Report to EPA

SAFE DRINKING WATER ACT ANNUAL COMPLIANCE REPORT FOR CALENDAR YEAR 2012

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Department of the Environment
Water Supply Program

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EXECUTIVE SUMMARY

The Safe Drinking Water Act reauthorization of 1996 requires states to submit annual reports of the drinking water violations that occurred within their State to the United States Environmental Protection Agency (EPA). This report constitutes Maryland's annual compliance report for calendar year 2012. This report provides information on drinking water quality standards, summarizes public water system violations that occurred during 2012 or were ongoing from prior years and describes some initiatives that were undertaken in 2012. The report covers the period from January 1, 2012 through December 31, 2012.

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 is 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 ground water and surface water supplies so that the systems can protect their water sources before contamination occurs. Maryland regulates 3,419 public water systems.

Public water systems are required to sample for 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 2012, no systems exceeded the MCL for an organic (volatile or synthetic) contaminant at the water treatment plant. Twenty-six systems exceeded the MCL for nitrate in 2012 or had on-going nitrate MCL violations beginning prior to 2012; five systems exceeded the MCL for arsenic in 2012 or had on-going arsenic MCL violations beginning prior to 2012; three systems exceeded the MCL for gross alpha radioactivity; and two systems exceeded the MCL for combined radium 226 and 228. Four systems exceeded the MCL for total trihalomethanes and two systems exceeded the MCL for haloacetic acids. Most total coliform MCL violations occurred in smaller, transient water systems.

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 2012, 74 systems had monitoring/reporting violations for inorganic contaminants, one system had a monitoring/reporting violation for synthetic organic contaminants, 113 systems had monitoring/reporting violations for lead and copper, 113 systems had monitoring/reporting violations for coliform bacteria, and six systems had monitoring/reporting violations for coliform bacteria in the source water (under the Ground Water Rule). No systems had monitoring/reporting violations for volatile organic contaminants.

THE DRINKING WATER PROGRAM: AN OVERVIEW

The United States 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, 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, EPA establishes Treatment Techniques (TTs) in lieu of an MCL to control unacceptable levels of contaminants in water. The Agency 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, EPA requires PWSs that serve more than 10,000 persons to monitor for unregulated contaminants in order to provide data for future regulatory development. Finally, 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, 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, the Commonwealth of the Northern Mariana Islands, and the Republic of Palau.

The SDWA allows states and territories to seek EPA approval to administer their own PWSS Programs. The authority to run a PWSS Program is called primacy. For a state to receive primacy, 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 program requirements. Maryland received primacy for the PWSS program in 1977.

Each quarter, primacy states submit data to the federal Safe Drinking Water Information System (SDWIS/Fed), an automated database maintained by EPA. The data submitted include, but are not limited to, PWS inventory information, sample results for specific contaminants (i.e. lead and copper), the incidence of MCL exceedances, monitoring, and TT violations, and information on enforcement activities related to these violations. Section 1414(c)(3) of the SDWA requires states to provide EPA with an annual report of 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. The SDWIS/Fed database and Maryland's database (Public Drinking Water Information System (PDWIS)) were the sources of data for this report.

MARYLAND'S WATER SUPPLY PROGRAM

The Water Supply Program (WSP) is a part of the Water Management Administration in the Maryland Department of the Environment (MDE). The mission of the WSP is to ensure that public drinking water systems provide safe and adequate 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, the WSP also administers the wellhead protection program, manages water resources, and issues water appropriation permits for both public and private water users, and commercial and agricultural entities statewide. Because all of these activities reside together in the WSP, Maryland has the 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. The WSP's activities help to ensure safe drinking water for over five million Marylanders.

Public drinking water systems fall into three categories: community, non-transient non-community, and transient non-community. Community water systems (CWSs) serve year-round residents, non-transient non-community water systems (NTNCWSs) serve non-residents (e.g. school, business, etc.), and transient non-community water systems (TNCWS) serve different consumers each day (e.g. campground, restaurant, etc.). During 2012, the number of public water systems remained consistent compared with previous years. In 2012, Maryland had 475 CWSs, 549 NTNCWSs, and 2,395 TNCWSs.

