Report to EPA

SAFE DRINKING WATER ACT ANNUAL COMPLIANCE REPORT FOR CALENDAR YEAR 2024

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Department of the Environment
Water Supply Program

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Table of Contents

EXECUTIVE SUMMARY 1

BACKGROUND 3

MARYLAND'S WATER SUPPLY PROGRAM 4

- **Program Activities** 6

ANNUAL COMPLIANCE INFORMATION 9

- **Maximum Contaminant Level (MCL) Compliance** 9
- **Monitoring Compliance** 10
- **Treatment Technique Compliance** 16
- **Variances** 19
- **Exemptions** 19
- **Consumer Confidence Report (CCR) Rule Compliance** 20
- **Conclusion** 20

ATTACHMENTS 21

- **Attachment 1: Definitions**
- **Attachment 2: 2024 Violation and Enforcement Summary**

EXECUTIVE SUMMARY

The Safe Drinking Water Act (SDWA) reauthorization of 1996 requires states to submit annual reports of the drinking water violations that occurred within their state to the U.S. Environmental Protection Agency (EPA). This report constitutes Maryland's annual compliance report for CY24. This report provides information on drinking water quality standards, summarizes public water system violations that occurred during 2024 or were ongoing from prior years, and describes some initiatives that were undertaken in 2024. The report covers the period from January 1 through December 31, 2024.

The Maryland Department of the Environment (MDE) is charged with ensuring that the water quality and quantity at all public water systems meet the needs of the public and are in compliance with federal and State regulations. This report describes the activities that are undertaken on a routine basis by MDE to ensure that public drinking water systems provide safe water to their consumers. Routine activities include regular on-site inspections of water systems to identify any sanitary defects in the systems, technical assistance, and a permitting process that helps ensure that systems obtain the best possible source of water. In addition, MDE works with private contractors and local health departments to identify potential sources of contamination in close proximity to groundwater and surface water supplies so that the systems can protect their water sources before contamination occurs. Maryland regulates 3,218 public water systems (460 community water systems, 541 non-transient non-community water systems, and 2,217 transient non-community water systems).

Public water systems are required to sample a variety of contaminants on a routine basis depending on the population served, source type, and historical monitoring data of the water system. When contaminants are found at levels exceeding the federally established Maximum Contaminant Level (MCL), it is considered a violation of federal and State standards. MCL violations are rare in Maryland for most types of chemical contaminants. In 2024, no systems exceeded the MCL for an organic (volatile or synthetic) contaminant at the water treatment plant. Two systems exceeded the MCL for nitrate in 2024 or had ongoing nitrate MCL violations beginning prior to 2024, and one system exceeded the MCL for arsenic in 2024 or had an ongoing arsenic MCL violation beginning prior to 2024. One system exceeded the MCL for haloacetic acids or had ongoing violations prior to 2024, and one system exceeded the MCL for trihalomethanes or had ongoing violations prior to 2024. Under the Revised Total Coliform Rule, four systems had an acute MCL violation.

Violations are also incurred for failure to monitor and/or report as required, failure to use required treatment techniques, or failure to notify the public under certain circumstances. During 2024, 162 water systems had new or ongoing monitoring/reporting violations for inorganic contaminants (131 of 162 for nitrate), one system had monitoring/reporting violations for organic (volatile or synthetic) contaminants, 36 systems had new or ongoing monitoring/reporting violations for lead and copper, five systems had new or ongoing treatment

technique violations under the Lead and Copper Rule, and 480 systems had new or ongoing monitoring/reporting violations under the Revised Total Coliform Rule. Two systems had treatment technique violations, and no systems had monitoring violations under the Surface Water Treatment Rules.

MDE addresses violations through progressive enforcement based on the federal Drinking Water Enforcement Response Policy (ERP). The strategy prioritizes water systems for enforcement, and under this approach, those violations with the potential to affect children, such as at schools and daycare centers, are prioritized. As of June 2025, 18 of the 27 public water systems that were identified in July 2024 for enforcement under the ERP have returned to compliance, are no longer active, or have been addressed by formal enforcement action.

Overall, Maryland public water systems maintain a high level of compliance with all SDWA requirements.

BACKGROUND

The U.S. Environmental Protection Agency (EPA) established the Public Water System Supervision (PWSS) Program under the authority of the 1974 Safe Drinking Water Act (SDWA). Under the SDWA and its 1986 and 1996 amendments, the 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) and Maximum Residual Disinfection Levels (MRDLs). For some regulations, the EPA establishes Treatment Techniques (TTs) in lieu of an MCL to control unacceptable levels of contaminants in water. EPA also regulates how often public water systems (PWSs) monitor their water for contaminants and report the monitoring results to the States or EPA. Generally, the larger the population served by a water system, the more frequent the monitoring and reporting (M/R) requirements. In addition, the EPA requires PWSs that serve more than 10,000 persons to monitor for unregulated contaminants to provide data for future regulatory development. Effective January 2023, PWSs that serve more than 3,300 persons are required to monitor for unregulated contaminants as well. Finally, the EPA requires PWSs to notify the public 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, the steps that the PWS is taking to correct the violation, and the possibility of alternative water supplies during the period of 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.

