

# Ground Water Rule: A Quick Reference Guide

## Overview of the Rule

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| Title*                                                                                                                                                                                         | Ground Water Rule (GWR) 71 FR 65574, November 8, 2006, Vol. 71, No. 216<br>Correction 71 FR 67427, November 21, 2006, Vol. 71, No. 224                                                                                                                                                        |
| Purpose                                                                                                                                                                                        | Reduce the risk of illness caused by microbial contamination in public ground water systems (GWSs).                                                                                                                                                                                           |
| General Description                                                                                                                                                                            | The GWR establishes a risk-targeted approach to identify GWSs susceptible to fecal contamination and requires corrective action to correct significant deficiencies and source water fecal contamination in all public GWSs.                                                                  |
| Utilities Covered                                                                                                                                                                              | The GWR applies to all public water systems (PWSs) that use ground water, including consecutive systems, except that it does not apply to PWSs that combine all of their ground water with surface water or with ground water under the direct influence of surface water prior to treatment. |
| *This document provides a summary of federal drinking water requirements; to ensure full compliance, please consult the federal regulations at 40 CFR 141 and any approved state requirements. |                                                                                                                                                                                                                                                                                               |

## Public Health Benefits

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| Implementation of the GWR will result in . . . | <ul style="list-style-type: none"> <li>Targeted protection for over 70 million people served by ground water sources that are either not disinfected or receive less than 4-log treatment.</li> <li>Avoidance of 42,000 viral illnesses and 1 related death annually.</li> </ul>                                |
| Estimated impacts of the GWR include . . .     | <ul style="list-style-type: none"> <li>The annualized present value of the GWR is \$19.7 million, with a 90-percent confidence interval of \$6.5 to \$45.4 million.</li> <li>Mean annual cost per household is estimated to be less than \$1.00 for approximately 96 percent of affected households.</li> </ul> |

## Critical Deadlines and Requirements

### For Drinking Water Systems

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| November 30, 2009 | New ground water sources put in place after this date must meet triggered source water monitoring requirements or conduct compliance monitoring.                                                                                                                                                                                                                                                      |
| December 1, 2009  | By this date, GWSs conducting compliance monitoring because they provide at least 4-log virus inactivation, removal, or a state-approved combination of these technologies before or at the first customer, must have notified the state and must begin compliance monitoring. The written notification to the state must include engineering, operational, and other information the state requests. |
| December 1, 2009  | GWSs must conduct triggered source water monitoring if the GWS does not provide at least 4-log virus inactivation, removal, or a state-approved combination of these technologies before or at the first customer and the GWS is notified that a sample collected for the Total Coliform Rule (TCR) is total coliform-positive.                                                                       |
| December 1, 2009  | GWSs for which the state has identified a significant deficiency and GWSs at which at least one of the five additional ground water source samples (or at state discretion, after the initial source sample or an assessment source sample) has tested positive for fecal contamination must comply with the treatment technique requirements.                                                        |

### For States

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| August 8, 2008    | States are encouraged to submit final primacy applications or extension requests to EPA.                                               |
| November 8, 2008  | Final primacy revision applications for GWR must be submitted to the EPA regional administrator, unless state is granted an extension. |
| August 8, 2010    | States with approved extension agreements are encouraged to submit final primacy applications to EPA.                                  |
| November 8, 2010  | Final primacy applications must be submitted to the EPA regional administrator for states with a full 2 year extension.                |
| December 31, 2012 | States must complete initial sanitary survey cycle for all community GWSs except those that meet performance criteria.                 |
| December 31, 2014 | States must complete initial sanitary survey cycle for all noncommunity GWSs and all community GWSs that meet performance criteria.    |

## Analytical Methods for Source Water Monitoring

| Fecal Indicator | Methodology                                                                                                           | Method Citation**                                                |
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| <i>E. coli</i>  | Colilert<br>Colisure<br>Membrane Filter Method with MI Agar<br>m-ColiBlue24 Test<br>E*Colite Test<br>EC-MUG<br>NA-MUG | 9223 B.<br>9223 B.<br>EPA Method 1604.<br><br>9221 F.<br>9222 G. |
| Enterococci     | Multiple-Tube Technique<br>Membrane Filter Technique<br>Membrane Filter Technique<br>Enterolert                       | 9230 B.<br>9230 C.<br>EPA Method 1600.                           |
| Coliphage       | Two-Step Enrichment Presence-Absence Procedure<br>Single Agar Layer Procedure                                         | EPA Method 1601.<br>EPA Method 1602.                             |