MDE directly regulates community water systems (county and municipal systems, small communities, and mobile home parks) and non-transient non-community water systems (businesses, schools, and day care centers that have their own water supply system). Transient non-community water systems (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 Montgomery, Prince George's, and Wicomico Counties, which are directly regulated and enforced by the WSP. Table 1 presents a summary of Maryland's 2012 statistics on public water systems and the populations served by each type of system.

In the Water Supply Program, 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 source water (ground and surface) protection, monitoring schedules, technical assistance, operator training, and 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.

Table 1. Maryland Drinking Water Statistics	
Population of Maryland (July 1, 2012 Census estimate)	5,884,563
Number of individuals served by community water systems	5,003,304
Percent of population served by public water systems	85
Percent of population served by individual wells	15
Number of Community Systems	475
Number of Non-transient Non-community Systems	549
Number of Transient Non-community Systems	2,395
Number of Systems using surface water	58
Number of Systems using only ground water	3,361
Number of Public Water Systems	3,419

Program Activities

Routine oversight of public drinking water systems involves a wide range of activities. These activities focus on helping systems to obtain and protect the best available source of water, ensuring that systems comply with State and federal water quality monitoring requirements, and making certain that systems maintain sufficient treatment processes to address any water quality concerns. Table 2 presents a summary of the major activities conducted by the Program in 2012.

Table 2. Water Supply Program's Major Activities for the Year 2012	
Sanitary Surveys (Class 1) Conducted of CWS and NTNCWS	683
Sanitary Surveys Conducted of TNC Systems* (by local health departments and MDE)	455
Comprehensive Performance Evaluations (CPEs)	2
Technical Reviews of Water Construction Projects	24
Water Appropriation Permits Issued (New and Renewal)	692
Individuals Certified to Sample Drinking Water	731
New Wells Sited	15
Ground Water Under the Direct Influence of Surface Water Determinations	53
Water Quality Reports Reviewed	47,736
County Water and Sewer Plans Reviewed	37

**** NOTE: Local Health Department number for 2012 is not final until June 30, 2013***

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), location of withdrawal, the quantity of allowable use, 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 twelve years. Details on who should obtain a permit can be found on MDE's website (http://www.mde.state.md.us/programs/Water/Water_Supply/Documents/www.mde.state.md.us/assets/document/permit/2008PermitGuide/WMA/3.15.pdf). 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 More than 1,000 community and non-transient non-community water systems in Maryland must test for over 90 regulated contaminants on schedules which 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 more than 47,000 water quality reports for samples collected in 2012. The 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 approximately 3,400 public water systems.

Consumer Confidence Reports The Consumer Confidence Report (CCR) Rule requires all community systems to report water quality data in an understandable format to their consumers. The reports summarizing the previous calendar year's data (which is provided to the water systems annually by WSP) must be distributed to the water systems and submitted to the WSP by July 1 every year. Certification of the delivery of the reports to each resident within the system must be submitted to the WSP by October 1 of each year. The WSP provides a copy of each community water system's report on the MDE website every year.

Enforcement Strategy The strategy that has been adopted 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 2012, MDE continued to implement the federal Drinking Water Enforcement Response Policy (ERP). The new 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 day care centers. The goal is to be consistent with EPA's new enforcement tracking tool which ranks water systems with violations based on violation type (e.g. MCL) and length of time the violation has occurred. 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. As of June 2013, 22 of the 24 public water systems identified under the ERP in 2012 have returned to compliance 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 for the purpose of determining the adequacy and reliability of the water system to provide safe drinking water to its customers. The sanitary survey can be used to follow up known or suspected problems or on a routine basis to assess the water system's viability and prevent future problems from occurring. The WSP's current goals for inspection frequencies are: once a year for surface water systems; once every two years for community water systems; and once every three years for non-transient non-community water systems. Inspectors may require system upgrades if sanitary deficiencies are identified. A total of 683 sanitary surveys were completed for community and non-transient non-community water systems in 2012. In addition, WSP staff conducted sanitary survey inspections for 36 transient non-community water systems during 2012.

