once every three years using the reduced number of sampling sites specified in paragraph (d)(1) of this section.

(7) *Pre-existing waivers.* Waivers approved by the State in writing prior to the compliance date specified in §141.80(a)(3) are still in effect if the system has demonstrated that it is both free of lead-containing and copper-containing materials, as required by paragraph (g)(1) of this section and that its 90th percentile lead levels and 90th percentile copper levels meet the criteria of paragraph (g)(2) of this section, and the system does not meet the waiver ineligibility criteria of paragraph (g)(5) of this section.

(h) *Publicly accessible tap monitoring results used in the 90th percentile calculation.* Unless done by the State, all water systems must make the tap monitoring results, including data used in the 90th percentile calculation under §141.80(c)(3), publicly accessible within 60 days of the end of the tap sampling period. Under this paragraph (h), water systems are not required to make the addresses of tap sampling sites publicly accessible.

(1) Large water systems must make the tap monitoring results and associated data publicly accessible in a digital format.

(2) Small and medium water systems must make the tap monitoring results and associated data publicly accessible in either a print or digital format.

(3) Water systems must certify to the State, in writing, compliance with this paragraph (h) in accordance with §141.90(a)(2)(iii) and must retain monitoring data in accordance with the recordkeeping requirements under §141.91.

[89 FR 86647, Oct. 30, 2024]

§141.87 Monitoring requirements for water quality parameters.

All large water systems and all medium water systems with corrosion control treatment (unless deemed optimized under §141.81(b)(3)), and all small and medium water systems that exceed the lead action level or copper action level must sample and monitor water quality parameters in addition to lead and copper in accordance with the requirements of this section. Any system may be required to monitor water quality parameters as determined by the State, including as provided in this section.

(a) *General requirements*—(1) *Distribution system samples for water quality parameters.* (i) Distribution system samples collected at water taps must be representative of water quality throughout the distribution system, considering the number of persons served, the different sources of water, the different treatment methods employed by the system, and seasonal variability. Sites selected for sampling in the distribution system under this section can be the same as or different from tap sampling sites targeted for lead and copper sampling under §141.86(a). Systems may consider selecting sites also used for total coliform sampling under §141.21(a)(1). Sites selected for sampling in the distribution system under this section must be included in the site sample plan specified under §141.90(a)(1). The site sample plan must be updated prior to changes to the sampling locations.

(ii) Samples collected in the distribution system must be analyzed for the following parameters, when applicable, as specified:

(A) pH;

(B) Alkalinity;

(C) Orthophosphate (as PO_4), when an inhibitor containing an orthophosphate compound is used;

(D) Silica, when an inhibitor containing a silicate compound is used; and

(E) Any parameters specified by the State under §141.82(a)(1) or (f)(6).

(2) *Entry point samples for water quality parameters.* (i) Samples collected at the entry point(s) to the distribution system must be from locations representative of each source water after treatment. If a system draws water from more than one source water and the source waters are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions when water is representative of all sources typically being used.

(ii) Except as provided in paragraph (b)(3)(ii) of this section for ground water systems, the following parameters must be measured at each entry

point to the distribution system, when applicable, as specified:

(A) pH;

(B) When alkalinity is adjusted as part of corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration;

(C) When a corrosion inhibitor is used as part of corrosion control, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate (as PO_4) or silica (whichever is applicable); and

(D) Any parameters specified by the State under §141.82(a)(1) or (f)(6).

(b) *Standard monitoring for water quality parameters*—(1) *Number of samples*—(i) *Distribution system samples.* Systems must collect two distribution system samples for applicable water quality parameters during each monitoring period specified under paragraphs (b)(2) through (4) of this section from each of the minimum number of sites listed in table 1 to this paragraph (b)(1)(i). Systems that collect distribution system samples for water quality parameters from additional sites as a result of the Distribution System and Site Assessment requirements in §141.82(j) must add those sites to the minimum number of sites listed in table 1 to this paragraph (b)(1)(i) up to a maximum of not more than twice the minimum number of sites.

TABLE 1 TO PARAGRAPH (b)(1)(i)

System size (number of people served)	Minimum number of sites for water quality parameters
>100,000	25
10,001 to 100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
≤100	1

(ii) *Samples at entry points.* (A) Systems without installed or re-optimized OCCT and without State-designated optimal water quality parameters required to collect entry point samples must collect a minimum of two entry point samples for each applicable water quality parameter at each entry point to the distribution system at least once during each monitoring period specified in paragraph (b)(2) of this section.