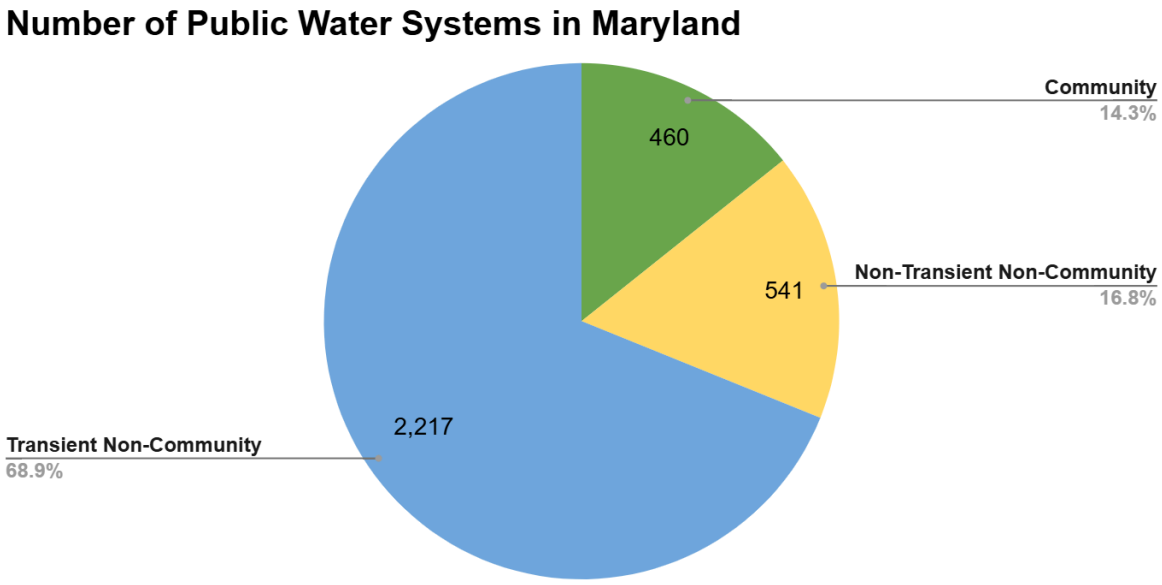
The SDWA allows states, tribes, and territories to seek EPA approval to administer their own PWSS Programs. The authority to run a PWSS Program is referred to as primacy. For a state to receive primacy, EPA must determine that it meets certain requirements laid out in the SDWA and the federal regulations, including adopting drinking water regulations that are at least as stringent as the federal regulations and a demonstration that they can enforce the Program requirements. Of the 50 States and six US territories, all but Wyoming and the District of Columbia have primacy. The EPA Regional Offices administer the PWSS Programs within these two jurisdictions and all Indian Lands, but the Navajo Nation was granted primacy in 2000. Maryland received primacy for the PWSS program in 1977.

Each quarter, primacy states submit data to the federal Safe Drinking Water Information System, Operational Data System (SDWIS/ODS), an automated database maintained by the EPA. The data submitted include, but are not limited to, PWS inventory information, site visits, sample results for specific contaminants (e.g., lead and copper), the incidence of MCL exceedances, monitoring, reporting, and TT violations, as well as information on enforcement activities related to these violations. Section 1414(c)(3) of the SDWA requires states to submit an annual report to EPA detailing violations of the primary drinking water standards. This report provides an overview of violations in each of six categories: MCLs, TTs, variances, exemptions, significant monitoring violations, and significant consumer notification violations. Maryland's SDWIS/State database is the source of data for this report.

MARYLAND'S WATER SUPPLY PROGRAM

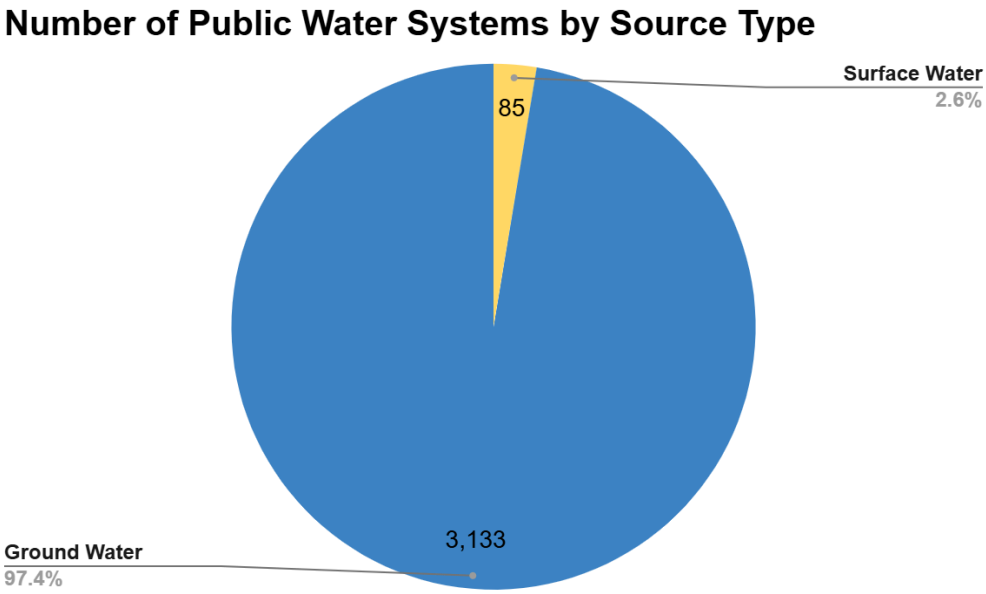
The Water Supply Program (WSP) is a part of the Water and Science Administration in the Maryland Department of the Environment (MDE). The mission of WSP is to ensure that public drinking water systems provide a safe and sustainable supply of water to all current and future users in Maryland and that appropriate usage, planning, and conservation policies are implemented for Maryland's water resources. This mission is accomplished through proper planning for water withdrawal, protection of water sources that are used for public water supplies, oversight and enforcement of routine water quality monitoring at public water systems, regular on-site inspections of water systems, review of design plans to install or upgrade water treatment, and prompt response to water supply emergencies. In addition to ensuring that public drinking water systems meet federal and State requirements under the PWSS program, WSP also administers the wellhead protection program, manages water resources, oversees the Board of Water and Wastewater Operators Certification, the Board of Well Drillers and the Laboratory Certification Program, and issues water appropriation permits for public water users, private water users, commercial entities and agricultural entities statewide. Because all of these activities reside together in WSP, Maryland has a unique opportunity to evaluate and regulate public drinking water systems from a broad perspective that includes an evaluation of the resource for both quantity and quality. WSP's activities help to ensure safe drinking water for over five million Marylanders.

