

Environmental Protection Agency

§ 141.87

level. Any water system subject to the reduced monitoring frequency that fails to operate within the range of values for the water quality parameters specified by the State under §141.82(f) shall resume tap water sampling in accordance with paragraph (d)(3) of this section and collect the number of samples specified for standard monitoring under paragraph (c) of this section.

(e) *Additional monitoring by systems.* The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the State in making any determinations (i.e., calculating the 90th percentile lead or copper level) under this subpart.

[56 FR 26548, June 7, 1991; 56 FR 32113, July 15, 1991; 57 FR 28788, June 29, 1992]

§141.87 Monitoring requirements for water quality parameters.

All large water systems, and all small- and medium-size systems that exceed the lead or copper action level shall monitor water quality parameters in addition to lead and copper in accordance with this section. The requirements of this section are summarized in the table at the end of this section.

(a) *General requirements*—(1) *Sample collection methods.* (i) Tap samples shall be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the system, and seasonal variability. Tap sampling under this section is not required to be conducted at taps targeted for lead and copper sampling under §141.86(a). [Note: Systems may find it convenient to conduct tap sampling for water quality parameters at sites used for coliform sampling under 40 CFR 141.21.]

(ii) Samples collected at the entry point(s) to the distribution system shall be from locations representative of each source after treatment. 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).

(2) *Number of samples.* (i) Systems shall collect two tap samples for applicable water quality parameters during each monitoring period specified under paragraphs (b) through (e) of this section from the following number of sites.

System size (No. people served)	No. of sites for water quality parameters
>100,000	25
10,001–100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
≤100	1

(ii) Systems shall collect two samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in paragraph (b) of this section. During each monitoring period specified in paragraphs (c)–(e) of this section, systems shall collect one sample for each applicable water quality parameter at each entry point to the distribution system.

(b) *Initial sampling* All large water systems shall measure the applicable water quality parameters as specified below at taps and at each entry point to the distribution system during each six-month monitoring period specified in §141.86(d)(1). All small and medium-size systems shall measure the applicable water quality parameters at the locations specified below during each six-month monitoring period specified in §141.86(d)(1) during which the system exceeds the lead or copper action level.

- (1) At taps:
 - (i) pH;
 - (ii) Alkalinity;
 - (iii) Orthophosphate, when an inhibitor containing a phosphate compound is used;
 - (iv) Silica, when an inhibitor containing a silicate compound is used;
 - (v) Calcium;
 - (vi) Conductivity; and
 - (vii) Water temperature.

(2) At each entry point to the distribution system: all of the applicable parameters listed in paragraph (b)(1) of this section.

(c) *Monitoring after installation of corrosion control.* Any large system which

installs optimal corrosion control treatment pursuant to §141.81(d)(4) shall measure the water quality parameters at the locations and frequencies specified below during each six-month monitoring period specified in §141.86(d)(2)(i). Any small or medium-size system which installs optimal corrosion control treatment shall conduct such monitoring during each six-month monitoring period specified in §141.86(d)(2)(ii) in which the system exceeds the lead or copper action level.

- (1) At taps, two samples for:
 - (i) pH;
 - (ii) Alkalinity;
 - (iii) Orthophosphate, when an inhibitor containing a phosphate compound is used;
 - (iv) Silica, when an inhibitor containing a silicate compound is used;
 - (v) Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(2) At each entry point to the distribution system, one sample every two weeks (bi-weekly) for:

- (i) pH;
- (ii) When alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration; and
- (iii) When a corrosion inhibitor is used as part of optimal corrosion control, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica (whichever is applicable).

(d) *Monitoring after State specifies water quality parameter values for optimal corrosion control.* After the State specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment under §141.82(f), all large systems shall measure the applicable water quality parameters in accordance with paragraph (c) of this section during each monitoring period specified in §141.86(d)(3). Any small or medium-size system shall conduct such monitoring during each monitoring period specified in §141.86(d)(3) in which the system exceeds the lead or copper action level. The system may take a confirmation sample for any water quality parameter value no later than 3 days after the first sample. If a con-

firmation sample is taken, the result must be averaged with the first sampling result and the average must be used for any compliance determinations under §141.82(g). States have discretion to delete results of obvious sampling errors from this calculation.

(e) *Reduced monitoring.* (1) Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two consecutive six-month monitoring periods under paragraph (d) of this section shall continue monitoring at the entry point(s) to the distribution system as specified in paragraph (c)(2) of this section. Such system may collect two tap samples for applicable water quality parameters from the following reduced number of sites during each six-month monitoring period.

System size (No. of people served)	Reduced No. 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) Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the State under §141.82(f) during three consecutive years of monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in this paragraph (e)(1) of this section from every six months to annually. Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the State under §141.82(f) during three consecutive years of annual monitoring under this paragraph may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in paragraph (e)(1) from annually to every three years.

(3) A water system that conducts sampling annually shall collect these samples evenly throughout the year so as to reflect seasonal variability.

Environmental Protection Agency

§ 141.88

(4) Any water system subject to the reduced monitoring frequency that fails to operate within the range of values for the water quality parameters specified by the State in § 141.82(f) shall resume tap water sampling in accordance with the number and frequency requirements in paragraph (d) of this section.

(f) *Additional monitoring by systems.* The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the State in making any determinations (i.e., determining concentrations of water quality parameters) under this section or § 141.82.

SUMMARY OF MONITORING REQUIREMENTS FOR WATER QUALITY PARAMETERS ¹

Monitoring Period	Parameters ²	Location	Frequency
Initial Monitoring	pH, alkalinity, orthophosphate or silica ³ , calcium, conductivity, temperature.	Taps and at entry point(s) to distribution system.	Every 6 months
After Installation of Corrosion Control	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps	Every 6 months
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system.	Biweekly
After State Specifies Parameter Values For Optimal Corrosion Control.	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps	Every 6 months
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system.	Biweekly
Reduced Monitoring	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps	Every 6 months at a reduced number of sites
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system.	Biweekly

¹ Table is for illustrative purposes; consult the text of this section for precise regulatory requirements.
² Small and medium-size systems have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.
³ Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.
⁴ Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.
⁵ Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

[56 FR 26548, June 7, 1991; 57 FR 28788, June 29, 1992, as amended at 59 FR 33862, June 30, 1994]

§ 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 requirements regarding sample location, number of samples, and collection methods specified in § 141.23(a) (1)-(4) (inorganic chemical sampling). (Note: The timing of sam-

pling for lead and copper shall be in accordance with paragraphs (b) and (c) of this section, and not dates specified in § 141.23(a) (1) and (2)).

(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