



**2017 Annual Report on
Michigan Public Water System Violations**

Prepared By

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June 2018

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Introduction

The Michigan Department of Environmental Quality (MDEQ) administers the Public Drinking Water Program in Michigan under delegation of authority from the U.S. Environmental Protection Agency (U.S. EPA). The 1996 amendments to the federal Safe Drinking Water Act (SDWA) require states with primacy to prepare an annual report on public water system (PWS) violations of the national primary drinking water regulations within the state. This report fulfills this responsibility for the 2017 calendar year, and includes violations of maximum contaminant levels (MCL), maximum residual disinfectant levels (MRDLs), treatment technique requirements (TT), and major monitoring or reporting requirements. The entire report is on the MDEQ drinking water Web page at <http://www.michigan.gov/deq>.

The Drinking Water Program: An Overview

The EPA established the Public Water System Supervision (PWSS) Program under the authority of the 1974 SDWA and the 1986 and 1996 amendments. In the SDWA,

- 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).
- Because certain contaminants are difficult to measure, EPA establishes treatment techniques in lieu of an MCL to control unacceptable levels of contaminants in water.
- EPA specifies how often PWSs must monitor their water for contaminants and report the monitoring results to the state. 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.
- EPA requires PWSs to notify their consumers when they have violated these regulations. Public notification must 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.

Who Must Comply

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.

States and territories are allowed 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 PWSS Program on all Indian lands except the Navaho Nation, which was granted primacy in late 2000.

The Michigan Drinking Water Program

As part of the primacy program, the Michigan public drinking water program has the following responsibilities:

- On-Site Inspections
- Construction Permitting
- Operator Certification
- Laboratory Certification
- Monitoring and enforcing compliance with the SDWA
- Administering the Drinking Water State Revolving Loan Program, which provides loans to drinking water supplies for construction projects
- Source Water Protection
- Capacity Development

The community water supply (CWS) program is conducted out of 8 district offices around the state, with technical assistance and core program administration in the central office located in Lansing. The non-community program (NCWS) has been delegated to the local health departments, with assistance and oversight from a team of state employees both in the Lansing office and in the district offices.

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 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.

Michigan’s Public Water Systems

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. When the acronym “PWS” is used in this report, it means systems of all three types listed in Table 1, unless specified in greater detail.

TABLE 1: Types of Public Water Supply Systems

1. <u>COMMUNITY</u> - Year-round residential consumers. e.g. towns, manufactured housing communities, rural water districts, subdivisions
2. <u>NON-TRANSIENT NON-COMMUNITY</u> – Same non-residential consumers six months out of the year e.g. schools, day care facilities, office buildings, manufacturing facilities
3. <u>TRANSIENT NON-COMMUNITY</u> – Different non-residential consumers every day e.g. motels, parks, airports, campgrounds, rest areas

Table 2 shows the number of systems in Michigan by type.

Table 2: Michigan Supplies by Type

Type of Water System	Total Number in Michigan	Population Served
Community Water System	1,390	7,400,000
Non Transient Non-Community Water Systems	1,323	315,500
Transient Non-Community Water Systems	7,954	Over 1 million per day

UNDERSTANDING THIS REPORT

Definitions

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 currently has no PWS under a variance or exemption.

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 an 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 if necessary. Although all MCL violations are considered very serious and are addressed accordingly, only 15 MCL violations in 2017 involved detecting indicators of fecal contamination in the drinking water, a more serious public health threat. All but one of the 15 systems have returned to 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.

This year's report indicates a continued increase in monitoring/reporting violations for lead and copper at 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. Since many of the supplies only sample once every three years, this newer targeted effort has not cycled through all of the supplies yet. It is anticipated that after the first three years, these violations will decrease. NCWS did see a decrease in these lead and copper violations for 2017.

There are 9,277 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.

CWSs had 17 chemical MCL violations in 2017, 2 for nitrate, 12 for arsenic and 3 for combined radium. All but three of these (all for arsenic) have returned to compliance. There were 26 new chemical MCL violations reported in 2017 for noncommunity systems, 13 for exceeding the nitrate standard, and 13 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 six 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 for the second year in a row to just under 20 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 2017 Report

The 2017 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.