A public water system (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. PWSs fall into three categories: community, non-transient non-community, and transient non-community. Community water systems (CWSs), such as towns, serve year-round residents; non-transient non-community water systems (NTNCWSs), such as schools or factories, serve non-residents; and transient non-community water systems (TNCWSs), such as rest stops or parks, serve different consumers each day. As of 2024, the number of public water systems in Maryland consisted of 460 Community Water Systems (CWSs), 541 Non-Tribal Non-Community Water Systems (NTNCWSs), and 2,217 Tribal Non-Community Water Systems (TNCWSs).



MDE directly regulates CWSs (county and municipal systems, large and small communities, and mobile home parks) and NTNCWSs (businesses, schools, and daycare centers that have their own water supply systems). TNCWSs (e.g., gas stations, campgrounds, and restaurants that have their own water supply system) are regulated and enforced by the local county environmental health departments through State-County delegation agreements, with the exception of systems in Anne Arundel, Cecil, Charles, Harford, Montgomery, Prince George's, Washington, and Wicomico counties, which are directly regulated and enforced by WSP. Table 1 presents a summary of Maryland's 2024 statistics on public water systems and the populations served by each type of system.

Table 1. Maryland Drinking Water Statistics	
Population of Maryland (July 1, 2024, Census estimate)	6,223,220
Number of individuals served by community water systems	5,492,171
Percent of population served by public water systems	88%
Percent of population served by individual wells	12%
Number of Public Water Systems	3,218
Number of Community Systems	460
Number of Non-transient Non-community Systems	541
Number of Transient Non-community Systems	2,217
Number of Systems using surface water	85
Number of Systems using only groundwater	3,133



In WSP, emphasis is placed on preventative measures instead of reactive enforcement actions in order to avert serious public health incidents. The vast majority of drinking water violations are corrected immediately or following the initial notices of violation. Preventative measures include protecting source water (both ground and surface), implementing water monitoring schedules, providing technical assistance, conducting operator training, and performing sanitary survey inspections. Source water protection programs, such as wellhead protection and surface water protection, are used to identify sources of potential contamination and activities that can prevent future contamination incidents.

Program Activities

Routine oversight of public drinking water systems involves a wide range of activities. These activities focus on helping systems obtain and protect the best available source of water, ensuring that systems comply with State and federal water quality monitoring requirements, and maintaining sufficient treatment processes to address any water quality concerns. Table 2 presents a summary of the major activities conducted by the Program in 2024.

Table 2. Water Supply Program's Major Activities for 2024

Sanitary Surveys (Class 1) Conducted on CWS and NTNCWS	200
Sanitary Surveys Conducted on TNC Systems by MDE	333*
Technical Reviews of Water Construction Projects	61
Water Appropriation Permits Issued (New and Renewal)	452
Individuals Certified to Sample Drinking Water	2,859
New Wells Sited	21
Water Quality Records Reviewed	66,829
County Water and Sewer Plans Reviewed	65
Laboratory certifications completed	92

**** NOTE: MDE had delegated authority for TNCWS Sanitary Surveys to fourteen County Environmental Health Departments. The number of TNCWS conducted in 2024 by local health departments has not been tabulated at the time of this report.***

Appropriation Permits - Maryland implements a comprehensive water appropriations permitting program, ensuring that the State is able to effectively manage its water resources to ensure their sustainable use and to minimize the potential for conflicts between users. Permits specify the water source (e.g., the name of the aquifer for groundwater withdrawals), the location of withdrawal, the quantity of allowable use, the purpose of use, measuring and reporting of use, and other conditions in accordance with the appropriate laws and regulations. Permits are valid for a period of up to 12 years. Details on who should obtain a permit can be found on MDE's website (https://mde.maryland.gov/programs/water/water_supply/Pages/WaterAppropriationsOrUsePermits.aspx). Evaluation of permit requests requires an assessment of the reasonableness of the quantity for the intended use, the reasonableness of the impact on the resource, and the potential impact of the withdrawal on neighboring users. Permitted quantities are not allowed to exceed the sustainability of the resource. The appropriation permitting process is a key component in ensuring an adequate and reliable capacity of Maryland's community water systems.

Compliance Activities **-** All of the approximately 1,000 CWSs and NTNCWSs in Maryland must test for over 90 regulated contaminants on schedules that vary based on source type, historical data, and population. Data is received throughout the year and reviewed for compliance with the regulations. WSP staff received and reviewed approximately 66,829 water quality reports for samples collected in 2024. WSP issues Notices of Violations (NOVs) for Maximum Contaminant Level (MCL) and Treatment Technique (TT) violations as they occur.

NOVs for monitoring violations are issued monthly. The WSP maintains an inventory of more than 3,200 public water systems. WSP launched an electronic portal for the required annual/semi-annual Water Withdrawal reporting. WSP issues violation notices for appropriation violations as they occur.

Consumer Confidence Reports - The Consumer Confidence Report Rule requires all community systems to report water quality data in an understandable format to their consumers. The reports must be submitted annually to WSP by July 1 for the previous calendar year's data, and certification of their delivery to each resident within the system must be submitted to WSP by October 1 of each year. MDE publishes the water system reports on the MDE website every year.

Enforcement Strategy - The adopted strategy for managing enforcement is progressive enforcement. This technique has been effective in resolving violations and reserving time-consuming formal civil and criminal actions for the most serious cases. In 2024, MDE continued to implement the federal Drinking Water Enforcement Response Policy (ERP). The strategy prioritizes water systems needing enforcement action. It also establishes a new priority for noncompliance that has the potential to affect children, such as violations at schools and daycare centers. The goal is to be consistent with EPA's enforcement targeting tool, which ranks water systems with violations based on the type of violation (e.g., MCL) and the length of time the violation has been occurring. Systems are considered to be "on the Path to Compliance" if they have received a formal notice of violation, entered into a compliance agreement, or returned to compliance. MDE established a group to work with systems that are out of compliance with the SDWA to resolve open violations. As of June 2025, 18 out of 27 public water systems identified in the July 2024 targeted list for enforcement under the ERP have returned to compliance, are no longer active, or have been addressed by formal enforcement actions.

