



WWC's Helena,
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Ground Water Rule Update

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Introduction

In November 2006 the Environmental Protection Agency (EPA) issued the final Ground Water Rule (GWR) that will further protect public drinking water from disease-causing viruses and bacteria. Ground water studies along with recent data collected on outbreaks show that disease-causing viral and bacterial pathogens can be found in public water systems that use ground water, potentially causing severe illness in individuals with weaker immune systems, such as young children and the elderly, due to exposure to contaminated water. The number of contaminated systems is relatively small in comparison with the total number of ground water systems; however, given the severity of health impacts and the potential number of individuals exposed the EPA has decided to require more stringent regulations for these systems. The Ground Water Rule would apply to an estimated 147,000 public water systems using ground water (as of 2003), and an undefined amount of public water systems using a mix of surface and ground water; between the two types of systems over 100 million consumers are provided drinking water and would be affected by this change.

Viral and bacterial pathogens are present in animal and human feces and can contaminate drinking water. Contamination of ground water can occur from failed or leaking septic systems, leaking sewer lines, by passing through the soil and large cracks in the ground, and by entering the well casing if the well is not properly constructed, protected, or maintained.

Who Does This Rule Apply To?

The rule applies to public ground water systems or systems that mix surface and ground water if the ground water is added directly to the distribution system and provided to consumers without treatment. By definition, the Montana Code Annotated (MCA) 75-6-102(3) states: "Community water system" means a public water supply system that serves at least 15 service connections used by year-round residents or that regularly serves at least 25 year-round residents." At this time the rule does not apply to private water wells as they are not under the jurisdiction of the Safe Drinking Water Act and therefore are not subject to EPA regulations. The EPA does provide reference materials to help homeowners understand how to manage their wells, and recommends that individual well owners test their wells periodically.

The Basic Requirements of the Rule

The Ground Water Rule takes a "risk management" approach and consists of four parts. **Part 1 - Sanitary Surveys:** requires each state to identify at risk ground water systems (GWS) by evaluating eight critical areas and identifying significant deficiencies, to the extent they apply to the individual system being surveyed. The eight areas are as follows: 1) source; 2) treatment; 3) distribution system; 4) finished water storage; 5) pumps, pump facilities, and controls; 6) monitoring, reporting, and data verification; 7) system management and operation; and 8) operator compliance with state requirements. As part of the rule, states are required to provide at least one specific deficiency in each of the eight areas of the sanitary survey that could possibly affect the quality of drinking water. The EPA has requested that following the initial Sanitary Surveys, additional surveys be conducted every three years for community water systems and five years for non-community water systems. In conducting the Sanitary Surveys, the rule now allows for the State to conduct a phased survey, not requiring that all the components be evaluated at one time but requiring that all the components be evaluated within the three or five year frequency interval. If during the Sanitary Survey a significant deficiency is found corrective action will need to be taken. The system operator has 120 days from receiving a notice of deficiency to complete corrective action. Public health is protected by requiring deficient systems to make corrective actions. The State has until December 31, 2012 to complete their initial round of Sanitary Surveys on all community GWSs except those that meet performance criteria. For all GWSs that meet performance criteria and all non-community GWSs the State has until December 31, 2014 to complete the initial round of sanitary surveys.

Part 2 - Source Water Monitoring: Under the existing Total Coliform Rule (TCR) GWSs are required to test water for Total Coliform, an indicator that fecal matter may be present in the ground water. In working with this existing rule, the Ground Water Rule requires that if the GWS TCR sample test returns positive for total coliform then **Triggered Source Monitoring** is required to determine if the presence of total coliform in the distribution system is due to fecal contamination. A source water sample must be taken at each of the ground water sources to test for three State-specified fecal indicators within 24 hours of receiving notice. If the source samples indicate positive

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for fecal indicators the State and public are to be notified. An additional five source water samples would then be collected within 24-hours and tested. If one of the five additional samples tests positive then the GWS must comply with the treatment technique requirements below. A system would not be required to perform triggered source monitoring if the system provides treatment that would achieve at least a 99.99% (4-log) inactivation or removal of viruses, the test is invalidated by the laboratory performing the test, or the positive sample directly relates to the distribution system according to the State criteria.

The EPA has also given each State the option of conducting **assessment source water monitoring**, on an as-needed basis to target higher risk systems for additional source water monitoring and evaluation. The EPA recommends that the States use Hydrogeologic Sensitivity Assessments (HSAs) and TCR/triggered monitoring results to identify higher risk systems. These systems would be required to collect 12 monthly samples and test them for one of the GWR indicators. Corrective action for positive testing would be decided by the State.

Part 3 - Treatment technique requirements include the following: correct all significant system deficiencies, provide an alternative source of water, eliminate the source of contamination, or provide a reliable treatment that achieves at least a 99.99% (4-log) treatment of viruses for each contaminated water source.

Part 4 - Compliance Monitoring is an additional measure of assurance that all GWS that provide a 4-log treatment of viruses using chemical disinfection, membrane filtration, or a State-approved alternative treatment must conduct to ensure their treatment's effectiveness. *The compliance date for Compliance Monitoring is December 1, 2009.*

Difference in New Rule vs. Old Rule

Changes to the amended old rule were necessary to address inadequacies. For instance, sanitary survey requirements under the Total Coliform Rule did not adequately address the finding of fecal contamination in ground water. Further, it was noted that many of the surveys did not evaluate one or more of the components that the EPA recommends be evaluated, and efforts to cor-

rect deficiencies was limited. Oftentimes deficiencies went uncorrected. Before the GWR was issued no federal rule addressed how to react to positive total coliform (fecal indicators) results with respect to additional monitoring requirements, corrective action, and identification of significant deficiencies in a water system. As previously mentioned, the Ground Water Rule takes a "risk management" approach and that sets it apart from the previous rules. Previously in the 1986 Safe Drinking Water Act (SDWA), it was outlined that all ground water systems should disinfect. However, due to the numbers of ground water systems the EPA found this would not only be difficult to implement but also very challenging to keep track of. The identification of ground water systems at high risk of having contaminated water, and the requirement that these systems be surveyed and monitored, makes this rule more manageable and allows better follow through and implementation of the program. The new rule also addresses communication between the system operators and consumers. Further, the ability to conduct the surveys on a phased review schedule within the three or five year frequency gives the State flexibility to effectively implement the requirements, thus providing greater protection to public health.

Cost & Benefits

The GWR will increase costs to public water systems and to States. Those systems requiring more testing and treatment will see the greatest increase. According to the EPA, the estimated increase to annual household costs for community water systems (including those that do not add treatment) range from \$0.21 to \$16.54. The estimated increase to annual household costs for the subset of systems that undertake corrective actions range from \$0.45 to \$52.38, with 90 percent of household cost increases of no more than \$3.20 (taken from www.epa.gov/safewater, dated October 2006). However, the new rule will reduce the risk to public safety due to contaminated water. According to the EPA, the GWR is estimated to reduce the average number of waterborne viral illnesses by 42,000 illnesses per year from the current baseline of 185,000.

Today, public health and safety are a major concern, as well as protecting limited natural resources. To find more information on the Ground Water Rule or other actions the EPA has taken please visit their website @ www.epa.gov.