(2) If systems conduct alternative source monitoring under paragraph (b)(1) of this section, systems must also monitor their current plant intake concurrently as described in § 141.701.

(3) Alternative source monitoring under paragraph (b)(1) of this section must meet the requirements for source monitoring to determine bin classification, as described in §§ 141.701 through 141.706. Systems must report the alternative source monitoring results to the State, along with supporting information documenting the operating conditions under which the samples were collected.

(4) If a system determines its bin classification under § 141.710 using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, the system must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in § 141.713.

**§ 141.717 Pre-filtration treatment toolbox components.**

(a) *Presedimentation.* Systems receive 0.5-log *Cryptosporidium* treatment credit for a presedimentation basin during any month the process meets the criteria in this paragraph.

(1) The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a surface water or GWUDI source.

(2) The system must continuously add a coagulant to the presedimentation basin.

(3) The presedimentation basin must achieve the performance criteria in paragraph (3)(i) or (ii) of this section.

(i) Demonstrates at least 0.5-log mean reduction of influent turbidity. This reduction must be determined using daily turbidity measurements in the presedimentation process influent and effluent and must be calculated as follows: $\log_{10}$(monthly mean of daily influent turbidity) $-$ $\log_{10}$(monthly mean of daily effluent turbidity).

(ii) Complies with State-approved performance criteria that demonstrate at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process.

(b) *Two-stage lime softening.* Systems receive an additional 0.5-log *Cryptosporidium* treatment credit for a two-stage lime softening plant if chemical addition and hardness precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or GWUDI source.

(c) *Bank filtration.* Systems receive *Cryptosporidium* treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this paragraph. Systems using bank filtration when they begin source water monitoring under § 141.701(a) must collect samples as described in § 141.703(d) and are not eligible for this credit.

(1) Wells with a ground water flow path of at least 25 feet receive 0.5-log treatment credit; wells with a ground water flow path of at least 50 feet receive 1.0-log treatment credit. The ground water flow path must be determined as specified in paragraph (c)(4) of this section.

(2) Only wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A system must characterize the aquifer at the well site to determine aquifer properties. Systems must extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.

(3) Only horizontal and vertical wells are eligible for treatment credit.

(4) For vertical wells, the ground water flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100 year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the ground water flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

(5) Systems must monitor each wellhead for turbidity at least once every

four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the system must report this result to the State and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the State determines that microbial removal has been compromised, the State may revoke treatment credit until the system implements corrective actions approved by the State to remediate the problem.

(6) Springs and infiltration galleries are not eligible for treatment credit under this section, but are eligible for credit under § 141.718(c).

(7) *Bank filtration demonstration of performance*. The State may approve *Cryptosporidium* treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in paragraphs (c)(1)–(5) of this section.

(i) The study must follow a State-approved protocol and must involve the collection of data on the removal of *Cryptosporidium* or a surrogate for *Cryptosporidium* and related hydrogeologic and water quality parameters during the full range of operating conditions.

(ii) The study must include sampling both from the production well(s) and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well(s).

### § 141.718 Treatment performance toolbox components.

(a) *Combined filter performance*. Systems using conventional filtration treatment or direct filtration treatment receive an additional 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this paragraph. Combined filter effluent (CFE) turbidity must be less than or equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be measured as described in § 141.74(a) and (c).

(b) *Individual filter performance*. Systems using conventional filtration treatment or direct filtration treatment receive 0.5-log *Cryptosporidium* treatment credit, which can be in addition to the 0.5-log credit under paragraph (a) of this section, during any month the system meets the criteria in this paragraph. Compliance with these criteria must be based on individual filter turbidity monitoring as described in § 141.174 or § 141.560, as applicable.

(1) The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month.

(2) No individual filter may have a measured turbidity greater than 0.3 NTU in two consecutive measurements taken 15 minutes apart.

(3) Any system that has received treatment credit for individual filter performance and fails to meet the requirements of paragraph (b)(1) or (2) of this section during any month does not receive a treatment technique violation under § 141.711(c) if the State determines the following:

(i) The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing treatment plant design, operation, and maintenance.

(ii) The system has experienced no more than two such failures in any calendar year.

(c) *Demonstration of performance*. The State may approve *Cryptosporidium* treatment credit for drinking water treatment processes based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than or less than the prescribed treatment credits in § 141.711 or §§ 141.717 through 141.720 and may be awarded to treatment processes that do not meet the criteria for the prescribed credits.

(1) Systems cannot receive the prescribed treatment credit for any toolbox box option in §§ 141.717 through 141.720 if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this paragraph.

(2) The demonstration of performance study must follow a State-approved protocol and must demonstrate the level of *Cryptosporidium* reduction the treatment process will achieve under