

quality following initial risk bin classification. These provisions include source water assessment during sanitary surveys and a second round of monitoring.

Under 40 CFR 142.16(b)(3)(i), source water is one of the components that States must address during the sanitary surveys that are required for surface water systems. These sanitary surveys must be conducted every 3 years for community systems and every 5 years for non-community systems. EPA is proposing that if the State determines during the sanitary survey that significant changes have occurred in the watershed that could lead to increased contamination of the source water, the State may require systems to implement specific actions to address the contamination. These actions include implementing options from the microbial toolbox discussed in section IV.C.

EPA is proposing that systems conduct a second round of source water monitoring, beginning six years after systems are initially classified in LT2ESWTR risk bins. To prepare for this second round of monitoring, the Advisory Committee recommended that EPA initiate a stakeholder process four years after large systems complete initial bin classification. The purpose of the stakeholder process would be to review risk information, and to determine the appropriate analytical method, monitoring frequency, monitoring location, and other criteria for the second round of monitoring.

If EPA does not modify LT2ESWTR requirements through issuing a new regulation prior to the second round of monitoring, systems must carry out this monitoring according to the requirements that apply to the initial round of source water monitoring. Moreover, systems will be reclassified in LT2ESWTR risk bins based on the second round monitoring results and using the criteria specified in this section for initial bin classification. However, if EPA changes the LT2ESWTR risk bin structure to reflect a new analytical method or new risk information, systems will undergo a site specific risk characterization in accordance with the revised rule.

c. Treatment Requirements

i. Bin classification. Under the proposed LT2ESWTR, surface water systems that use filtration will be classified in one of four *Cryptosporidium* concentration categories (bins) based on the results of source water monitoring. As shown in Table IV-2, bin classification is determined by averaging the

Cryptosporidium concentrations measured for individual samples.

TABLE IV-2.— BIN CLASSIFICATION
TABLE FOR FILTERED SYSTEMS

If your average <i>Cryptosporidium</i> concentration ¹ is . . .	Then your bin classification is . . .
<i>Cryptosporidium</i> <0.075/L 0.075/L ≤ <i>Cryptosporidium</i> < 1.0/L.	Bin 1. Bin 2.
1.0/L ≤ <i>Cryptosporidium</i> < 3.0/L.	Bin 3.
<i>Cryptosporidium</i> ≥ 3.0/L ...	Bin 4.

¹ All concentrations shown in units of oocysts/L

The approach that systems will use to average individual sample concentrations to determine their bin classification depends on the number of samples collected and the length of the monitoring period. Systems serving at least 10,000 people are required to monitor for 24 months, and their bin classification must be based on the following:

- (1) Highest twelve month running annual average for monthly sampling, or
- (2) two year mean if system conducts twice-per-month or more frequent sampling for 24 months (*i.e.*, at least 48 samples).

Systems serving fewer than 10,000 people are required to collect 24 *Cryptosporidium* samples over 12 months if they exceed the *E. coli* trigger level, and their bin classification must be based on the mean of the 24 samples. As noted earlier, systems that fail to complete the required *Cryptosporidium* monitoring will be classified in Bin 4.

When determining LT2ESWTR bin classification, systems must calculate individual sample concentrations using the total number of oocysts counted, unadjusted for method recovery, divided by the volume assayed (see section IV.K for details). As described in Section IV.A.2, the ranges of *Cryptosporidium* concentrations that define LT2ESWTR bins reflect consideration of analytical method recovery and the percent of *Cryptosporidium* oocysts that are infectious. Consequently, sample analysis results will not be adjusted for these factors.

ii. Credit for treatment in place. A key parameter in determining additional *Cryptosporidium* treatment requirements is the credit that plants receive for treatment currently provided (*i.e.*, treatment in place). For baseline treatment requirements established by the SWTR, IESWTR, and LT1ESWTR that apply uniformly to filtered systems, the Agency has awarded credit based on

the minimum removal that plants will achieve. Specifically, in the IESWTR and LT1ESWTR, EPA determined that filtration plants, including conventional, direct, slow sand, and DE, meeting the required filter effluent turbidity criteria will achieve at least 2 log removal of *Cryptosporidium*. Consequently, these plants were awarded a 2 log *Cryptosporidium* removal credit, which equals the maximum treatment required under these regulations.

The LT2ESWTR will supplement existing regulations by mandating additional treatment at certain plants based on site specific conditions (*i.e.*, source water *Cryptosporidium* level). When assessing the need for additional treatment beyond baseline requirements for higher risk systems, the Agency has determined that it is appropriate to consider the average removal efficiency achieved by treatment plants. As described in section III.D, EPA has concluded that conventional, slow sand, and DE plants in compliance with the SWTR, IESWTR, and LT1ESWTR achieve an average *Cryptosporidium* reduction of 3 log. Consequently, EPA is proposing to award these plants a 3 log credit towards *Cryptosporidium* treatment requirements under the LT2ESWTR. As noted previously, this approach is consistent with the Stage 2 M-DBP Agreement in Principle.

For other types of filtration plants, treatment credit under the LT2ESWTR differs. Conventional treatment is defined in 40 CFR 141.2 as a series of processes including coagulation, flocculation, sedimentation, and filtration, with sedimentation defined as a process for removal of solids before filtration by gravity or separation. Thus, plants with separation (*i.e.*, clarification) processes other than gravity sedimentation between flocculation and filtration, such as DAF, may be regarded as conventional treatment for purposes of awarding treatment credit under the LT2ESWTR. However, for direct filtration plants, which lack a sedimentation process, EPA is proposing a 2.5 log *Cryptosporidium* removal credit. Studies that support awarding direct filtration plants less treatment credit than conventional plants are summarized in section III.D.

EPA is unable to estimate an average log removal for other filtration technologies like membranes, bag filters, and cartridge filters, due to variability among products. As a result, credit for these devices must be determined by the State, based on product specific testing described in section IV.C or other criteria approved by the State.