(B) Systems with installed OCCT or re-optimized OCCT and/or State-designated optimal water quality parameters required to collect entry point samples, including as provided in paragraph (b)(3)(iii) of this section, must collect one entry point sample for each applicable water quality parameter at each entry point to the distribution system at least once every two weeks during each monitoring period the system is required to conduct sampling as specified in paragraphs (b)(3) and (4) and (c) of this section.

(2) *Initial sampling for water systems.* A large water system without corrosion control treatment must begin monitoring for water quality parameters as specified in paragraphs (b)(2)(i) and (ii) of this section during the first two six-month monitoring periods beginning no later than January 1 of the calendar year after the system either becomes a large water system or exceeds the practical quantitation limit for lead. Any medium water system without corrosion control treatment that exceeds the lead action level or the copper action level must begin monitoring for applicable distribution system and entry point water quality parameters as specified in paragraphs (b)(2)(i) and (ii) for two consecutive six-month monitoring periods beginning the month immediately following the end of the tap monitoring period in which the action level exceedance occurred. Any small water system that exceeds the lead or copper action level must begin monitoring for applicable distribution system and entry point water quality parameters as specified in paragraphs (b)(2)(i) and (ii) for two consecutive six-month monitoring periods beginning the month immediately following the end of the tap monitoring period in which the action level exceedance occurred. Systems must continue monitoring as described by paragraphs (b)(3) and (4) of this section.

(i) At sites in the distribution system, collect two samples for:

(A) pH; and

(B) Alkalinity.

(ii) At each entry point to the distribution system, collect all the applicable parameters listed in paragraph (a)(2)(ii) of this section.

(3) *Monitoring after installation of OCCT or re-optimized OCCT.* (i) A system that modifies or installs OCCT pursuant to §141.81(d)(5) or (e)(5) and is required to conduct follow-up monitoring for lead or copper pursuant to §141.81(d)(6) or (e)(6) must monitor for applicable distribution system and entry point water quality parameters as specified in paragraphs (a)(1) and (2) of this section every six months until the State designates new water quality parameter values for OCCT pursuant to §141.82(f). Water systems must collect these samples at a regular frequency throughout the six-month monitoring period to reflect seasonal variability.

(ii) Any ground water system can limit entry point sampling described in paragraph (a)(2) of this section to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated ground water sources mixes with water from treated ground water sources, the system must monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any monitoring under this paragraph (b)(3)(ii), the water system must provide to the State, written information and documentation identifying the selected entry points, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(iii) States may require small water systems with corrosion control treatment for which the State has not designated optimal water quality parameters that do not exceed the lead action level or copper action level to conduct water quality parameter monitoring as described in this paragraph (b) or the State can develop its own water quality parameter monitoring structure for these systems.

(4) *Monitoring by systems with State-designated optimal water quality parameter values for OCCT.* Monitoring must occur at a regular frequency throughout the monitoring period to reflect seasonal variability and be consistent with the requirements in paragraphs (a)(1) and (2) of this section.

(i) Medium water systems with corrosion control treatment and all large water systems must sample for the applicable water quality parameters designated by the State and determine compliance with the requirements of §141.82(g) every six months with the first six-month monitoring period to begin on either January 1 or July 1, whichever comes first, after the State specifies the optimal values under §141.82(f).

(ii) A small water system with corrosion control treatment that exceeds the lead action level or copper action level must begin monitoring during the standard six-month tap monitoring period immediately following the tap monitoring period in which the action level exceedance(s) occurs and continue monitoring until the water system no longer exceeds the lead action level and/or copper action level and meets the State-designated optimal water quality parameters in two consecutive six-month tap monitoring periods under §141.86(c). For any small water system that is subject to a reduced monitoring frequency pursuant to §141.86(d) at the time of the action level exceedance, the start of the six-month monitoring period under this paragraph (b)(4)(ii) must coincide with the start of the tap monitoring period under §141.86(c).

(iii) Compliance with State-designated optimal water quality parameter values must be determined as specified under §141.82(g).

(iv) States have the discretion to require systems described in paragraph (b)(4)(ii) of this section to continue to monitor optimal water quality parameters.

(c) *Reduced monitoring.* (1) A medium or large water system that maintains the range of values for the water quality parameters reflecting OCCT specified by the State under §141.82(f) and does not exceed the lead action level or copper action level in either of the two

consecutive six-month monitoring periods under paragraph (b)(4) of this section must collect two distribution system samples for applicable water quality parameters specified in paragraph (a)(1)(ii) of this section from each of the minimum number of sites listed in table 2 to this paragraph (c)(1) during each six-month monitoring period. These water systems must collect these samples at a regular frequency throughout the six-month monitoring period to reflect seasonal variability. A system meeting the requirements of this paragraph (c)(1) must continue to monitor at the entry point(s) to the distribution system as specified in paragraph (a)(2) of this section. Systems with sites added as a result of the Distribution System and Site Assessment requirements in §141.82(j) must continue to sample at the added sites up to a maximum of not more than twice the minimum number of sites specified in table 1 to paragraph (b)(1)(i) of this section.

