

**WAC 246-290-654 Treatment criteria for filtered systems. (1)**

The purveyor shall operate filters so that maximum flow rates do not exceed those specified in Table 10. The purveyor may operate filters at higher flow rates, if the purveyor demonstrates to the department's satisfaction that filtration at the higher rate consistently achieves at least 99 percent (2-log) removal of *Giardia lamblia* cysts and 99 percent (2-log) removal of *Cryptosporidium* oocysts and meets the turbidity performance requirements of Table 11.

**Table 10**  
**FILTRATION OPERATION CRITERIA**

<b>FILTRATION TECHNOLOGY/ MEDIA</b>	<b>MAXIMUM FILTRATION RATE (gpm/ft<sup>2</sup>)</b>
Conventional, Direct and In-Line	
Gravity Filters with Single Media	3
Gravity Filters with Deep Bed, Dual or Mixed Media	6
Pressure Filters with Single Media	2
Pressure Filters with Deep Bed, Dual or Mixed Media	3
Slow Sand	0.1
Diatomaceous Earth	1.0

(2) The purveyor using conventional, direct or in-line filtration shall ensure that effective coagulation is in use at all times the water treatment facility produces water served to the public.

(3) The purveyor using conventional, direct, or in-line filtration shall demonstrate treatment effectiveness for *Giardia lamblia* cyst and *Cryptosporidium* oocyst removal by one of the following methods:

(a) Turbidity reduction method.

(i) The purveyor shall make source and filtered water turbidity measurements in accordance with WAC 246-290-664 (2) and (3) respectively.

(ii) The purveyor shall achieve:

(A) The turbidity performance requirements specified in WAC 246-290-660(1) and at least an eighty percent reduction in source turbidity based on an average of the daily turbidity reductions measured in a calendar month; or

(B) An average daily filtered water turbidity less than or equal to 0.1 NTU.

(b) Particle counting method. The purveyor shall:

(i) Use a particle counting protocol acceptable to the department; and

(ii) Demonstrate at a frequency acceptable to the department at least the following log reduction of particles in the size range of five to fifteen microns (*Giardia lamblia* cyst-sized particles) and three to five microns (*Cryptosporidium* oocyst-sized particles), as applicable:

(A) 2.5-log reduction in *Giardia lamblia* cyst-sized particles and a 2-log reduction in *Cryptosporidium* particles for systems using conventional filtration; or

(B) 2.0 log reduction for systems using direct or in-line filtration.

- (c) Microscopic particulate analysis method. The purveyor shall:
  - (i) Use a protocol acceptable to the department; and
  - (ii) Demonstrate at a frequency acceptable to the department at least the following log reduction of *Giardia lamblia* cysts and *Cryptosporidium* oocysts or *Giardia lamblia* cyst and *Cryptosporidium* oocyst surrogate indicators as applicable:
    - (A) 2.5-log reduction in *Giardia lamblia* cysts or surrogates and a 2-log reduction in *Cryptosporidium* oocyst or surrogates for systems using conventional filtration; and
    - (B) 2.0 log reduction for systems using direct or in-line filtration.
  - (d) Other methods acceptable to the department.
- (4) The purveyor shall ensure continuous disinfection of all water delivered to the public and shall:
  - (a) Maintain an adequate supply of disinfection chemicals and keep back-up system components and spare parts on hand;
  - (b) Develop, maintain, and post at the water treatment facility a plan detailing:
    - (i) How water delivered to the public will be continuously and adequately disinfected; and
    - (ii) The elements of an emergency notification plan to be implemented whenever the residual disinfectant concentration at entry to distribution falls below 0.2 mg/L for more than one hour.
  - (c) Implement the plan during an emergency affecting disinfection.
- (5) Operations program.
  - (a) For each water treatment facility treating a surface or GWI source, the purveyor shall develop an operations program and make it available to the department for review upon request.
  - (b) The program shall be submitted to the department as an addendum to the purveyor's water system plan (WAC 246-290-100) or small water system management program (WAC 246-290-105).
  - (c) The program shall detail how the purveyor will produce optimal filtered water quality at all times the water treatment facility produces water to be served to the public.
  - (d) The purveyor shall operate the water treatment facility in accordance with the operations program.
  - (e) The operations program shall include, but not be limited to, a description of:
    - (i) For conventional, direct or in-line filtration, procedures used to determine and maintain optimized coagulation as demonstrated by meeting the requirements of WAC 246-290-654(3);
    - (ii) Procedures used to determine chemical dose rates;
    - (iii) How and when each unit process is operated;
    - (iv) Unit process equipment maintenance program;
    - (v) Treatment plant performance monitoring program;
    - (vi) Laboratory procedures;
    - (vii) Records;
    - (viii) Reliability features; and
    - (ix) Response plans for water treatment facility emergencies, including disinfection failure and watershed emergencies.
  - (f) The purveyor shall ensure the operations program is:
    - (i) Readily available at the water treatment facility for use by operators and for department inspection;
    - (ii) Consistent with department guidelines for operations procedures such as those described in department guidance on surface water treatment and water system planning; and

(iii) Updated as needed to reflect current water treatment facility operations.

(6) Pressure filters. Purveyors using pressure filters shall:

(a) Inspect and evaluate the filters, at least every six months, for conditions that would reduce their effectiveness in removing *Giardia lamblia* cysts;

(b) Maintain, and make available for department review, a written record of pressure filter inspections; and

(c) Be prepared to conduct filter inspections in the presence of a department representative, if requested.

[Statutory Authority: RCW 43.20.050 and 70.119A.080. WSR 17-01-062, § 246-290-654, filed 12/14/16, effective 1/14/17. Statutory Authority: RCW 70.119A.180 and 43.20.050. WSR 08-03-061, § 246-290-654, filed 1/14/08, effective 2/14/08. Statutory Authority: RCW 43.20.050 (2) and (3) and 70.119A.080. WSR 03-08-037, § 246-290-654, filed 3/27/03, effective 4/27/03. Statutory Authority: RCW 43.02.050 [43.20.050]. WSR 99-07-021, § 246-290-654, filed 3/9/99, effective 4/9/99. Statutory Authority: RCW 43.20.050. WSR 94-14-001, § 246-290-654, filed 6/22/94, effective 7/23/94; WSR 93-08-011 (Order 352B), § 246-290-654, filed 3/25/93, effective 4/25/93.]