

disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The $(CT_{calc}/CT_{99.9})$ value of each segment and $(\Sigma(CT_{calc}/CT_{99.9}))$ must be calculated using the method in paragraph (d)(1)(ii) of this section.

(3) The system must determine the total logs of inactivation by multiplying the value calculated in paragraph (d)(1) or (d)(2) of this section by 3.0.

(4) Systems must calculate the log of inactivation for viruses using a protocol approved by the State.

(5) Systems must retain the disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the State for review as part of sanitary surveys conducted by the State.

§ 141.714 Requirements when making a significant change in disinfection practice.

(a) A system that is required to develop a disinfection profile under the provisions of this subpart and that plans to make a significant change to its disinfection practice must calculate a disinfection benchmark and must notify the State prior to making such a change. Significant changes to disinfection

practice are defined in paragraphs (a)(1) through (4) of this section.

(1) Changes to the point of disinfection;

(2) Changes to the disinfectant(s) used in the treatment plant;

(3) Changes to the disinfection process; and

(4) Any other modification identified by the State.

(5) Systems must use the procedures specified in paragraphs (a)(5)(i) and (ii) of this section to calculate a disinfection benchmark.

(i) For the year of profiling data collected and calculated under § 141.713, or for each year with profiles covering more than one year, systems must determine the lowest mean monthly level of both *Giardia lamblia* and virus inactivation. Systems must determine the mean *Giardia lamblia* and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly *Giardia lamblia* and virus log inactivation by the number of values calculated for that month.

(ii) The disinfection benchmark is the lowest monthly mean value (for systems with one year of profiling data) or the mean of the lowest monthly mean

values (for systems with more than one year of profiling data) of *Giardia lamblia* and virus log inactivation in each year of profiling data.

(6) Systems must submit the information in paragraphs (a)(6)(i) through (iii) of this section when notifying the State that they are planning to make a significant change in disinfection practice.

(i) A description of the proposed change.

(ii) The disinfection profile and benchmark for *Giardia lamblia* and viruses determined under §§ 141.713 and 141.714.

(iii) An analysis of how the proposed change will affect the current level of disinfection.

Treatment Technique Requirements

§ 141.720 Treatment requirements for filtered systems.

(a) Filtered systems or systems that are unfiltered and required to install filtration must provide the level of treatment for *Cryptosporidium* specified in this paragraph, based on their bin classification as determined under § 141.709 and their existing treatment:

If the system bin classification is . . .	And the system uses the following filtration treatment in full compliance with subpart H, P, and T of this section (as applicable), then the additional treatment requirements are . . .			
	Conventional filtration treatment (including softening)	Direct filtration	Slow sand or diatomaceous earth filtration	Alternative filtration technologies
(1) Bin 1	No additional treatment	No additional treatment	No additional treatment	No additional treatment
(2) Bin 2	1 log treatment	1.5 log treatment	1 log treatment	(¹)
(3) Bin 3	2 log treatment	2.5 log treatment	2 log treatment	(²)
(4) Bin 4	2.5 log treatment	3 log treatment	2.5 log treatment	(³)

¹ As determined by the State such that the total *Cryptosporidium* removal and inactivation is at least 4.0 log.

² As determined by the State such that the total *Cryptosporidium* removal and inactivation is at least 5.0 log.

³ As determined by the State such that the total *Cryptosporidium* removal and inactivation is at least 5.5 log.

(b) Filtered systems must use one, or a combination, of the management and treatment options listed in § 141.722, termed the microbial toolbox, to meet the additional *Cryptosporidium* treatment requirements identified for each bin in paragraph (a) of this section.

(c) Systems classified in Bin 3 and Bin 4 must achieve at least 1 log of the additional treatment required under paragraph (a) of this section using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, and/or UV as specified in § 141.722.

§ 141.721 Treatment requirements for unfiltered systems.

(a) Following completion of the initial source water monitoring required under § 141.702(a), unfiltered systems that

meet all filtration avoidance criteria of § 141.71 must calculate the arithmetic mean of all *Cryptosporidium* sample concentrations reported under § 141.702(a), along with any previously collected data that satisfy the requirements of § 141.708, and must meet the treatment requirements in paragraph (b)(1) or (2) of this section, as applicable, based on this concentration.

(b)(1) Unfiltered systems with a mean *Cryptosporidium* concentration of 0.01 oocysts/L or less must provide at least 2 log *Cryptosporidium* inactivation.

(2) Unfiltered systems with a mean *Cryptosporidium* concentration of greater than 0.01 oocysts/L must provide at least 3 log *Cryptosporidium* inactivation.

(c) Unfiltered systems must use chlorine dioxide, ozone, or UV as specified in § 141.722 to meet the

Cryptosporidium inactivation requirements of this section.

(1) Unfiltered systems that use chlorine dioxide or ozone and fail to achieve the *Cryptosporidium* log inactivation required in paragraph (b)(1) or (2) of this section, as applicable, on more than one day in the calendar month are in violation of the treatment technique requirement.

(2) Unfiltered systems that use UV light and fail to achieve the *Cryptosporidium* log inactivation required in paragraph (b)(1) or (2) of this section, as applicable, in at least 95% of the water that is delivered to the public during each calendar month, based on monitoring required under paragraph § 141.729(d)(4), are in violation of the treatment technique requirement.

(d) Unfiltered systems must meet the combined *Cryptosporidium*, *Giardia*