School Notifications Schools that have their own water systems and are closed for the summer tend to have a higher risk of coliform bacteria violations at the beginning of the school year. Since the water remains stagnant in the plumbing for a long period of time, there is an increased risk of bacterial growth in the pipes. To assist the schools, the WSP sends information annually to every County Board of Education and private schools recommending that they flush the plumbing in their buildings prior to school starting.

Source Water Protection Source Water Assessments were completed in 2004 for all public water systems that were active in Maryland. To date, 314 (66%) active, community water systems implementing protection measures for their supplies. These systems serve approximately 3.28 million (63%) residents of Maryland. In 2012, the WSP contracted with outside vendors to assist 20 vulnerable groundwater systems to update their source water assessments and to develop and implement plans to protect their water supplies. These projects are expected to be completed in 2013.

Transient Non-community Water System Oversight Transient water systems, such as churches, campgrounds, rest stops, and restaurants, account for approximately 70 percent of the total number of Maryland's public water systems. Twenty of Maryland's 23 counties have delegated authority for oversight of transient non-community systems in their jurisdictions representing 95 percent of the total number of transient non-community water systems. The 20 jurisdictions received over $400,000 in funding from MDE through the Drinking Water State Revolving Fund set-asides. The remaining three counties representing 108 transient non-community water systems are directly managed by the Water Supply Program.

Counties with delegated authority have overseen the transient system program since 1998. The WSP provides delegated counties with written and verbal guidance, and provides training opportunities to educate the county programs about the federal and State requirements for these systems. In calendar year 2012, the WSP performed five program evaluations of the delegated counties in order to provide additional direction for implementing the program. The program evaluations involve visiting each county for a file review, interviewing county staff regarding program operations, and preparing a written evaluation of each program.

Guidance and technical assistance are provided to the counties as needed. In 2012, the WSP continued the process of revising and updating the guidance manual for the transient water systems which is used by the Counties.

Well Siting One important step in protecting a ground water supply and public health is to identify the best possible location for drilling the well. It is our primary objective to choose a well location that is protective of consumer health, protective of the groundwater source, and is sustainable over a long period of time. Therefore it is cruicial to identify the best location for drilling a well. WSP staff conduct joint field investigations with local health department personnel for approval of community and non-transient non-community well sites that are not susceptible to contaminant sources. In 2012, 15 well sites were approved by the WSP.

COMPLIANCE INFORMATION

This report covers violation and enforcement data for calendar year 2012. Maximum Contaminant Level (MCL) and Treatment Technique (TT) violations are reported for all public water systems. Monitoring/Reporting (M/R) violations are also reported for all systems that are directly overseen by MDE, which includes all community water systems, all non-transient non-community water systems, and transient non-community water systems in Montgomery, Prince George's, and Wicomico Counties.

Figure 1 presents the various types of violations incurred by community water systems in 2012 based on the population size. If a water system has multiple violations in the same category, it is counted once.

Summaries of the various violations for all public water systems in 2012 are presented in Tables 3 through 10.

As indicated by Figure 1, both MCL and M/R violations occur more frequently in smaller systems, which have fewer resources and less technical expertise for operating the systems. WSP field engineers regularly visit systems where water quality problems occur to advise and assist system owners to meet their regulatory and water quality requirements.