Sanitary Survey Inspections - A sanitary survey is a comprehensive on-site inspection of a water system, including the source, treatment, storage, and distribution systems, as well as a review of the operations and maintenance of the system. These inspections are conducted to determine the adequacy and reliability of the water system in providing safe drinking water to its customers. The sanitary survey can be used to follow up on known or suspected problems or on a routine basis to assess a water system's viability and prevent future problems from occurring. WSP's current goals for inspection frequencies are: once a year for surface water systems, once every two years for community water systems (CWSs), and once every three years for non-transient non-community water systems (NTNCWSs) and non-delegated TNCWSs, when resources are available. Inspectors may require system upgrades if sanitary deficiencies are identified. A total of 200 sanitary surveys were completed for CWSs and NTNCWSs in 2024. Additionally, WSP staff conducted sanitary survey inspections for 333 TNCWSs in 2024. WSP had delegated authority to fourteen County Environmental Health Departments; the number of sanitary surveys conducted in 2024 by County Health Department staff has not been tabulated at the time of this report.

Transient Non-community Water Systems Oversight TNCWSs, such as churches, campgrounds, rest stops, and rural establishments, account for approximately 70% of the total number of Maryland's public water systems. WSP established delegation authority with Maryland counties in 1998 and provides participating counties with funding, written and verbal guidance regarding implementing drinking water regulations, along with training opportunities on the federal and State requirements for TNCWSs. As of December 31, 2024, fourteen of Maryland's twenty-three counties received funding through MDE's Drinking Water State Revolving Fund set-asides to provide oversight of TNCWSs in their jurisdictions. These

agreements were renegotiated with an effective date of October 1, 2019 for a four-year term. In 2024, WSP had direct oversight of 933 TNCWSs in nine counties and performed 333 sanitary surveys.

School Notifications - Schools that have their own water systems tend to have more total coliform bacteria detections at the beginning of the school year. This is mostly because the school closes during the summer, which results in the water being stagnant in the building's plumbing for an extended period, allowing bacteria to grow. Additionally, metals from pipes, fittings, and plumbing fixtures may leach into the drinking water when water remains stagnant in the plumbing for an extended period. As part of MDE's annual compliance assistance to schools, WSP sent information to the County Boards of Education and Private schools on August 7, 2024, recommending that they flush the plumbing in their buildings prior to school starting in order to avoid water quality problems, including bacteria and metals.

Source Water Protection - Source Water Assessments were completed in CY2004 for all public water systems that were active in Maryland. The WSP continues to support the Maryland Rural Water Association (MRWA) work on source protection issues. WSP continues to be involved with our partners from the Drinking Water Source Protection Partnership (DWSPP) as the Little Pipe Creek National Water Quality Initiative (NWQI) moves through the planning phase. MDE staff have participated in planning meetings with EPA Region 3 and other partners in preparation for an influx of funding associated with the 2021 Infrastructure Investment and Jobs Act (IIJA). The WSP assisted Maryland Natural Resources Conservation Service (MNRC) in expanding Maryland's priority areas for drinking water protection, which, under the 2018 Farm Bill, are eligible for increased funding for utilizing practices beneficial to source waters. WSP also assisted in expanding the list of agricultural practices in Maryland that are eligible for the increased funding. The WSP continues to assist with the sampling of public drinking water sources in the State for per- and polyfluoroalkyl substances (PFAS). WSP continues to coordinate with MDE's Voluntary Cleanup Program and the regulatory siting of new public water supply sources.

Well Siting One important step in protecting a groundwater supply is to identify the best possible location for drilling the well. WSP joint field investigations with local health department personnel for approval of CWS and NTNCWS well sites that are not susceptible to contaminant sources. In 2024, WSP approved 21 well sites for the public water system.

ANNUAL COMPLIANCE INFORMATION

This report covers violation and enforcement data for calendar year 2024. Violations for exceeding Maximum Contaminant Levels (MCL), Treatment Techniques (TT), and Monitoring / Reporting (M/R) violations are reported for all community and non-transient non-community water systems. Summaries of the various violations for all public water systems in 2024 are presented in Tables 3 through 11.

Both MCL and M/R violations occur more frequently in smaller systems, which have fewer resources and less technical expertise for operating water systems. WSP regularly visits water systems where water quality problems occur to advise and assist system owners in meeting their regulatory and water quality requirements.

Maximum Contaminant Level (MCL) Compliance

Under the SDWA, EPA sets federal 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). Contaminants are categorized into four main categories: 1) Inorganic Contaminants, 2) Organic Contaminants, 3) Microbiological Contaminants, and 4) Disinfectants and Disinfection Byproducts.

Tables 3 through 8 present summaries of MCL violations that occurred during 2024, or violations that occurred prior to 2024 and were not resolved.

Inorganic contaminant (IOC) and Radionuclide violations. CWS and NTNC systems are required to monitor IOCs. In 2024, twelve water systems exceeded the MCL or had ongoing MCL violations for nitrate, and two systems exceeded the MCL for arsenic or had ongoing MCL violations for arsenic, and one system exceeded the MCL for cadmium or had ongoing MCL violations for cadmium. There were no MCL violations for radionuclides. Table 3 summarizes this data.

Volatile organic contaminant (VOC) violations and synthetic organic contaminant (SOC) violations. CWS and NTNC systems are required to monitor VOCs and SOCs. One system exceeded the MCL for any organic contaminant in 2024. Tables 4 and 5 summarize the monitoring and reporting violations for these contaminants.

Microbial Contaminants. All public water systems are required to monitor for microbial contaminants. Four community water systems had an acute MCL violation under the Revised Total Coliform Rule. Table 6 summarizes this data, while Table 7 summarizes violations of the Groundwater Rule requirements.

Monitoring Compliance

If a PWS fails to have its water tested as required, fails to report test results correctly, or fails to submit results by the reporting deadline, MDE will issue a monitoring violation.

