

# Long Term 2 Enhanced Surface Water Treatment Rule: A Quick Reference Guide For Schedule 4 Systems

Overview of the Rule	
Title	Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) 71 FR 654, January 5, 2006, Vol. 71, No. 3
Purposes	Improve public health protection through the control of microbial contaminants by focusing on systems with elevated <i>Cryptosporidium</i> risk. Prevent significant increases in microbial risk that might otherwise occur when systems implement the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR).
General Description	The LT2ESWTR requires systems to monitor their source water, calculate an average <i>Cryptosporidium</i> concentration, and use those results to determine if their source is vulnerable to contamination and may require additional treatment. Filtered systems serving fewer than 10,000 may be eligible to conduct <i>E. Coli</i> source water monitoring in lieu of <i>Cryptosporidium</i> monitoring.
Utilities Covered	<ul style="list-style-type: none"> <li>Public water systems (PWSs) that use surface water or ground water under the direct influence of surface water (GWUDI).</li> <li>Schedule 4 systems include PWSs serving fewer than 10,000 people OR wholesale PWSs that are part of a combined distribution system in which the largest system serves less than 10,000 people.</li> </ul>

## Major Provisions

Control of <i>Cryptosporidium</i>	
Source Water Monitoring	<p>Filtered systems must conduct 12 months of source water monitoring for <i>E. coli</i>. If the <i>E. coli</i> trigger level is exceeded, the system must conduct an additional 12 to 24 months of source water monitoring for <i>Cryptosporidium</i>. Systems may also use previously collected data (i.e., Grandfathered data).</p> <p>Unfiltered systems must sample their source water for <i>Cryptosporidium</i> at least twice per month for 12 months or once per month for 24 months. Unfiltered systems will calculate a mean <i>Cryptosporidium</i> level to determine treatment requirements.</p> <p>Filtered systems providing at least 5.5 log of treatment for <i>Cryptosporidium</i> and unfiltered systems providing at least 3-log of treatment for <i>Cryptosporidium</i> and those systems that intend to install this level of treatment are not required to conduct source water monitoring.</p>
Installation of Additional Treatment	<p>Filtered systems must provide additional treatment for <i>Cryptosporidium</i> based on their bin classification (average source water <i>Cryptosporidium</i> concentration), using treatment options from the "microbial toolbox."</p> <p>Unfiltered systems must provide additional treatment for <i>Cryptosporidium</i> using chlorine dioxide, ozone, or UV.</p>
Uncovered Finished Water Storage Facility	<p>Systems with an uncovered finished water storage facility must either:</p> <ul style="list-style-type: none"> <li>Cover the uncovered finished water storage facility; or,</li> <li>Treat the discharge to achieve inactivation and/or removal of at least 4-log for viruses, 3-log for <i>Giardia lamblia</i>, and 2-log for <i>Cryptosporidium</i>.</li> </ul>

## Disinfection Profiling and Benchmarking

After completing the initial round of source water monitoring any system that plans on making a significant change to their disinfection practices must:
<ul style="list-style-type: none"> <li>Create disinfection profiles for <i>Giardia lamblia</i> and viruses;</li> <li>Calculate a disinfection benchmark; and,</li> <li>Consult with the state prior to making a significant change in disinfection practice.</li> </ul>

## Bin Classification For Filtered Systems

<i>Cryptosporidium</i> Concentration (oocysts/L)	Bin Classification	Additional <i>Cryptosporidium</i> Treatment Required			Alternative Filtration
		Conventional Filtration	Direct Filtration	Slow Sand or Diatomaceous Earth Filtration	
< 0.075	Bin 1††	No additional treatment required			
0.075 to < 1.0	Bin 2	1 log	1.5 log	1 log	(1)
1.0 to < 3.0	Bin 3	2 log	2.5 log	2 log	(2)
≥ 3.0	Bin 4	2.5 log	3 log	2.5 log	(3)

†† Systems serving < 10,000 people that are not required to monitor for *Cryptosporidium* are placed in Bin 1.

(1) As determined by the state (or other primacy agency) such that the total removal/inactivation > 4.0-log.

(2) As determined by the state (or other primacy agency) such that the total removal/inactivation > 5.0-log.

(3) As determined by the state (or other primacy agency) such that the total removal/inactivation > 5.5-log.