\*\*Footnotes regarding methods can be found in 40 CFR 141.402

## Major Provisions

### Compliance Monitoring

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| Treatment Technique Compliance Monitoring | <ul style="list-style-type: none"><li>▶ In order not to be subject to triggered source water monitoring, a GWS can notify the state that it provides at least 4-log treatment of viruses using virus inactivation, removal, or a state-approved combination of 4-log virus inactivation and removal before or at the first customer. The GWS must then begin compliance monitoring designed to show the effectiveness of their treatment processes.</li><li>▶ GWSs that use chemical disinfection and serve more than 3,300 people must continuously monitor their disinfectant concentration. GWSs must maintain the minimum disinfectant residual concentration determined by the state.</li><li>▶ GWSs that use chemical disinfection and serve 3,300 people or fewer must take daily grab samples or meet the continuous monitoring requirements described above for GWSs serving more than 3,300 people.</li><li>▶ GWSs using membrane filtration for 4-log treatment of viruses must monitor the membrane filtration process according to state-specified monitoring requirements.</li><li>▶ GWSs may use alternative treatment technologies (e.g., ultraviolet radiation [UV]) approved by the state. GWSs must monitor the alternative treatment according to state-specified monitoring requirements, and must operate the alternative treatment according to compliance requirements established by the state.</li></ul> |
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### Source Water Monitoring

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| Triggered Source Water Monitoring  | <ul style="list-style-type: none"><li>▶ GWSs that do not conduct compliance monitoring and are notified of a total coliform-positive routine sample collected in compliance with the TCR (40 CFR 141.21) must conduct triggered source water monitoring.</li><li>▶ GWSs must collect at least one ground water source sample from each source in use at the time the total coliform-positive sample was collected. The triggered source water sample must be analyzed for the presence of a fecal indicator as specified in the rule.</li><li>▶ If the triggered source water sample is fecal indicator-positive, the GWS must either take corrective action, as directed by the state, or if corrective action is not required by the state and the sample is not invalidated by the state, the GWS must conduct additional source water sampling.</li><li>▶ States may waive the triggered source water monitoring requirement if the state determines and documents, in writing, that the total coliform-positive routine sample is the result of a documented distribution system deficiency.</li><li>▶ States may develop criteria for distribution system conditions that cause total coliform positive samples. A GWS can document to the state that it met the state criteria within 30 days of the total coliform-positive sample and be exempt from collecting triggered source water sample(s).</li><li>▶ States may invalidate a fecal indicator-positive ground water source sample under specific conditions. If a fecal indicator-positive source sample is invalidated, the GWS must collect another source water sample within 24 hours of being notified by the state of its invalidation decision.</li></ul> |
| Additional Source Water Sampling   | <ul style="list-style-type: none"><li>▶ If the state does not require corrective action in response to a fecal indicator-positive triggered source water sample, the GWS must collect five additional source water samples (from the same source) within 24 hours of being notified of the fecal indicator-positive sample.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Assessment Source Water Monitoring | <ul style="list-style-type: none"><li>▶ States have the opportunity to target higher risk GWSs for additional testing. States independently can determine on a case by case basis whether monitoring is necessary and when corrective action needs to be taken.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

### Treatment Technique Requirements

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| GWSs with Significant Deficiencies or Source Water Fecal Contamination | <ul style="list-style-type: none"><li>▶ GWSs must take corrective action if a significant deficiency is identified, or if the initial source sample or a GWR assessment monitoring source sample (if required by the state) or one of the five additional ground water source samples tests positive for fecal contamination. The GWS must implement at least one of the following corrective actions:<ul style="list-style-type: none"><li>▶ Correct all significant deficiencies.</li><li>▶ Provide an alternate source of water.</li><li>▶ Eliminate the source of contamination.</li><li>▶ Provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a state-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source.</li></ul></li></ul> |
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### New Sources

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| New Ground Water Sources | <ul style="list-style-type: none"><li>▶ New sources which come on line after November 30, 2009 are required either to conduct triggered source water monitoring as required by the GWR, or provide at least 4-log inactivation, removal or a state-approved combination of these technologies and conduct compliance monitoring within 30 days of the source being put in service.</li></ul> |
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### Sanitary Surveys

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| All Ground Water Systems | <ul style="list-style-type: none"><li>▶ States are required to conduct sanitary surveys of all GWSs in order to identify significant deficiencies, including deficiencies which may make a system susceptible to microbial contamination.</li><li>▶ Following the initial sanitary survey, states must conduct sanitary surveys every 3 years for most CWSs and every 5 years for NCWSs and CWSs that provide at least 4-log treatment of viruses or have outstanding performance records, as determined by the state.</li></ul> |
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For additional information on the GWR

Call the Safe Drinking Water Hotline at 1-800-426-4791; visit the EPA web site at <http://water.epa.gov/drink>; or contact your state drinking water representative.