The WSP periodically notifies water systems of their monitoring requirements. In addition, a reminder notice is sent to the systems approximately one month before the end of the monitoring period if reports are not received. If a system fails to report or complete the required testing, a violation letter is sent to the water system. Telephone calls and site visits by the technical staff are also used. If a system remains unresponsive, the violation is referred to the Compliance and Oversight Division

Monitoring/Reporting Violations For this report, monitoring violations are generally defined as any monitoring violation that occurred during the calendar year of the report or occurred prior to the calendar year of the report and was not resolved. Most M/R violations occur because samples were not collected, or results were not reported, during a compliance period.

The Tables in this report also summarize M/R violations for CWSs, NTNCWSs, and TNCWSs (where indicated). The M/R violations that occurred during CY2024, or occurred prior to CY2024 and remain unresolved, include 162 systems related to IOCs, one system related to organic contaminants (VOCs and SOCs), 486 systems related to total coliform, and 56 systems related to disinfection by-products (DBPs) as shown on Tables 3-8. One system had M/R violations for initial tap sampling for lead and copper, and thirty-five systems had M/R violations for follow-up or routine (reduced) sampling for lead and copper (see Table 9).

Table 3. Inorganic Contaminant Violations (2024)

(CWS, NTNCWS, & TNCWS)

Contaminant			MCL Violations			Monitoring Violations		
Code	Name	MCL (mg/L)	# of Vios	# Vios RTC	# of Systems with Vios	# of Vios	# Vios RTC	# of Systems with Vios
1074	Antimony*	0.006	0	0	0	3	3	2
1005	Arsenic	0.010	4	0	2	13	12	8
1094	Asbestos	7 mil. fibers/L	0	0	0	0	0	0
1010	Barium*	2	0	0	0	5	4	3
1075	Beryllium*	0.004	0	0	0	3	2	2
1015	Cadmium*	0.005	4	4	1	3	2	2
1020	Chromium*	0.1	0	0	0	24	16	24
1024	Cyanide	0.2	0	0	0	3	2	2
1025	Fluoride	4	0	0	0	24	16	24
1035	Mercury*	0.002	0	0	0	3	2	2
1036	Nickel*	N/A	0	0	0	3	2	2
1040	Nitrate-N	10	12	11	12	145	76	131
1041	Nitrite-N	1	0	0	0	0	0	0
1045	Selenium*	0.05	0	0	0	3	2	2
1085	Thallium*	0.002	0	0	0	3	2	2
4000	Gross Alpha Radioactivity	15 pCi/L	0	0	0	2	1	2
4100	Gross Beta Radioactivity	4 mrem	0	0	0	0	0	0
4010	Combined Radium 226 +228	5 pCi/L	0	0	0	0	0	0
	Totals		20	15	15	213	125	162**

MCL = maximum contaminant level
RTC = returned to compliance

* The nine Phase II/V metals are typically sampled and reported as a group; the “Totals” row in Table 3 does not always reflect the individual contaminants
** 162 systems had one or more monitoring violations for IOC contaminants

Table 4. Violations for Volatile Organic Contaminants* (2024)								
Contaminant			MCL Violations			Monitoring Violations		
Code	Name	MCL (mg/L)	# of Vios	# Vios RTC	# of Systems with Vios	# of Vios	# Vios RTC	# of Systems with Vios
2977	1,1-Dichloroethylene	0.007	0	0	0	0	0	0
2981	1,1,1-Trichloroethane	0.2	0	0	0	0	0	0
2985	1,1,2-Trichloroethane	0.005	0	0	0	0	0	0
2980	1,2-Dichloroethane	0.005	0	0	0	0	0	0
2983	1,2-Dichloropropane	0.005	0	0	0	0	0	0
2378	1,2,4-Trichlorobenzene	0.07	0	0	0	0	0	0
2990	Benzene	0.005	0	0	0	0	0	0
2982	Carbon Tetrachloride	0.005	0	0	0	0	0	0
2380	cis-1,2-Dichloroethylene	0.07	0	0	0	0	0	0
2964	Dichloromethane (methylene chloride)	0.005	0	0	0	0	0	0
2992	Ethylbenzene	0.7	0	0	0	0	0	0
2989	Monochlorobenzene	0.1	0	0	0	0	0	0
2968	o-Dichlorobenzene	0.6	0	0	0	0	0	0
2969	p-Dichlorobenzene	0.075	0	0	0	0	0	0
2996	Styrene	0.1	0	0	0	0	0	0
2987	Tetrachloroethylene	0.005	0	0	0	0	0	0
2991	Toluene	1	0	0	0	0	0	0
2979	Trans-1,2-Dichloroethylene	0.1	0	0	0	0	0	0
2984	Trichloroethylene	0.005	0	0	0	0	0	0
2976	Vinyl Chloride	0.002	0	0	0	0	0	0
2955	Xylenes (Total)	10	0	0	0	0	0	0
	Totals		0	0	0	0	0	0

