**Section 611.532 Unfiltered PWSs**

If the Agency determines that filtration is required, it must specify alternative monitoring requirements, as appropriate, until filtration is in place. A supplier using a groundwater source under the direct influence of surface water not providing filtration treatment must monitor as the Agency directs in a SEP after determining under Section 611.212 that the supplier's groundwater source is under the direct influence of surface water, requiring the supplier to install and apply filtration treatment, and specifying appropriate monitoring requirements until filtration is in place.

a) The supplier must sample and analyze for fecal coliform or total coliform as Section 611.231(a) requires on representative source water samples it collects immediately prior to the first or only point of applying disinfectant. The supplier must sample for fecal or total coliforms no less frequently than Table B specifies each week the supplier serves water to the public. The supplier must also sample and analyze once for fecal or total coliform density every day the supplier serves water to the public and the turbidity of its source water exceeds 1 NTU (these samples count towards the weekly coliform sampling requirement), unless the Agency issues a SEP determining that the supplier cannot analyze within 30 hours after collecting the sample for logistical reasons outside the supplier’s control.

b) The supplier must measure turbidity as Section 611.231(b) requires on representative grab samples of source water it collects immediately prior to the first or only point of applying disinfectant no less frequently than every four hours when the supplier serves water to the public. A supplier may substitute continuous turbidity monitoring for grab sample monitoring after validating the accuracy of regular the continuous measurement for accuracy using a protocol the Agency approved in a SEP.

c) The supplier must determine its total inactivation ratio for each day it operates based on the appropriate CT99.9 values in Appendix B. The supplier must monitor the parameters necessary to determine its total inactivation ratio using specific procedures:

1) The supplier must measure temperature of the disinfected water at least once per day at each RDC sampling point.

2) If using chlorine, the supplier must measure the pH of the disinfected water at least once per day at each chlorine RDC sampling point.

3) The supplier must determine the disinfectant contact times ("T") for each day during peak hourly flow.

4) The supplier must measure the RDCs ("C") of the water before or at the first customer each day during peak hourly flow.

5) A supplier using a disinfectant other than chlorine may monitor by other Agency-approved methods under Section 611.241(a).

d) The supplier must calculate total inactivation ratio using a specific procedure:

1) A supplier applying disinfectant at only one point may determine the total inactivation ratio based on either of two methods:

A) Determining one inactivation ratio (Ai=CTcalc/CT99.9) before or at the first customer during peak hourly flow, so that the supplier achieves 99.9 percent Giardia lamblia inactivation if the Ai is greater than 1.0; or

B) The supplier may determine successive Ai values at points between where the supplier applies disinfectant and before or at the first customer, representing sequential inactivation ratios, during peak hourly flow. Under this alternative, the supplier must use a specific method to calculate the total inactivation ratio:

i) Determine Ai for each sequence:

Ai = CTcalc/CT99.9

ii) Add the Ai values:

B = ∑(Ai)

iii) If B is greater than 1.0, the supplier achieved the required 99.9 percent Giardia lamblia inactivation.

2) A supplier applying disinfectant at more than one point before or at the first customer must determine the CT value of each disinfection sequence immediately prior to the next point it applies disinfectant during peak hourly flow. The supplier must calculate the Ai value of each sequence and B using the method in subsection (d)(1)(B) to determine if the supplier complies with Section 611.241.

3) A supplier monitoring RDC at one or more points may voluntarily calculate its total percent inactivation (PI) may using the equation:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PI | = | 100 | - | 100 |
| 103B |

e) The supplier must continuously monitor the RDC of the water entering its distribution system and record the lowest value each day, except that the supplier may use grab sampling every four hours for no more than five days in lieu of continuous monitoring after a failure of the continuous monitoring equipment. A supplier serving 3,300 or fewer persons may take grab samples on an ongoing basis at the applicable frequency in Table C in lieu of continuous monitoring. If the RDC falls below 0.2 mg/L in a system using grab sampling in lieu of continuous monitoring, the supplier must take a grab sample every four hours until its RDC is equal to or greater than 0.2 mg/L.

f) Measuring Points

1) The supplier must measure the RDC at the same points in its distribution system and at the same time it samples total coliforms, as Sections 611.1054 through 611.1058 specify. The Agency must allow a supplier using both a groundwater source and a surface water source or groundwater source under direct influence of surface water to take disinfectant residual samples at points other than the total coliform sampling points if the Agency issues a SEP determining that those points better represent treated (disinfected) water quality within the distribution system. The supplier may measure HPC in lieu of RDC.

2) If the Agency determines under Section 611.213 that a supplier has no means for having a sample analyzed for HPC as subsection (a) specifies, the subsection (f)(1) does not apply.

BOARD NOTE: This Section derives from 40 CFR 141.74(b).

(Source: Amended at 47 Ill. Reg. 16486, effective November 2, 2023)