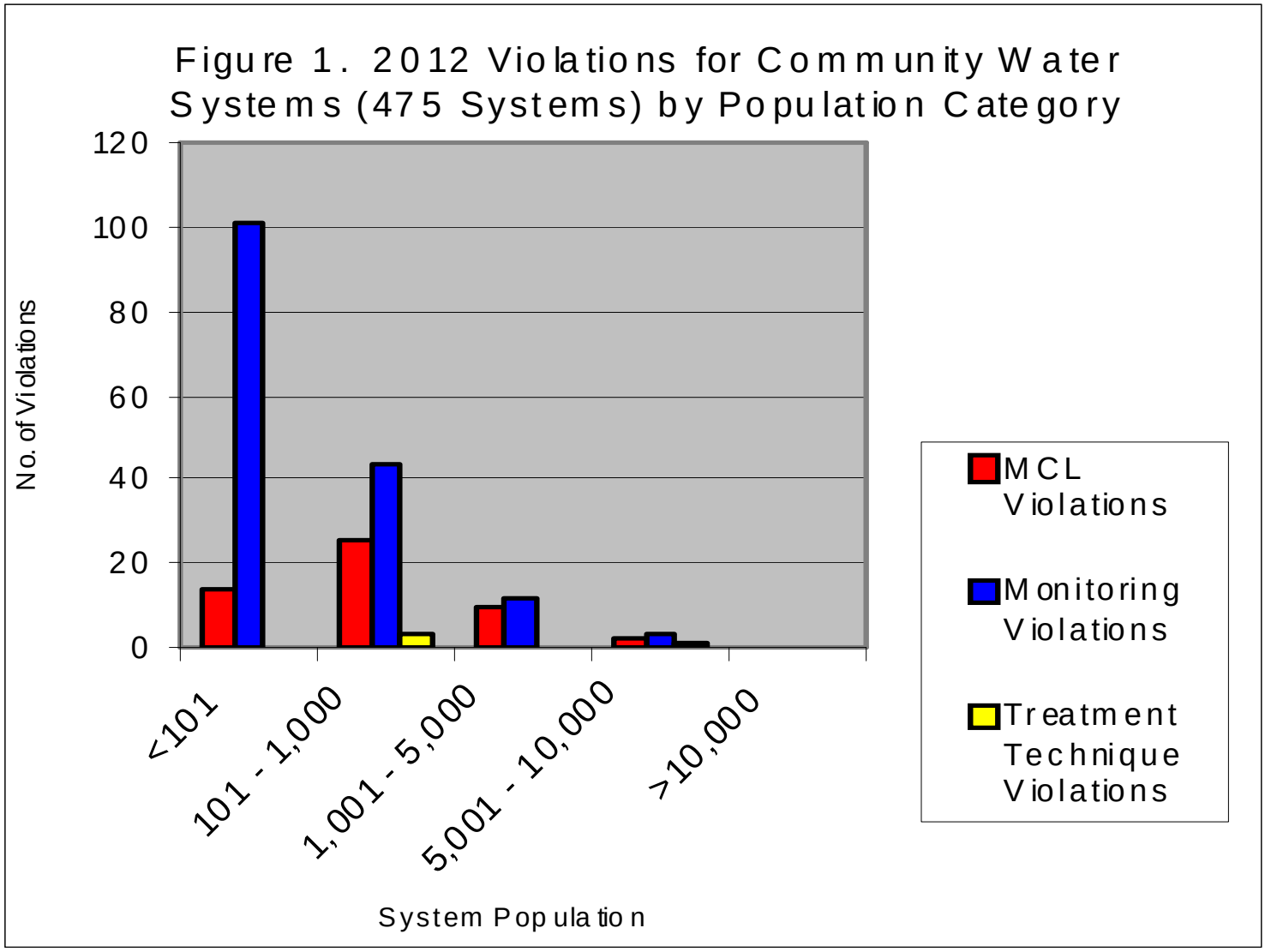
Maximum Contaminant Level (MCL) Compliance

Under the Safe Drinking Water Act (SDWA), 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). 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 7 present summaries of public water system violations that occurred during 2012, or violations that occurred prior to 2012 and were not resolved.

Inorganic contaminant (IOC) violations. In 2012, 26 water systems exceeded the MCL or had on-going MCL violations for nitrate, five systems exceeded the MCL for arsenic or had on-going MCL violations for arsenic, three systems exceeded the MCL for gross alpha radioactivity, and two systems exceeded the MCL for combined Radium-226 and Radium-228. Table 3 summarizes this data.

Volatile organic contaminant (VOC) violations and synthetic organic contaminant (SOC) violations. No systems exceeded the MCL for any organic contaminant in 2012. Tables 4 and 5 summarize the monitoring and reporting violations for these contaminants.

