

**2005 Annual Report on  
Michigan Public Water System Violations**

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## **Introduction**

Section 1414(c)(3)(A)(i) of the 1996 amendments to the federal Safe Drinking Water Act (SDWA), requires states with primacy to prepare and submit to the U.S. Environmental Protection Agency (U.S. EPA) an annual report on public water system violations. The following is a report on Michigan public water system violations for calendar year 2005 (January 1, 2005, through December 31, 2005). This report is being submitted in fulfillment of the U.S. EPA requirement by the Michigan Department of Environmental Quality (MDEQ), Water Bureau, the primacy agent for the state of Michigan. The entire report is on the MDEQ drinking water web page at <http://www.michigan.gov/deq>.

### **The Drinking Water Program: An Overview**

The U.S. EPA established the Public Water System Supervision (PWSS) Program under the authority of the SDWA. Under the SDWA and the 1986 amendments, the U.S. EPA sets national limits on contaminant levels in drinking water to ensure that the water is safe for human consumption. These limits are known as Maximum Contaminant Levels (MCLs). For some regulations, the U.S. EPA establishes treatment techniques in lieu of an MCL to control unacceptable levels of contaminants in water. The MDEQ also regulates how often Public Water Systems (PWSs) monitor their water for contaminants and report the monitoring results to the state or the U.S. EPA. Generally, the larger the population served by a water system, the more frequent the monitoring and reporting requirements. In addition, the U.S. EPA requires PWSs to monitor for unregulated contaminants to provide data for future regulatory development. Finally, the U.S. EPA requires PWSs to notify their consumers when they have violated these regulations. The 1996 amendments to the SDWA require consumer notification to include a clear and understandable explanation of the nature of the violation, its potential adverse health effects, steps that the PWS is undertaking to correct the violation, and the possibility of alternative water supplies during the violation.

The SDWA applies to the 50 states, the District of Columbia, Indian lands, Puerto Rico, the Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

The SDWA allows states and territories to seek the U.S. EPA's approval to administer their own PWSS Programs. The authority to run a PWSS Program is called primacy. For a state to receive primacy, the U.S. EPA must determine that the state meets certain requirements laid out in the SDWA and the regulations, including the adoption of drinking water regulations that are at least as stringent as the federal regulations and a demonstration that they can enforce the PWSS Program requirements. Of the 56 states and territories, all but Wyoming and the District of Columbia have primacy. The U.S. EPA Regional Offices administer the PWSS Programs within these two jurisdictions.

The 1986 SDWA amendments gave Indian Tribes the right to apply for and receive primacy. The U.S. EPA currently administers PWS Programs on all Indian lands except the Navaho Nation, which was granted primacy in late 2000.

### **Annual State PWS Report**

Each quarter, primacy states submit data to the Safe Drinking Water Information System/federal (SDWIS/FED), an automated database maintained by the U.S. EPA. The data submitted include, but are not limited to, PWS inventory information; the incidence of MCL, monitoring, and treatment technique violations; and information on enforcement activity related to these violations. Section 1414(c)(3) of the SDWA requires states to provide the U.S. EPA with an annual report of violations of the primary drinking water standards. This report provides the numbers of violations in each of six categories: MCLs, Maximum Residual Disinfectant Levels (MRDLs), treatment techniques, variances and exemptions, significant monitoring violations, and significant consumer notification violations. The U.S. EPA Regional Offices report the information for Wyoming, the District of Columbia, and all Indian lands except the Navaho Nation. The U.S. EPA Regional Offices also report federal enforcement actions taken. Data retrieved from the SDWIS/FED form the basis of this report.

## **Public Water System**

A PWS is defined as a system that provides water via piping or other constructed conveyances for human consumption to at least 15 service connections or serves an average of at least 25 people for at least 60 days each year. There are three types of PWSs. PWSs can be community (such as towns), nontransient noncommunity (such as schools or factories), or transient noncommunity systems (such as rest stops or parks). For this report, when the acronym “PWS” is used it means systems of all types unless specified in greater detail.

## **Maximum Contaminant Level**

Under the SDWA, the U.S. EPA sets national limits on contaminant levels in drinking water to ensure that the water is safe for human consumption. These limits are known as MCLs.

## **Maximum Residual Disinfectant Level**

The U.S. EPA sets national limits on residual disinfectant levels in drinking water to reduce the risk of exposure to disinfectant byproducts formed when PWSs add chemical disinfectant for either primary or residual treatment. These limits are known as MRDLs.

## **Treatment Techniques**

For some regulations, the U.S. EPA establishes treatment techniques (TTs) in lieu of an MCL to control unacceptable levels of certain contaminants. For example, TTs have been established for viruses, some bacteria, and turbidity.

## **Variances and Exemptions**

A primacy state can grant a PWS a variance from a primary drinking water regulation if the characteristics of the raw water sources reasonably available to the PWS do not allow the system to meet the MCL. To obtain a variance, the system must agree to install the best available technology, treatment techniques, or other means of limiting drinking water contamination that the Administrator finds are available (taking costs into account), and the state must find that the variance will not result in an unreasonable risk to public health. The variance shall be reviewed not less than every five years to determine if the system remains eligible for the variance.