MCL = maximum contaminant level
RTC = returned to compliance

* The 21 VOCs are typically sampled and reported as a group

Table 5. Violations for Synthetic Organic Contaminants (2024)								
Contaminant			MCL Violations			Monitoring Violations		
Code	Name	MCL (mg/L)	# Vios	# Vios RTC	# of Systems with Vios	# Vios	# Vios RTC	# of Systems with Vios
2063	2,3,7,8-TCDD(dioxin)	3x10-8	0	0	0	0	0	0
2105	2,4-D (Formula 40, Weedar 64)	0.07	0	0	0	0	0	0
2110	2,4,5-TP (Silvex)	0.05	0	0	0	0	0	0
2051	Alachlor (Lasso)	0.002	0	0	0	1	1	1
2050	Atrazine (Atranax, Crisazina)	0.003	0	0	0	1	1	1
2306	Benzo(a)pyrene	0.0002	0	0	0	1	1	1
2046	Carbofuran (Furdan, 4F)	0.04	0	0	0	0	0	0
2959	Chlordane	0.002	0	0	0	1	1	1
2031	Dalapon	0.2	0	0	0	0	0	0
2035	Di(2-ethylhexyl)adiphate	0.4	0	0	0	1	1	1
2039	Di(2-ethylhexyl)phthalate	0.006	0	0	0	1	1	1
2931	Dibromochloropropane (DBCP, Nemafume)	0.0002	0	0	0	0	0	0
2041	Dinoseb	0.007	0	0	0	0	0	0
2032	Diquat	0.02	0	0	0	0	0	0
2033	Endothall	0.1	0	0	0	0	0	0
2005	Endrin	0.002	0	0	0	1	1	1
2946	Ethylene Dibromide (EDB, Bromofume)	0.00005	0	0	0	0	0	0
2034	Glyphosate	0.7	0	0	0	0	0	0
2065	Heptachlor (H-34, Heptox)	0.0004	0	0	0	1	1	1
2067	Heptachlor Epoxide	0.0002	0	0	0	1	1	1
2274	Hexachlorobenzene	0.001	0	0	0	1	1	1
2042	Hexachlorocyclopentadiene	0.05	0	0	0	1	1	1
2010	Lindane	0.0002	0	0	0	1	1	1
2015	Methoxychlor (DMDT, Marlate)	0.04	0	0	0	1	1	1
2036	Oxamyl (Vydate)	0.2	0	0	0	0	0	0
2326	Pentachlorophenol	0.001	0	0	0	0	0	0
2040	Picloram	0.5	0	0	0	0	0	0
2384	Polychlorinated biphenyls (PCB, Aroclor)	0.0005	0	0	0	1	1	1
2037	Simazine	0.004	0	0	0	1	1	1
2020	Toxaphene	0.003	0	0	0	1	1	1
	Totals		0	0	0	16	16	1*

MCL = maximum contaminant level

RTC = returned to compliance

* Systems that had violations in multiple categories were counted once

Table 6. Revised Total Coliform Rule Violations (2024)

(CWS, NTNCWS, & TNCWS)

Violation Name	MCL/TT/ M/R	# of Vios	# Vios RTC	# of Systems with Vios
MCL, Acute (E. coli) Violation type 1A	MCL (Absence)	4	4	4
Level 1 Assessment Violation type 2A (Severity = Non-Acute)	TT	1	1	1
Level 2 Assessment Violation type 2B	TT	1	1	1
Corrective/Expedited Actions Violation type 2C	TT	0	0	0
Monitoring, Routine Violation type 3A (Severity = Major)	M/R	899	250	480
Report Sample Result/Failure to Monitor Violation type 4B	M/R	0	0	0
Totals		905	256	486

MCL = maximum contaminant level
TT = treatment technique
M&R = Monitoring and Reporting
RTC = returned to compliance

Table 7. Ground Water Rule Violations (2024)			
Violation Name	**# of Vios**	**# Vios RTC**	**# of Systems with Vios**
Monitoring of Source Water M/R (violation type 34)	0	0	0
Public Notice (violation type 73, 75, or 76)	4	2	4
Failure to Address Deficiency (violation type 45)	5	3	3
Failure to Address Contamination (violation type 48)	0	0	0
Totals	9	5	5*

RTC = returned to compliance
* Systems that had violations in multiple categories were counted once

Treatment Technique Compliance

Under the National Primary Drinking Water Regulations, the EPA has established treatment technique requirements in lieu of an MCL for some regulations. Treatment techniques are processes that are intended to reduce the level of a contaminant through water treatment or other requirements by a water system.

In 2024, five water systems failed to meet the standard for removing disinfection byproduct precursors from Total Organic Carbon under the Disinfection Byproduct Rule (see Table 8). Five systems had Lead and Copper Rule (LCR) treatment technique violations for Lead Public Education, and no systems had an LCR treatment technique violation for Treatment Installation (see Table 9).

Disinfection Byproduct Rule - All CWSs and NTNCWSs that add a disinfectant (other than UV light) and TNCWSs that treat with chlorine dioxide are required to sample for haloacetic acids (HAA5) and total trihalomethane (TTHM). Water systems that use surface water as their drinking water source are required to provide specific water treatment (i.e., sedimentation and filtration) to reduce disinfection byproduct precursors that are likely to form disinfection byproducts with the addition of chlorine. In 2024, five systems had MCL violations for disinfection byproducts.

Table 8. Disinfection Byproduct Rule Violations (2024)

Contaminant			MCL/MRDL/TT Violations (violation types 02 and 46)			Monitoring Violations (violation type 27)		
Code	Name	MCL/ MRDL (mg/L)	# of Vios	# Vios RTC	# of Systems with Vios	# of Vios	# Vios RTC	# of Systems with Vios
2950	Total Trihalomethanes	0.08	5	5	4	60	45	54
2456	Haloacetic Acids (5)	0.06	1	1	1	32	19	27
2920	Total Organic Carbon – TT	N/A	2	1	2	2	2	2
0999	Chlorine Residual (MRDL)	4	0	0	0	0	0	0
1009	Chlorite	1	0	0	0	0	0	0
1008	Chlorine Dioxide	0.8	0	0	0	0	0	0
1927	Alkalinity	N/A	0	0	0	2	2	2
Totals			8	7	5	96	68	56*

MCL = maximum contaminant level; RTC = returned to compliance
* Some systems had violations in multiple categories and were counted once; there are fifty-six systems with DBP Monitoring Violations (i.e., they did not take paired samples for TTHM and HAA5)

Lead and Copper Rule – CWSs and NTNCWSs are required to treat their water if it is found to be corrosive and/or if the source water contains unacceptable levels of lead or copper. Based on a system's population, five to 100 samples are collected at homes or sample locations with the highest probability of elevated lead concentrations. This is determined based on a survey of when buildings were constructed and/or when plumbing is installed (i.e., if the service line leading to the building contains lead and/or if the interior plumbing of the building contains lead pipes or lead solder). Lead solder was prohibited from use in water system plumbing beginning in the mid-1980s. A water system's sample results for the compliance period cannot exceed the Action Level (AL) for lead or copper in more than 10 percent of the samples. Although exceeding the AL is not a violation, follow-up actions, such as water testing, lead public education, and treatment recommendations, are required. In 2024, five systems failed to conduct required lead public education activities (see Table 9).

