

**2016 Annual Report on
Michigan Public Water System Violations**

Prepared By

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June 2017

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Table of Contents

	Page
Introduction.....	3
The Drinking Water Program: An Overview	3
Annual State PWS Report.....	4
Public Water System	4
Maximum Contaminant Level	4
Maximum Residual Disinfectant Level	4
Treatment Techniques	5
Variances and Exemptions	5
Monitoring	5
Significant Monitoring Violations.....	5
Consumer Notification	5
Significant Consumer Notification Violations.....	6
Public Notification Violations	6
Significant Public Notification Violations.....	6
Conclusions	6
Obtaining a Copy of the 2016 Report.....	8
Appendix A: Violations Table for Michigan Public Water Systems – Community	
Appendix B: Violations Table for Michigan Public Water Systems – Noncommunity	
Appendix C: Violations Table for Michigan Public Water Systems – Combined	
Appendix D: Michigan Public Water Systems with 2016 MCL/TT Violations – Combined	

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 (PWS) violations. The following is a report on Michigan PWS violations for calendar year 2016 (January 1, 2016, through December 31, 2016). This report is being submitted in fulfillment of the U.S. EPA requirement by the Michigan Department of Environmental Quality (MDEQ), Drinking Water and Municipal Assistance Division, 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 1974 SDWA. Under the SDWA and the 1986 amendments, the U.S. EPA set 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) and Maximum Residual Disinfectant Levels (MRDLs). 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 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 the PWS Program 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 federal Safe Drinking Water Information System (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 number of violations in each of six categories: MCLs, 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.

Variations 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 and Reporting

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 and Reporting 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. These reports are required to be made available to the customers no later than July 1 each year. Contact your water supply if you would like to obtain a copy of its most recent report.

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.

Public Notification Violations

The Public Notification Rule requires all PWS to notify their consumers any time a PWS violated a national primary drinking water regulation or has a situation posing a risk to public health. The time period that a PWS has to notify the public depends upon the risk posed by the violation or situation. Notices must be provided to persons served (not just billing consumers).

Significant Public Notification Violations

For this report, significant public notification violation occurs when a PWS completely fails to notify its consumers that the PWS violated a national primary drinking water regulation or had a situation posing a risk to public health.

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, designated sites in the water distribution system, etc.). The number of CWS violations and the population impacted are relatively low considering the total number of monitoring events and that approximately 7.4 million people are served by approximately 1,390 CWSs in Michigan.

The violations outlined in the report do not reflect conditions of a PWS that are continuous throughout the year. In most instances, the violation 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 may simply have been late in taking the required number of samples. No direct risk to public health exists with a monitoring violation. Violation of a MCL poses a risk to public health; however, it does not necessarily mean the public 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 28 MCL violations in 2016 involved detecting indicators of fecal contamination in the drinking water, a more serious public health threat. All but four of the sites that detected indicators of fecal contamination have returned to compliance. 100 percent of community total coliform MCLs and 97 percent of the noncommunity total coliform MCLs are back in compliance.

Beginning April 2016, the total coliform provisions of the SDWA were modified under the Revised Total Coliform Rule (RTCR). Prior to this change, total coliform bacteria had an MCL. Beginning April 1, 2016, this MCL was replaced with a Treatment Technique Trigger, which requires formal assessments to identify potential pathways for contamination. Any identified sanitary defects must be corrected by a set deadline. The PWS must notify the public if they fail to complete the assessment or fail to take corrective actions by the deadline. This change only applies to the total coliform MCL. The acute MCL for *E. coli*, which is the fecal indicator, still exists and requires Tier 1 public notification.

Due to this rule change, the attached tables contain both TCR rule violations (January through March) and RTCR violations (April through December). Elimination of the total coliform MCL in April 2016 accounts for a large decrease in the total number of MCL violations for 2016 compared with previous years.

This year's report indicates an increase in monitoring/reporting violations for lead and copper. For CWS, a portion of the increase is due to a targeted effort to enforce paperwork submission deadlines following the sampling event, rather than an increase in failure to sample.

There are 9,373 noncommunity PWSs 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 fewer than 100 people per day. It is estimated that 10 percent of the owner/operators change each year at these facilities.

There were 30 new chemical MCL violations reported in 2016 for noncommunity systems, eight for exceeding the nitrate standard, and 22 for exceeding the arsenic limit. Seven of these have returned to compliance. Several years ago, 85 systems failed to meet the new, more stringent, arsenic standard. Of these, only nine continue to serve bottled water, post a public notice, and remove public access to drinking water outlets. The State is working individually with these systems to help identify an appropriate treatment option.

Most violations reported in the Noncommunity Program are for failure to collect water samples at the prescribed frequency (monitoring/reporting violations), as opposed to actual instances of contamination. However, the percentage of water systems failing to collect a required bacteriologic or nitrate sample at some point during the year increased from 10 percent to 17 percent. The transition to new coliform rules in 2016

resulted in more failures to sample. The failure to collect all required water samples is significant. The State of Michigan will continue to work with local health departments to improve compliance through better education and by issuing administrative fines where necessary.

In a broader context, 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 2016 Report

The 2016 Annual Report on Michigan Public Water System Violations 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. Daniel Dettweiler, Noncommunity Water Supplies Unit, Environmental Health Section, at 517-284-6525 or dettweilerd@michigan.gov; or Ms. Deborah Smith Ostrander, Technical Support Unit, Community Water Supply Section, at 269-491-4536 or ostranderd@michigan.gov.