A primacy state can grant an exemption temporarily relieving a PWS of its obligation to comply with an MCL, treatment technique, or both if the system's noncompliance results from compelling factors (which may include economic factors) and the system was in operation on the effective date of the MCL or treatment technique requirement. The state will require the PWS to comply with the MCL or treatment technique as expeditiously as practicable, but not later than three years after the otherwise applicable compliance date.

Michigan has no PWS under a variance or exemption at this time.

## **Monitoring**

A PWS is required to monitor and verify that the levels of contaminants present in the water do not exceed the MCL or MRDL. If a PWS fails to have its water tested as required or fails to report test results correctly to the primacy agent, a monitoring violation occurs.

### **Significant Monitoring Violations**

For this report, significant monitoring violations are generally defined as any major monitoring violation that occurred during the calendar year of the report. A major monitoring violation, with rare exceptions, occurs when no samples were taken or no results were reported during a compliance period.

## **Consumer Notification**

Every community water system (CWS) is required to deliver to its customers a brief annual water quality report. This report is to include some educational material and will provide information on the source water, the levels of any detected contaminants, and compliance with drinking water regulations.

### **Significant Consumer Notification Violations**

For this report, a significant public notification violation occurred if a CWS completely failed to provide its customers with the required annual water quality report.

## Conclusions

The amount of monitoring required of a PWS is dependent on the type and category of PWS (community versus noncommunity, groundwater versus surface water), parameters regulated (microbiological, chemical, and physical), and the size of the system. Locations of monitoring vary (entry point to the distribution versus designated sites in the water distribution system). The number of CWS violations and the population impacted is relatively low considering the total number of monitoring events and that approximately 7.5 million people are served by approximately 1,448 CWSs in Michigan.

The violations outlined in the report do not reflect conditions with a PWS that are continuous throughout the year. In most instances, the violation of a PWS experienced was for only one monitoring period, which is the case for most monthly bacteriological monitoring. In some cases where a monitoring violation occurred, a PWS simply may have been late in taking the required number of samples. No direct risk to public health exists with a monitoring violation. Violation of an MCL poses a risk to public health; however, it does not necessarily mean the public has experienced illness from the violation event.

PWSs that exceed drinking water standards (MCL, MRDL, or TT violations) are required to immediately notify the public, correct the problem, and provide a safe alternate source of drinking water in the interim. Although all MCL violations are considered very serious and are acted on accordingly, only 14 MCLs in the year 2005 involved detecting indicators of fecal contamination in the drinking water, a more serious public health threat. All but two of the fecal contamination sites, all community total coliform sites and nearly 80 percent of the noncommunity total coliform sites, are back in compliance. The two fecal sites not yet resolved have been temporarily inactivated. Many of the unresolved noncommunity total coliform MCL violations occurred in the latter half of the year at seasonal supplies that subsequently closed for the winter. These are currently being addressed under the guidance of local health department personnel.

There are approximately 10,238 noncommunity public water systems in Michigan at facilities such as schools, industries, restaurants, motels, campgrounds, churches, and roadside parks. The majority of noncommunity systems are very small privately owned businesses that provide water to less than 100 persons per day. It is estimated that 10 percent of the owner/operators change each year at these facilities.

For noncommunity systems, the number of reported violations was markedly lower in 2005 compared to years preceding it. Partly, this is due to fewer sampling requirements among nontransient systems, but compliance with bacteriologic and nitrate improved significantly among all noncommunity systems. Most of the violations in the Noncommunity Program represent the failure to collect water samples at the prescribed frequency (monitoring violation), as opposed to actual instances of contamination. The failure to collect all required water samples is significant, and actions to improve compliance, including notices from state or local health departments, and ultimately the assessment of civil fines, will continue.

The failure to collect a sample is not considered a direct public health threat because Michigan's drinking water program does not rely solely on sampling to protect public health. The primary barriers to prevent contamination of water systems include proper well system construction; isolation from contaminant sources; proper design, operation, and construction of treatment facilities; periodic inspections with correction of deficiencies; and owner/operator education and oversight. These activities provide the foundation for safe drinking water, and periodic sampling is a tool to assess ongoing safe operations. Therefore, a missed sample from a properly constructed water system with a satisfactory history of safe samples is a concern, but not a direct threat to public health.

### **Obtaining a Copy of the 2005 Report**

Michigan's 2005 Annual Public Water Systems Report is available on the internet at <http://www.michigan.gov/deq>. Click on Water, then Drinking Water, then Community Water Supply.

The report can also be obtained by contacting Mr. Dan Dettweiler at [dettweid@michigan.gov](mailto:dettweid@michigan.gov) or 517- 241-1373 or Ms. Kris Philip at [philipk@michigan.gov](mailto:philipk@michigan.gov) or 517-241-1238.