water system shall identify a pool of targeted sampling sites based on the service line inventory conducted in accordance with § 141.84(a), that meet the requirements of this section, and which is sufficiently large enough to ensure that the water system can collect the number of lead and copper tap samples required in paragraph (c) of this section. Sampling sites may not include sites with installed point-of-entry (POE) treatment devices and taps used at sampling sites may not have point-of-use (POU) devices designed to remove inorganic contaminants, except for water systems monitoring under § 141.93(a)(3)(iv) and water systems using these devices for the primary drinking water tap to meet other primary and secondary drinking water standards and all service connections have POEs or POU to provide localized treatment for compliance with the other drinking water standards. Lead and copper sampling results for systems monitoring under § 141.93(a)(3)(iv) may not be used for the purposes of meeting the criteria for reduced monitoring specified in paragraph (d)(4) of this section.

(2) A water system must use the information on lead, copper, and galvanized iron or steel that is required to be identified under § 141.42(d) when conducting a materials evaluation and the information on lead service lines that is required to be collected under § 141.84(a) to identify potential lead service line sampling sites.

(3) The sampling sites for a community water system's sampling pool must consist of single-family structures that are served by a lead service line ("Tier 1 sampling sites"). When multiple-family residences comprise at least 20 percent of the structures served by the water system, the system may include these types of structures in its Tier 1 sampling pool, if served by a lead service line. Sites with lead status unknown service lines must not be used as Tier 1 sampling sites.

(4) A community water system with insufficient Tier 1 sampling sites must complete its sampling pool with "Tier 2 sampling sites," consisting of buildings, including multiple-family residences that are served by a lead service line. Sites with lead status unknown service lines must not be used as Tier 2 sampling sites.

(5) A community water system with insufficient Tier 1 and Tier 2 sampling sites must complete its sampling pool with "Tier 3 sampling sites," consisting of single-family structures that contain galvanized lines identified as being downstream of a lead service line (LSL) currently or in the past, or known to be downstream of a lead gooseneck, pigtail or connector. Sites with lead status unknown service lines must not be used as Tier 3 sampling sites.

(6) A community water system with insufficient Tier 1, Tier 2, and Tier 3 sampling sites must complete its sampling pool with "Tier 4 sampling sites," consisting of single-family structures that contain copper pipes with lead solder installed before the effective date of the State's applicable lead ban. Sites with lead status unknown service lines must not be used as Tier 4 sampling sites.

(7) A community water system with insufficient Tier 1, Tier 2, Tier 3, and Tier 4 sampling sites must complete

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its sampling pool with “Tier 5 sampling sites,” consisting of single-family structures or buildings, including multiple family residences that are representative of sites throughout the distribution system. For the purpose of this paragraph (a)(7), a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system. Water systems may use non-residential buildings that are representative of sites throughout the distribution system if and only if there are an insufficient number of single-family or multiple family residential Tier 5 sites available.

(8) The sampling sites selected for a non-transient non-community water system must consist of sites that are served by a lead service line (“Tier 1 sampling sites”). Sites with lead status unknown service lines must not be used as Tier 1 sampling sites.

(9) A non-transient non-community water system with insufficient Tier 1 sites complete its sampling pool with “Tier 3 sampling sites,” consisting of sampling sites that contain galvanized lines identified as being downstream of an LSL currently or in the past, or known to be downstream of a lead gooseneck, pigtail, or connector. Sites with lead status unknown service lines must not be used as Tier 3 sampling sites.

(10) A non-transient non-community water system with insufficient Tier 1 and Tier 3 sampling sites must complete its sampling pool with “Tier 5 sampling sites,” consisting of sampling sites that are representative of sites throughout the distribution system. For the purpose of this paragraph (a)(10), a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(11) A water system whose distribution system contains lead service lines must collect all samples for monitoring under this section from sites served by a lead service line. A water system that cannot identify a sufficient number of sampling sites served by lead service lines must still collect samples from every site served by a lead service line, and collect the remaining samples in accordance with tiering requirements under paragraphs (a)(5) through (7) or paragraphs (a)(9) through (10) of this section.

(b) *Sample collection methods.* (1) All tap samples for lead and copper collected in accordance with this subpart, with the exception of fifth liter samples collected under paragraph (b)(3) of this section, and samples collected under paragraphs (b)(5) and (h) of this section, must be first draw samples. The first draw sample shall be analyzed for lead and copper in tap sampling periods where both contaminants are required to be monitored. In tap sampling periods where only lead is required to be monitored, the first draw sample may be analyzed for lead only.

(2) Each first draw tap sample for lead and copper must be one liter in volume and have stood motionless in the plumbing system of each sampling site for at least six hours. Bottles used to collect first draw samples must be wide-mouth one-liter sample bottles. First draw samples from residential housing must be collected from the cold-water kitchen or bathroom sink tap. First draw samples from a nonresidential building must be one liter in volume and collected at a tap from which water is typically drawn for consumption. State-approved non-first-draw samples collected in lieu of first draw samples pursuant to paragraph (b)(5) of this section must be one liter in volume and shall be collected at an interior tap from which water is typically drawn for First draw samples may be collected by the system or the system may allow residents to collect first draw samples after instructing the residents of the sampling procedures specified in this paragraph (b)(2). Sampling instructions provided to residents must not include instructions for aerator removal and cleaning or flushing of taps prior to the start of the minimum six-hour stagnation period. To avoid problems of residents handling nitric acid, acidification of first draw samples may be done up to 14 days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a system allows residents to perform sampling, the system

may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

(3)

(i) All tap samples for copper collected in at sites with a lead service line shall be the first draw sample collected using the procedure listed in this paragraph (b)(3). Tap samples for copper are required to be collected and analyzed only in monitoring periods for which copper monitoring is required.

(ii) Systems must collect tap water in five consecutively numbered one-liter sample bottles after the water has stood motionless in the plumbing of each sampling site for at least six hours without flushing the tap prior to sample collection. Systems must analyze first draw samples for copper, when applicable, and fifth liter samples for lead. Bottles used to collect these samples must be wide-mouth one-liter sample bottles. Systems must collect first draw samples in the first sample bottle with each subsequently numbered bottle being filled until the final bottle is filled with the water running constantly during sample collection. Fifth liter sample is the final sample collected in this sequence. System must collect first draw and fifth liter samples from residential housing from the cold-water kitchen or bathroom sink tap First draw and fifth liter samples from a nonresidential building must be one liter in volume and collected at an interior cold water tap from which water is typically drawn for consumption. First draw and fifth liter samples may be collected by the system or the system may allow residents to collect first draw samples and fifth liter samples after instructing the residents on the sampling procedures specified in this paragraph (b)(3)(ii). Sampling instructions provided to customers must not direct the customer to remove the aerator or clean or flush the taps prior to the start of the minimum six-hour stagnation period. To avoid problems of residents handling nitric acid, the system may acidify first draw samples up to 14 days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

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