Table 9. Lead and Copper Violations (2024)

Violation Name	# of Vios	# Vios RTC	# of Systems with Vios
Initial Tap Sampling for Lead and Copper M/R (violation type 51)	1	1	1
Follow-up or Routine Tap Sampling M/R (violation type 52)	36	21	35
Lead Public Education TT (violation type 65)	6	3	5
Treatment Installation TT (violation type 58)	0	0	0
Totals	43	25	41*

RTC = returned to compliance
# of Vios = Number of violations that occurred in 2024 plus the number of ongoing, unresolved violations
* Some systems had violations in multiple categories and were counted once

Surface Water Treatment Rule - Water systems that use surface water as their drinking water source are required to provide filtration and disinfection water treatment. The treatment processes are monitored daily and reported monthly to the state. Table 10 outlines the Surface Water Treatment Rule violations for 2024. No water systems exceeded the turbidity standards for the treatment technique.
Maryland does not have any water systems that are approved to use an unfiltered surface water source. Maryland continues to evaluate new and existing groundwater systems for vulnerability to surface water contamination. Untreated raw water samples are analyzed for *E. coli*, turbidity, temperature, and pH. If a groundwater source is determined to be under the direct influence of surface water, the water system has 18 months to install treatment or to replace the wells with an approved water source.

Under the Long Term 2 Surface Water Treatment Rule (LT2SWTR), the Schedule 1 water systems that serve over 100,000 persons and Schedule 2 water systems that serve over 50,000 persons have completed the source water testing prior to 2018. The Schedule 3 water systems that serve over 10,000 persons completed their sampling of source water for *Cryptosporidium* and *E. coli* in 2018. The Schedule 4 water systems that serve under 10,000 persons with elevated
E. coli concentrations are in the process of sampling and reporting source water test results for *Cryptosporidium*.

Following the completion of the LT2SWTR source water monitoring, water systems were placed in “Bins" corresponding to the detected levels of *Cryptosporidium*. Systems placed in “Bin 1” required no additional treatment; systems in “Bin 2” or higher will be required to provide additional treatment or to optimize their current operations. The following water systems were classified as “Bin 2” water systems:

- MD0100011 Fort Detrick
- MD0100030 New Design--Frederick County Department of Public Works
- MD0120003 Maryland American Water Co. - Bel Air
- MD0070011 Town of Elkton
- MD0210017 Town of Sharpsburg

Table 10. Surface Water Treatment Rule Violations (2024)

Type of System	Violation Name	# of Vios	# Vios RTC	# of Systems with Vios
Filtered Water Systems	Treatment Technique – Failure to Maintain Microbial Treatment (violation type 41)	1	1	1
Filtered Water Systems	Treatment Technique - Exceeds 1 NTU (violation type 43)	0	0	0
Filtered Water Systems	Treatment Technique - Exceeds 0.3 NTU (conventional or direct filtration) or 1 NTU (alternative filtration technology) (violation type 44)	1	1	1
Filtered Water Systems	Monitoring, Routine/Repeat (violation type 36)	0	0	0
Filtered Water Systems	Turbidity Monitoring, Filtered (violation type 38)	0	0	0
Filtered Water Systems	Treatment Technique – Failure to Submit Report – LT2SWTR (violation type 33)	0	0	0
Filtered Water Systems	Monitoring, Source Water – Cryptosporidium (violation type 32)	0	0	0
Unfiltered Water Systems	Treatment Technique - Failure to Filter – GWUDI (violation type 42)	0	0	0
Totals		2	2	2

RTC=returned to compliance

Variances

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. At the time the variance is granted, the state must prescribe a schedule that the PWS will follow to come into eventual compliance with the MCL. Small systems may also be granted variances if they cannot afford (as determined by application of the EPA Administrator's affordability criteria) to comply with certain MCLs (non-microbial, promulgated after January 1, 1986) by means of treatment, alternative source of water, restructuring, or consolidation. Small systems are allowed three years to install and operate EPA-approved small system variance technology. The variance must be reviewed not less than every five years to determine if the system remains eligible for the variance. In 2024, MDE granted no variances, and no variances were in effect.

Exemptions

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. A new PWS that was not in operation on the effective date of the MCL or treatment technique requirement by that date may be granted an exemption only if no reasonable alternative source of drinking water is available to the new system. Neither an old nor a new PWS is eligible for an exemption if management or restructuring changes can reasonably be made that will result in compliance with the SDWA or improvement of water quality, or if the exemption will result in an unreasonable risk to public health. 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. In 2024, no exemptions were granted by MDE, and no exemptions were in effect.

Consumer Confidence Report (CCR) Rule Compliance

Every CWS is required to deliver to its customers a brief annual water quality report. This report must include certain educational material and provide information on the source water, the levels of any detected contaminants, and compliance with drinking water regulations.
WSP contacted systems by telephone that failed to submit their CCRs by the July 1 compliance deadline or their certification forms by the October 1 compliance deadline. Table 11 presents a summary of the CCR reporting violations.

Table 11. Consumer Confidence Reporting Violations (2024)

Violation Name	# of Vios	# Vios RTC	# of Systems with Vios
Failure to Produce or Deliver Report (violation type 71)	8	5	8
Adequacy, Availability, Content or Certification (violation type 72)	14	5	14
Totals	22	10	19

* Some systems had violations in multiple categories and were counted once

Conclusion

Maryland public water systems maintain a high level of compliance with all SDWA requirements. This high compliance rate can be attributed to the strong oversight of WSP's dedicated staff and the commitment of MDE's leadership to protecting public health. In general, compliance is more difficult for smaller systems, which struggle both financially and technically to meet a continually increasing number of complex regulations. MDE's technical assistance approach is aimed at helping all public drinking water systems achieve the highest possible level of public health protection.

