

# Preparing for the Ground Water Rule

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To better protect the public from microbial contamination in drinking water, the Ground Water Rule (GWR) was promulgated by the United States Environmental Protection Agency (EPA) in October 2006. The GWR applies to all systems that have ground water sources, regardless of whether the public water supplier provides water for a city, a factory or a convenience store. The GWR enhances sanitary surveys, prescribes actions to be taken if microbial contamination or sources of microbial contamination are found at these systems, and requires compliance monitoring to confirm that corrective actions are effective. Water systems, Operators, Local Health Departments (LHDs) and the New York State Department of Health (DOH) will work together to implement the GWR in New York State. The compliance date for impacted systems is December 1, 2009. In preparation for the GWR, systems can take steps over the next two years to make implementation easier.

## GWR Highlights

The rule addresses risks through a risk-targeting approach that relies on four major components: periodic sanitary surveys; source water monitoring; corrective actions and compliance monitoring. Many of the requirements are similar to current requirements, for some systems, compliance will require major efforts.

The eight elements of a sanitary survey to consider for proper system operation are listed in Table 1.

**Table 1**

Sanitary Survey Elements	
1) Source	5) Finished water storage
2) Treatment	6) System management and operation
3) Distribution system	7) Pumps, pump facilities, and controls
4) Operator compliance with state requirements	8) Monitoring, reporting, and data verification

Corrective action may be required if a significant deficiency is found during a sanitary survey or a fecal indicator-positive ground water source sample is collected. If a coliform sample is found to be positive, additional sampling will be required under the GWR, at locations that may be different from sample locations specified in the Total Coliform Rule (TCR). No additional samples are required if the system demonstrates treatment of 99.99% (4-log) of all viruses in the source water, but monitoring and reporting of the treatment process will be required.

For systems without four-log treatment, one or more of the following corrective action options must be taken in 120 days or less:

- Correct all significant deficiencies (e.g., repairs to well pads and sanitary seals, repairs to piping tanks and treatment equipment, control of cross-connections);
- Eliminate the source of contamination (e.g., remove point sources, relocate pipelines and waste disposal, redirect drainage or run-off, provide or fix existing fencing or housing of the wellhead) or
- Provide treatment which reliably achieves 99.99 percent (4-log) treatment of viruses (using inactivation, removal, or a state-approved combination of 4-log virus inactivation and removal). Treatment may include disinfection through chemical contact (i.e. chlorination) or other technologies such as ultraviolet light or membrane filtration.

Any system that is required by the GWR to provide treatment, must then provide either continuous (large systems) or daily sampling results that confirm disinfection. Sampling plans may need to be revised or supplemented, so that the requirements of both this and the TCR are met.

## Roles in GWR Implementation

The GWR has new requirements for both water systems and operators, and DOH regulators. Effective implementation of the GWR requires the cooperation of water system operators, LHDs and the DOH. Details of their roles are given below.

## Water Systems and Operators (Operators)

Water Systems and Operators (Operators) may not be required to take action under the GWR unless a sample is coliform positive and the contamination is not attributed to the distribution system. For many systems, a coliform positive result is a rare occurrence, and the effort to comply with the GWR may not be extensive. However, action must be taken within 24 hours if contamination is observed.

Systems must have a plan so they can respond to any coliform positive samples from the distribution system or source. They can complete self-evaluations and correct any deficiencies, ensuring compliance with the eight elements of water system operation evaluated in the sanitary survey (Table 1). In addition, systems can evaluate the effectiveness of their viral treatment to document effectiveness. This may include selecting a point of compliance for disinfection residual tests, and collecting data to confirm proper operation. The compiled information will be available if needed to react if

GWR provisions are invoked by a positive coliform sample.

One tool that can be used to characterize the potential for microbial contamination at a water system is the Microbial Risk Assessment Tool (shown below), available free of charge from the Water Center at the University of Montana, with the web address:

<http://watercenter.montana.edu/training/mr/default.htm>.

The screenshot shows the Montana University System Water Center website. The main content area is titled "Microbial Risk Assessment Tool" and features a video thumbnail of a person at a computer. To the right of the video, there is a section titled "Available in multiple formats:" with several download options: "Microbial Risk Assessment Tool Run the program online now.", "Download (19.6 MB ZIP for PC only)", "Download MR Guide PDF", "CD-ROM (ordering information)", and "Download Excel Sheet (4 MB ZIP)".

In some cases, this type of evaluation would be part of a benchmarking system performance comparable to a Total System Evaluation for surface water systems. There are resources from AWWA and the New York Rural Water Association to help evaluate system performance and vulnerability to microbial contamination. Some systems may find it useful to hire a consultant to help with such an evaluation.

Systems that have disinfection waivers may be required to perform additional sampling to confirm that the water is safe to drink. Details of these requirements will be provided as New York State progresses through the GWR adoption process.

### Local Health Departments (LHDs)

LHDs will work with water systems to update system information and sampling plans to comply with the GWR.

LHDs will continue to conduct periodic sanitary surveys of all public water systems, completing sanitary surveys at all community systems by 2012. The GWR requires sanitary surveys every 3 years at community systems and every 5 years for noncommunity systems. Each of the 8 system elements in Table 1 is evaluated at least at those frequencies. For most systems, this is less frequent than what New York currently requires. Sanitary surveys for disinfected noncommunity systems will remain at one every 5 years.

### DOH

New York, in accordance with EPA requirements, plans to amend Part 5-1 of the State Sanitary Code and seek primacy for enforcing the GWR by the end of 2008. New York State's primacy submission to EPA will include an implementation strategy. This document will demonstrate how the GWR is incorporated into the many aspects of ongoing oversight of public water systems and preparing guidance for LHDs; how to comply with the GWR as well as how to assist Operators with GWR compliance. Over the next year or so, DOH will be developing an implementation plan to make decisions about any discretionary parts of the GWR.

DOH must address a number of questions that EPA left to the states, including selection of the organism(s) considered to indicate fecal contamination of the water. DOH will be working with LHDs, operators, other affected parties and the public to finalize New York's regulation. DOH will provide training of LHD staff and operators, as well as information for the general public on New York's implementation of the GWR. Implementation documents will be posted on the DOH web site.

The EPA is developing guidance for implementing the GWR, for release over the next year or so. In New York, some work will be required before the guidance is available. DOH will be convening an advisory group to assist in developing New York's plan for GWR implementation.

### Next Steps

Over the next two years, a working group comprised of operators, LHDs, DOH staff and drinking water organizations will finalize the details of New York's GWR implementation and inform parties who may be impacted by the GWR. Systems with a good operations plan, active source protection, and no coliform hits, may find GWR implementation easy. Compliance with the GWR will provide enhanced protection for drinking water consumers who use ground water sources. For information see the USEPA Ground Water Rule web site at:

<http://www.epa.gov/safewater/disinfection/gwr> or contact Jane C. Thapa, P.E., NYSDOH, (518) 402-7711 or by email at [jct02@health.state.ny.us](mailto:jct02@health.state.ny.us). GWR implementation information will also be provided on the DOH web site at:

<http://www.health.state.ny.us>