TABLE 2 TO PARAGRAPH (c)(1)

System size (number of people served)	Reduced minimum number of sites for water quality parameters
>100,000	10
10,001 to 100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
≤100	1

(2)(i) A water system that maintains the range of values for the water quality parameters reflecting OCCT specified by the State under §141.82(f) and does not exceed the lead action level or copper action level during three consecutive years of monitoring may reduce the frequency with which it collects distribution system samples for applicable water quality parameters specified in paragraph (a)(1)(ii) of this section from each of the minimum number of sites listed in table 2 to paragraph (c)(1) of this section from every six months to annually. This sampling must begin during the calendar year immediately following the end of the monitoring period in which the third consecutive year of six-month monitoring occurs.

(ii) A water system may reduce the frequency with which it collects distribution system samples for applicable water quality parameters specified in paragraph (c)(1) of this section to every year if it demonstrates during two consecutive monitoring periods that its tap water lead level at the 90th percentile is less than or equal to the practical quantitation limit for lead of 0.005 mg/L, that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L as calculated in accordance with §141.80(c)(3), and that it also has maintained the range of values for the water quality parameters reflecting OCCT specified by the State under §141.82(f).

(3) A water system that conducts sampling at taps for water quality parameters annually must collect these samples at a regular frequency throughout the year to reflect seasonal variability.

(4) A water system monitoring at a reduced frequency that fails to operate at or within the range of values for the optimal water quality parameters designated by the State in §141.82(f) for more than nine cumulative days, as specified in §141.82(g), in any six-month period under paragraph (b)(4) of this section must resume distribution system sampling in accordance with the number and frequency requirements in paragraph (b)(4). Such a system may resume annual monitoring for water quality parameters in the distribution system at the reduced number of sites specified in paragraph (c)(1) of this section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of paragraph (c)(1) of this section and/or may resume annual monitoring for water quality parameters in the distribution system at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (c)(2)(i) or (ii) of this section.

(5) Any water system monitoring at a reduced frequency that exceeds the lead action level or copper action level must resume standard water quality parameter monitoring beginning with the six-month period immediately following the tap monitoring period in

which the action level exceedance(s) occurs. When the water system no longer exceeds the lead action level and/or copper action level and meets the State-designated optimal water quality parameters in two consecutive six-month tap monitoring periods, the system may then reduce monitoring in accordance with paragraphs (c)(1) and (2) of this section.

(d) *Additional monitoring by systems.* The results of any monitoring conducted in addition to the minimum requirements of this section must be considered by the water system and the State in determining concentrations of water quality parameters under this section or §141.82.

[89 FR 86652, Oct. 30, 2024]

§141.88 Monitoring requirements for lead and copper in source water.

(a) *Sample location, collection methods, and number of samples.* (1) A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with §141.86 shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

(i) Groundwater systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point). The system shall take one sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(ii) Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point). The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

NOTE TO PARAGRAPH (a)(1)(ii): For the purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.

(iii) If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (*i.e.*, when water is representative of all sources being used).

(iv) The State may reduce the total number of samples which must be analyzed by allowing the use of compositing. Compositing of samples must be done by certified laboratory personnel. Composite samples from a maximum of five samples are allowed, provided that if the lead concentration in the composite sample is greater than or equal to 0.001 mg/L or the copper concentration is greater than or equal to 0.160 mg/L, then either:

(A) A follow-up sample shall be taken and analyzed within 14 days at each sampling point included in the composite; or

(B) If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the system may use these instead of resampling.

(2) Where the results of sampling indicate an exceedance of maximum permissible source water levels established under §141.83(b)(4), the State may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point. If a State-required confirmation sample is taken for lead or copper, then the results of the initial and confirmation sample shall be averaged in determining compliance with the State-specified maximum permissible levels. Any sample value below the detection limit shall be considered to be zero. Any value above the detection limit but below the PQL shall either be considered as the measured value or be considered one-half the PQL.

(b) *Monitoring frequency after system exceeds tap water action level.* Any system which exceeds the lead or copper action level at the tap for the first time or for the first time after an addition of a new source or installation of source water treatment required under