ATTACHMENTS

Attachment 1: Definitions

Filtered Systems Water systems that have installed filtration treatment [40 CFR 141, Subpart H].

Inorganic Contaminants are Non-carbon-based compounds such as metals, nitrates, and asbestos. These contaminants are naturally occurring in some water but can also enter it through farming, chemical manufacturing, and other human activities. The EPA has established MCLs for 15 inorganic contaminants [40 CFR 141.62].

Lead and Copper Rule This rule established national limits on lead and copper in drinking water [40 CFR 141.80-91]. Lead and copper corrosion pose various health risks when ingested at any level and can enter drinking water from household pipes and plumbing fixtures. States report violations of the Lead and Copper Rule in the following categories:

> *Initial lead and copper tap monitoring and reporting:* SDWIS Violation Code 51 indicates that a system did not meet initial lead and copper testing requirements or failed to report the results of those tests to the State.
>
> *Follow-up or routine lead and copper tap monitoring and reporting:* SDWIS Violation Code 52 indicates that a system did not meet follow-up or routine lead and copper tap testing requirements or failed to report the results.
>
> *Public education:* SDWIS Violation Code 65 shows that a system did not provide the required public education about reducing or avoiding lead intake from water.

Maximum Contaminant Level (MCL) The highest amount of a contaminant that the EPA allows in drinking water. MCLs ensure that drinking water does not pose either a short-term or long-term health risk. Unless otherwise specified, MCLs are defined in milligrams per liter (parts per million).

Monitoring EPA specifies which water testing methods the water systems must use and sets schedules for the testing frequency. A water system that does not follow EPA's schedule or methodology is in violation [40 CFR 141].
States must report significant monitoring violations as determined by the EPA Administrator and in consultation with the states. For purposes of this report, significant monitoring violations are major violations that occur when no samples are taken or results are not reported during a compliance period. A major monitoring violation for the surface water treatment rule occurs when at least 90% of the required samples are not taken, or results are not reported during the compliance period.

Organic Contaminants Carbon-based compounds, such as industrial solvents and pesticides. These contaminants generally get into water through farm cropland or discharge from factories. EPA has set legal limits on 54 organic contaminants that are to be reported [40 CFR 141.61].

Public Water System A Public Water System (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), non-transient non-community (such as schools or factories), or transient non-community 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.

Radionuclides Radioactive particles that can occur naturally in water or result from human activity. EPA has set legal limits on four types of radionuclides: radium-226, radium-228, gross alpha, and beta particle/photon radioactivity [40 CFR 141]. Violations of these contaminants are to be reported using the following categories:

> *Gross alpha:* SDWIS Contaminant Code 4000 for alpha radiation above MCL of 15 picoCuries/liter (pCi/L). Gross alpha includes radium-226 but excludes radon and uranium.
>
> *Combined radium-226 and radium-228:* SDWIS Contaminant Code 4010 for combined radiation from these two isotopes above MCL of 5 pCi/L.
>
> *Gross beta*: SDWIS Contaminant Code 4100 for beta particle and photon radioactivity from man-made radionuclides above 4 millirem/year.
>
> *Uranium:* SDWIS Contaminant Code 4006 for total Uranium above MCL of 30 micrograms/liter (µg/L).

Reporting Interval The WSP Annual Compliance Report is submitted to EPA by July 1 of each year and reports violations for the previous calendar year.

Revised Total Coliform Rule (RTCR) The Total Coliform Rule establishes regulations for microbiological contaminants in drinking water; it replaced the Total Coliform Rule effective April 2016. New violation codes were developed for this regulation. States are to report four categories of violations:

> *Maximum Contaminant Level (MCL):* SDWIS Violation Code 1A shows a system's failure to properly treat its water and the presence of *E. coli* bacteria.
>
> *Treatment techniques:* SDWIS Violation Codes 2A, 2B, 2C, and 2D show a system's failure to complete assessments of the water system's problems and to take corrective actions to treat its water properly.
>
> *Monitoring, routine/repeat:* SDWIS Violation Codes 3A, 3B, 3C, and 3D show a system's failure to carry out required tests.
>
> *Reporting:* SDWIS Violation Codes 4D, 4E, and 4F show a system's failure to carry out report compliance results in a timely manner.

SDWIS Code Specific numeric codes from the Safe Drinking Water Information System (SDWIS) have been assigned to each violation type included in this report. The violations to be reported include exceeding contaminant MCLs, failure to comply with treatment requirements, and failure to meet monitoring and reporting requirements. Four-digit SDWIS Contaminant Codes have also been included in the chart for specific MCL contaminants.

Surface Water Treatment Rule The Surface Water Treatment Rule establishes criteria under which water systems supplied by surface water sources or groundwater sources under the direct influence of surface water must filter and disinfect their water [40 CFR 141, Subpart H]. Violations of the Surface Water Treatment Rule are to be reported for the following categories:

> *Monitoring, routine/repeat (for filtered systems):* SDWIS Violation Code 38 indicates a system's failure to carry out required tests or to report the results of those tests.
>
> *Treatment techniques:* SDWIS Violation Codes 41, 43, and 44 show a system's failure to properly treat its water. States report Codes 41, 43, and 44 for filtered and unfiltered systems to the EPA.
>
> *Failure to filter (for unfiltered systems):* SDWIS Violation Code 42 shows a system's failure to properly treat its water.

Treatment Technique A water treatment process that the EPA requires instead of an MCL for contaminants that laboratories cannot adequately measure. Failure to meet other operational and system requirements under the Surface Water Treatment, Disinfectant and Disinfection Byproduct, Groundwater, Revised Total Coliform, and the Lead and Copper Rules have also been included in this category of violation for purposes of this report.

Unfiltered Systems Water systems do not need to filter their water before disinfecting it because the source is very clean [40 CFR, Subpart H].

Violation A failure to meet any State or federal drinking water regulation.