§ 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.

<table>
<thead>
<tr>
<th>System size (No. people served)</th>
<th>No. of sites for water quality parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;100,000</td>
<td>25</td>
</tr>
<tr>
<td>10,001–100,000</td>
<td>10</td>
</tr>
<tr>
<td>3,301 to 10,000</td>
<td>3</td>
</tr>
<tr>
<td>501 to 3,300</td>
<td>2</td>
</tr>
<tr>
<td>101 to 500</td>
<td>1</td>
</tr>
<tr>
<td>≤100</td>
<td>1</td>
</tr>
</tbody>
</table>

(ii) Except as provided in paragraph (c)(3) of this section, systems shall collect two samples for each applicable water quality parameter at each entry
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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) Except as provided in paragraph (c)(3) of this section, at each entry point to the distribution system, at least one sample no less frequently than every two weeks (biweekly) 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).

   (3) Any ground water system can limit entry point sampling described in paragraph (c)(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 no treatment and at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any monitoring under this paragraph, the system shall provide to the State written information identifying the selected entry points and documenting, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(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 and determine compliance with the requirements of §141.82(g) every six months with the first six-month period to begin on either January 1 or July 1, whichever comes first, after the State
specifies the optimal values under §141.82(f). Any small or medium-size system shall conduct such monitoring during each six-month period specified in this paragraph in which the system exceeds the lead or copper action level. For any such small and medium-size system that is subject to a reduced monitoring frequency pursuant to §141.86(d)(4) at the time of the action level exceedance, the start of the applicable six-month monitoring period under this paragraph shall coincide with the start of the applicable monitoring period under §141.86(d)(4). Compliance with State-designated optimal water quality parameter values shall be determined as specified under §141.82(g).

(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.

<table>
<thead>
<tr>
<th>System size (No. of people served)</th>
<th>Reduced No. of sites for water quality parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;100,000</td>
<td>10</td>
</tr>
<tr>
<td>10,001 to 100,000</td>
<td>7</td>
</tr>
<tr>
<td>3,301 to 10,000</td>
<td>3</td>
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<tr>
<td>501 to 3,300</td>
<td>2</td>
</tr>
<tr>
<td>101 to 500</td>
<td>1</td>
</tr>
<tr>
<td>≤100</td>
<td>1</td>
</tr>
</tbody>
</table>

(2)(i) 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 may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in paragraph (e)(1) of this section from annually to every three years. This sampling begins no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.

(ii) A water system may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in paragraph (e)(1) of this section to every three years 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 PQL for lead specified in §141.89 (a)(1)(ii), that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L for copper in §141.80(c)(2), and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the State under §141.82(f). Monitoring conducted every three years shall be done no later than the third calendar year.

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

(4) Any water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the State in §141.82(f) for more than nine days in any six-month period specified in §141.82(g) shall resume distribution system tap water sampling in accordance with the number and frequency requirements in paragraph (d) of this section. Such a system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in paragraph (e)(1) of this section after it has completed two subsequent six-month monitoring periods.
§ 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 which is representative of each well after treatment (hereafter called a sampling point). The system shall take one sample at the same sampling point unless