

assignment described in this section. EPA requests comment on whether bin classifications should formally be made or reviewed by States.

Source Water Type Classification for Systems That Use Multiple Sources

In today's proposal, the *E. coli* concentrations that trigger small system *Cryptosporidium* monitoring are different for systems using lake/reservoir and flowing stream sources. However, EPA recognizes that some systems use multiple sources, potentially including both lake/reservoir and flowing stream sources, and that the use of different sources may vary during the year. Further, some systems use sources that are ground water under the direct influence (GWUDI) of surface water. EPA requests comment on how to apply the *E. coli* criteria for triggering *Cryptosporidium* monitoring to systems using multiple sources and GWUDI sources.

B. Unfiltered System Treatment Technique Requirements for *Cryptosporidium*

1. What Is EPA Proposing Today?

a. *Overview.* EPA is proposing treatment technique requirements for *Cryptosporidium* in unfiltered systems. Today's proposal requires all unfiltered systems using surface water or ground water under the direct influence of surface water to achieve at least 2 log (99%) inactivation of *Cryptosporidium* prior to the distribution of finished water. Further, unfiltered systems must monitor for *Cryptosporidium* in their source water, and where monitoring demonstrates a mean level above 0.01 oocysts/L, systems must provide at least 3 log *Cryptosporidium* inactivation. Disinfectants that can be used to meet this treatment requirement include ozone, ultraviolet (UV) light, and chlorine dioxide.

All current requirements for unfiltered systems under 40 CFR 141.71 and 141.72(a) remain in effect, including requirements to inactivate at least 3 log of *Giardia lamblia* and 4 log of viruses. In addition, unfiltered systems must meet their overall disinfection requirements using a minimum of two disinfectants. These proposed requirements reflect recommendations of the Stage 2 M-DBP Federal Advisory Committee. Details of the proposed requirements are described in the following sections.

b. *Monitoring requirements.* Requirements for *Cryptosporidium* monitoring by unfiltered systems are similar to requirements for filtered systems of the same size, as given in

section IV.A.1. Unfiltered systems serving at least 10,000 people must sample their source water for *Cryptosporidium* at least monthly for two years, beginning no later than 6 months after promulgation of this rule. Samples may be collected more frequently (e.g., semi-monthly, weekly) as long as a consistent frequency is maintained throughout the monitoring period.

Unfiltered systems serving fewer than 10,000 people must conduct source water sampling for *Cryptosporidium* at least twice-per-month for one year, beginning no later than 4 years following promulgation of this rule (i.e., on the same schedule as small filtered systems). However, unlike small filtered systems, small unfiltered systems cannot monitor for an indicator (e.g., *E. coli*) to determine if they are required to monitor for *Cryptosporidium*. EPA has not identified indicator criteria that can effectively screen for plants with *Cryptosporidium* concentrations below 0.01 oocysts/L. Consequently, all small unfiltered systems must conduct *Cryptosporidium* monitoring.

As described in section IV.K and IV.L, *Cryptosporidium* analyses must be performed on at least 10 L per sample with EPA Methods 1622 or 1623, and must be conducted by laboratories approved for these methods by EPA. Analysis of larger sample volumes is allowed, provided the laboratory has demonstrated comparable method performance to that achieved on a 10 L sample. Section IV.J describes requirements for reporting sample analysis results. All *Cryptosporidium* samples must be collected in accordance with a schedule that is developed by the system and submitted to EPA or the State at least 3 months prior to initiation of sampling. Refer to section IV.A.1 for requirements pertaining to any failure to report a valid sample analysis result for a scheduled sampling date and procedures for collecting a replacement sample.

Unfiltered systems are required to participate in future *Cryptosporidium* monitoring on the same schedule as filtered systems of the same size. Future monitoring requirements for filtered systems are described in section IV.A.1.

Unfiltered systems are not required to conduct source water *Cryptosporidium* monitoring under the LT2ESWTR if the system currently provides or will provide a total of at least 3 log *Cryptosporidium* inactivation, equivalent to meeting the treatment requirements for unfiltered systems with a mean *Cryptosporidium* concentration of greater than 0.01

oocysts/L. Systems must notify the State not later than the date the system is otherwise required to submit a sampling schedule for monitoring. Systems must install and operate technologies to provide a total of at least 3 log *Cryptosporidium* inactivation by the applicable date in Table IV-24.

c. *Treatment requirements.* All unfiltered systems must provide treatment for *Cryptosporidium*, and the degree of required treatment depends on the level of *Cryptosporidium* in the source water as determined through monitoring. Unfiltered systems must calculate their average source water *Cryptosporidium* concentration using the arithmetic mean of all samples collected during the required two year monitoring period (or one year monitoring period for small systems). For unfiltered systems with mean source water *Cryptosporidium* levels of less than or equal to 0.01 oocysts/L, 2 log *Cryptosporidium* inactivation is required. Where the mean source water level is greater than 0.01 oocysts/L, 3 log inactivation is required.

In addition, unfiltered systems are required to use at least two different disinfectants to meet their overall inactivation requirements for viruses (4 log), *Giardia lamblia* (3 log), and *Cryptosporidium* (2 or 3 log). Further, each of the two disinfectants must achieve by itself the total inactivation required for one of these three pathogen types. For example, a system could use UV light to achieve 2 log inactivation of *Cryptosporidium* and *Giardia lamblia*, and use chlorine to inactivate 1 log *Giardia lamblia* and 4 log viruses. In this case, chlorine would achieve the total inactivation required for viruses while UV light would achieve the total inactivation required for *Cryptosporidium*, and the two disinfectants together would meet the overall treatment requirements for viruses, *Giardia lamblia*, and *Cryptosporidium*. In all cases unfiltered systems must continue to meet disinfectant residual requirements for the distribution system.

EPA has developed criteria, described in sections IV.C.14-15, for systems to determine *Cryptosporidium* inactivation credits for chlorine dioxide, ozone, and UV light. Unfiltered systems are allowed to use any of these disinfectants to meet the 2 (or 3) log *Cryptosporidium* inactivation requirement. The following paragraphs describe standards for demonstrating compliance with the proposed *Cryptosporidium* treatment technique requirement. For systems using ozone and chlorine dioxide, these standards are similar to current standards for compliance with *Giardia*