## Inactivation Requirements for Unfiltered Systems

<i>Cryptosporidium</i> Concentration (oocysts/L)	Required <i>Cryptosporidium</i> Inactivation
≤ 0.01	2-log
> 0.01	3-log

For additional information on the LT2ESWTR

Call the Safe Drinking Water Hotline at 1-800-426-4791; visit the EPA web site at [www.epa.gov/safewater/disinfection/lt2](http://www.epa.gov/safewater/disinfection/lt2); or contact your state drinking water representative.

# Critical Deadlines and Requirements

## For Drinking Water Systems (Schedule 4)

July 1, 2008	Systems must submit their: <ul style="list-style-type: none"> <li>▶ Sampling schedule that specifies the dates of sample collection and location of sampling for initial source water monitoring; or</li> <li>▶ Notice to EPA or the state of the system's intent to submit results for grandfathering data; or</li> <li>▶ Notice to EPA or the state of the system's intent to provide at least 5.5-log of treatment for <i>Cryptosporidium</i> for filtered systems or 3-log of treatment for unfiltered systems. Systems should consult with EPA or their state prior to submitting this notice.</li> <li>▶ Notice to EPA or the state of the system's intent to conduct <i>Cryptosporidium</i> monitoring instead of <i>E. coli</i> monitoring.</li> </ul>
October 2008	No later than this month, filtered systems must begin 12 months of bi-weekly source water monitoring for <i>E. coli</i> .
December 1, 2008	No later than this date, systems must submit <i>E. coli</i> monitoring results for data that they want to have grandfathered.
December 10, 2008	Systems submit results for first month of <i>E. coli</i> source water monitoring.
April 1, 2008	No later than this date, systems must notify the EPA or the state of all uncovered treated water storage facilities.
April 1, 2009	No later than this date, uncovered finished water storage facilities must be covered, or the water must be treated before entry into the distribution system, or the system must be in compliance with a state approved schedule.
September 2009	No later than this month, systems that were required to monitor their source water for <i>E. coli</i> complete their initial round of source water monitoring.
January 1, 2010	Filtered systems required to monitor for <i>Cryptosporidium</i> must submit their sampling schedule that specifies the dates of sample collection and location of sampling for source water monitoring.
April 2010	No later than this month, systems required to conduct <i>Cryptosporidium</i> monitoring must begin 12 or 24 months of source water monitoring.
June 1, 2010	No later than this date, systems must submit <i>Cryptosporidium</i> monitoring results for data that they want to have grandfathered.
June 10, 2010	Systems submit results for first month of <i>Cryptosporidium</i> source water monitoring.
March 2012	No later than this month, systems that were required to monitor their source water for <i>Cryptosporidium</i> complete their initial round of source water monitoring
September 2012	No later than this month, filtered systems that were required to monitor their source water for <i>Cryptosporidium</i> must report their initial bin classification to the EPA or the state for approval.
September 2012	No later than this month, unfiltered systems must report the mean of all <i>Cryptosporidium</i> sample results to the EPA or the state.
September 30, 2014	Systems must install and operate additional treatment in accordance with their bin classification or mean <i>Cryptosporidium</i> level.†
July 1, 2017	Systems must submit their sampling schedule that specifies the dates of sample collection and location of sampling for second round of <i>E. coli</i> source water monitoring to the state.
October 1, 2017	Systems are required to begin conducting a second round of <i>E. coli</i> source water monitoring. Based on the results, systems must re-determine their bin classification and provide additional treatment, if necessary.
January 1, 2019	Systems must submit their sampling schedule that specifies the dates of sample collection and location of sampling for second round of <i>Cryptosporidium</i> source water monitoring to the state.
April 1, 2019	Systems are required to begin conducting a second round of <i>Cryptosporidium</i> source water monitoring. Based on the results, systems must re-determine their bin classification (filtered systems) or mean <i>Cryptosporidium</i> level (unfiltered systems) and provide additional treatment, if necessary.

## For States

July - December 2006	States are encouraged to communicate with affected systems regarding LT2ESWTR requirements.
April 1, 2007	States are encouraged to communicate LT2ESWTR requirements related to treatment, uncovered finished water reservoirs, and disinfection profiling to affected systems.
October 5, 2007	States are encouraged to submit final primacy applications or extension requests to EPA.
January 5, 2008	Final primacy applications must be submitted to EPA, unless granted an extension.
June 30, 2010	States should begin determining <i>Cryptosporidium</i> treatment credit for primary treatments already in place.
January 5, 2010	Final primacy revision applications from states with approved 2-year extensions agreements must be submitted to EPA.
June 30, 2015	States should award <i>Cryptosporidium</i> treatment credit for toolbox option implementation.

† States may allow up to an additional 24 months for compliance for systems making capital improvements.