40 CFR 141.72

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§ 141.72 Disinfection.

A public water system that uses a surface water source and does not provide filtration treatment must provide the disinfection treatment specified in paragraph (a) of this section beginning December 30, 1991, unless the State determines that filtration is required in writing pursuant to § 1412 (b)(7)(C)(iii). A public water system that uses a ground water source under the direct influence of surface water and does not provide filtration treatment must provide disinfection treatment specified in paragraph (a) of this section beginning December 30, 1991, or 18 months after the State determines that the ground water source is under the influence of surface water, whichever is later, unless the State has determined that filtration is required in writing pursuant to § 1412(b)(7)(C)(iii). If the State has determined that filtration is required, the system must comply with any interim disinfection requirements the State deems necessary before filtration is installed. A system that uses a surface water source that provides filtration treatment must provide the disinfection treatment specified in paragraph (b) of this section beginnng June 29, 1993, or beginning when filtration is installed, whichever is later. A system that uses a ground water source under the direct influence of surface water and provides filtration treatment must provide disinfection treatment as specified in paragraph (b) of this section by June 29, 1993, or beginning when filtration is installed, whichever is later. Failure to meet any requirement of this section after the applicable date specified in this introductory paragraph is a treatment technique violation.

(a) Disinfection requirements for public water systems that do not provide filtration. Each public water system that does not provide filtration treatment must provide disinfection treatment as follows:

(1) The disinfection treatment must be sufficient to ensure at least 99.9 percent (3-log) inactivation of Giardia lamblia cysts and 99.99 percent (4-log) inactivation of viruses, every day the system serves water to the public, except any one day each month. Each day a system serves water to the public, the public water system must calculate the CT value(s) from the system's treatment parameters, using the procedure specified in § 141.74(b)(3), and determine whether this value(s) is sufficient to achieve the specified inactivation rates for Giardia lamblia cysts and viruses. If a system uses a disinfectant other than chlorine, the system may demonstrate to the State, through the use of a State-approved protocol for on-site disinfection challenge studies or other information satisfactory to the State, that CT99.9 values other than those specified in Tables 2.1 and 3.1 in § 141.74(b)(3) or other operational parameters are adequate to demonstrate that the system is achieving minimum inactivation rates required by paragraph (a)(1) of this section.

(2) The disinfection system must have either (i) redundant components, including an auxiliary power supply with automatic start-up and alarm to ensure that disinfectant application is maintained continuously while water is being delivered to the distribution system, or (ii) automatic shut-off of delivery of water to the distribution system whenever there is less than 0.2 mg/l of residual disinfectant concentration in the water. If the State determines that automatic shut-off would cause unreasonable risk to health or interfere with fire protection, the system must comply with paragraph (a)(2)(i) of this section.

(3) The residual disinfectant concentration in the water entering the distribution system, measured as specified in § 141.74(a)(2) and (b)(5), cannot be less than 0.2 mg/l for more than 4 hours.

(4)

(i) The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in § 141.74(a)(2) and (b)(6), cannot be undetectable in more than 5 percent of the samples each month, for any two consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to 500/ml, measured as heterotrophic plate count (HPC) as specified in § 141.74(a)(1), is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the value "V" in the following formula cannot exceed 5 percent in one month, for any two consecutive months.

V= c + d + e / a + b X 100

where:

a=number of instances where the residual disinfectant concentration is measured;

b=number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured;

c=number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;

d=number of instances where the residual disinfectant concentration is measured but not detected and where the HPC is 500/ml; and

e=number of instances where the residual disinfectant concentration is not measured and HPC is 500/ml.

(ii) If the State determines, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by § 141.74(a)(1) and that the system is providing adequate disinfection in the distribution system, the requirements of paragraph (a)(4)(i) of this section do not apply to that system.

(b) Disinfection requirements for public water systems which provide filtration. Each public water system that provides filtration treatment must provide disinfection treatment as follows.

(1) The disinfection treatment must be sufficient to ensure that the total treatment processes of that system achieve at least 99.9 percent (3-log) inactivation and/or removal of Giardia lamblia cysts and at least 99.99 percent (4-log) inactivation and/or removal of viruses, as determined by the State.

(2) The residual disinfectant concentration in the water entering the distribution system, measured as specified in § 141.74 (a)(2) and (c)(2), cannot be less than 0.2 mg/l for more than 4 hours.

(3)

(i) The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in § 141.74 (a)(2) and (c)(3), cannot be undetectable in more than 5 percent of the samples each month, for any two consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to 500/ml, measured as heterotrophic plate count

(HPC) as specified in § 141.74(a)(1), is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the value "V" in the following formula cannot exceed 5 percent in one month, for any two consecutive months.

V= c + d + e / a + b X 100

where:

a=number of instances where the residual disinfectant concentration is measured;

b=number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured;

c=number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;

d=number of instances where no residual disinfectant concentration is detected and where the HPC is 500/ml; and

e=number of instances where the residual disinfectant concentration is not measured and HPC is 500/ml.

(ii) If the State determines, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified in § 141.74(a)(1) and that the system is providing adequate disinfection in the distribution system, the requirements of paragraph (b)(3)(i) of this section do not apply.

Statutory Authority

AUTHORITY NOTE APPLICABLE TO ENTIRE PART:

*42 U.S.C. 300f,*300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-4, 300j-9, and 300j-11.

History

[54 FR 27527, June 29, 1989; *69 FR 38850, 38855,* June 29, 2004]

Annotations

Notes

[EFFECTIVE DATE NOTE:

69 FR 38850, 38855, June 29, 2004, amended this section, effective July 29, 2004.]