

the credit would be awarded, (2) whether available data are consistent with the decision not to award presumptive credit for roughing filters and raw water off-stream storage, and (3) whether additional data are available on treatment effectiveness of toolbox components for reducing *Cryptosporidium* levels. EPA will consider modifying today's proposal for microbial toolbox components based on new information that may be provided.

EPA particularly solicits comment on the performance of alternative filtration technologies that are currently being used, as well as ones that systems are considering for use in the future, specifically including bag filters,

cartridge filters, and bank filtration, in removing *Cryptosporidium*. The Agency requests both laboratory and field data that will support a determination of the appropriate level of *Cryptosporidium* removal credit to award to these technologies. In addition, the Agency requests information on the applicability of these technologies to different source water types and treatment scenarios. Data submitted in response to this request for comment should include, where available, associated quality assurance and cost information. This preamble discusses bank filtration in section IV.C.6 and bag and cartridge filters in section IV.C.12.

Table IV–7 summarizes presumptive credits and associated design and implementation criteria for microbial toolbox components. Each component is then described in more detail in the sections that follow. EPA is also developing guidance to assist systems with implementing toolbox components. Pertinent guidance documents include: UV Disinfection Guidance Manual (USEPA 2003d), Membrane Filtration Guidance Manual (USEPA 2003e), and Toolbox Guidance Manual (USEPA 2003f). Each is available in draft form in the docket for today's proposal (<http://www.epa.gov/edocket/>).

TABLE IV–7.—MICROBIAL TOOLBOX: PROPOSED OPTIONS, LOG CREDITS, AND DESIGN/IMPLEMENTATION CRITERIA¹

Toolbox option	Proposed <i>Cryptosporidium</i> log credit with design and implementation criteria ¹
Watershed control program	0.5 log credit for State-approved program comprising EPA specified elements. Does not apply to unfiltered systems.
Alternative source/Intake management	No presumptive credit. Systems may conduct simultaneous monitoring for LT2ESWTR bin classification at alternative intake locations or under alternative intake management strategies.
Off-stream raw water storage	No presumptive credit. Systems using off-stream storage must conduct LT2ESWTR sampling after raw water reservoir to determine bin classification.
Pre-sedimentation basin with coagulation	0.5 log credit with continuous operation and coagulant addition; basins must achieve 0.5 log turbidity reduction based on the monthly mean of daily measurements in 11 of the 12 previous months; all flow must pass through basins. Systems using existing pre-sed basins must sample after basins to determine bin classification and are not eligible for presumptive credit.
Lime softening	0.5 log additional credit for two-stage softening (single-stage softening is credited as equivalent to conventional treatment). Coagulant must be present in both stages—includes metal salts, polymers, lime, or magnesium precipitation. Both stages must treat 100% of flow.
Bank filtration (as pretreatment)	0.5 log credit for 25 ft. setback; 1.0 log credit for 50 ft. setback; aquifer must be unconsolidated sand containing at least 10% fines; average turbidity in wells must be < 1 NTU. Systems using existing wells followed by filtration must monitor well effluent to determine bin classification and are not eligible for presumptive credit.
Combined filter performance	0.5 log credit for combined filter effluent turbidity ≤ 0.15 NTU in 95% of samples each month.
Roughing filters	No presumptive credit proposed.
Slow sand filters	2.5 log credit as a secondary filtration step; 3.0 log credit as a primary filtration process. No prior chlorination.
Second stage filtration	0.5 log credit for second separate filtration stage; treatment train must include coagulation prior to first filter. No presumptive credit for roughing filters.
Membranes	Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing.
Bag filters	1 log credit with demonstration of at least 2 log removal efficiency in challenge test.
Cartridge filters	2 log credit with demonstration of at least 3 log removal efficiency in challenge test.
Chlorine dioxide	Log credit based on demonstration of log inactivation using CT table.
Ozone	Log credit based on demonstration of log inactivation using CT table.
UV	Log credit based on demonstration of inactivation with UV dose table; reactor testing required to establish validated operating conditions.
Individual filter performance	1.0 log credit for demonstration of filtered water turbidity < 0.1 NTU in 95 percent of daily max values from individual filters (excluding 15 min period following backwashes) and no individual filter > 0.3 NTU in two consecutive measurements taken 15 minutes apart.
Demonstration of performance	Credit awarded to unit process or treatment train based on demonstration to the State, through use of a State-approved protocol.

¹ Table provides summary information only; refer to following preamble and regulatory language for detailed requirements.

2. Watershed Control Program

a. *What is EPA proposing today?* EPA is proposing a 0.5 log credit towards *Cryptosporidium* treatment requirements under the LT2ESWTR for

filtered systems that develop a State-approved watershed control program designed to reduce the level of *Cryptosporidium*. The watershed control program credit can be added to

the credit awarded for any other toolbox component. However, this credit is not available to unfiltered systems, as they are currently required under 40 CFR 141.171 to maintain a watershed control