Microbial Contaminants. Of the 3,419 public water systems in Maryland, 17 (one community, three non-transient non-community, and 13 transient non-community) had acute MCL violations in 2012, and 361 (13 community, 37 non-transient non-community, and 311 transient non-community) had non-acute MCL violations in 2012 (NOTE: 12 systems were in both MCL categories, so the total number is 366). The majority of the MCL violations are related to very small transient non-community water systems (314 transient systems with MCL violations). Table 6 summarizes this data.



Monitoring Compliance

If a PWS fails to have its water tested as required or fails to report test results correctly or on time to the primacy state, a monitoring/reporting violation occurs. This category represents the highest number of violations in Maryland.

Water systems are notified annually by MDE 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. If there is no response after 30 days, a second notice of violation letter is sent by certified mail to the water system; this letter will typically contain a requirement for public notification and potential fines. Phone calls and visits by the technical staff are also used to provide assistance to water systems.

Monitoring/Reporting Violations For this report, monitoring/reporting violations are generally defined as any monitoring and/or reporting violation that occurred during the calendar year of the report or occurred prior to the calendar year of the report and were not resolved. A monitoring/reporting violation, with rare exceptions, occurs when no samples were taken or no results were reported during a compliance period. During 2012, 74 systems had monitoring/reporting violations for IOCs, no systems had monitoring/reporting violations for VOCs, one system had a monitoring/reporting violation for SOCs, 113 systems had monitoring/reporting violations for total coliform, six systems had monitoring/reporting violations under the Groundwater Rule, and 36 systems had violations under the D/DBPR (see Tables 3, 4, 5, 6, 6-A, and 7). Six systems had monitoring/reporting violations for initial tap sampling for lead and copper, and 107 systems had monitoring/reporting violations for follow-up or routine (reduced) sampling for lead and copper (see Table 8).

Table 3. Inorganic Contaminant Violations (2012)								
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	18	18	2
1005	Arsenic	0.010	34	8	5	11	11	10
1094	Asbestos	7 mil. fibers/L	0	0	0	0	0	0
1010	Barium*	2	0	0	0	18	18	2
1075	Beryllium*	0.004	0	0	0	18	18	2
1015	Cadmium*	0.005	1	1	1	18	18	2
1020	Chromium*	0.1	0	0	0	18	18	2
1024	Cyanide	0.2	0	0	0	0	0	0
1025	Fluoride	4	0	0	0	5	2	5
1035	Mercury*	0.002	0	0	0	18	18	2
1036	Nickel*	N/A	0	0	0	18	18	2
1040	Nitrate-N	10	30	27	26	72	66	64
1041	Nitrite-N	1	0	0	0	2	1	2
1045	Selenium*	0.05	0	0	0	18	18	2
1085	Thallium*	0.002	0	0	0	18	18	2
4000	Gross Alpha Radioactivity	15 pCi/L	10	7	3	0	0	0
4100	Gross Beta Radioactivity	4 mrem	0	0	0	0	0	0
4010	Combined Radium 226 +228	5 pCi/L	5	2	2	0	0	0
	Totals		80	45	35	92*	79	74**

MCL = maximum contaminant level
RTC = returned to compliance

* These Phase II/V metals are typically sampled and reported as a group
** 74 systems had one or more monitoring violations for IOC contaminants

Table 4. Violations for Volatile Organic Contaminants (2012)								
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

NOTE: The 21 VOCs are typically sampled and reported as a group

Table 5. Violations for Synthetic Organic Contaminants (2012)								
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	0	0	0
2050	Atrazine (Atranax, Crisazina)	0.003	0	0	0	0	0	0
2306	Benzo(a)pyrene	0.0002	0	0	0	0	0	0
2046	Carbofuran (Furdan, 4F)	0.04	0	0	0	0	0	0
2959	Chlordane	0.002	0	0	0	1	0	1
2031	Dalapon	0.2	0	0	0	0	0	0
2035	Di(2-ethylhexyl)adiphate	0.4	0	0	0	0	0	0
2039	Di(2-ethylhexyl)phthalate	0.006	0	0	0	0	0	0
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	0	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	0	1
2067	Heptachlor Epoxide	0.0002	0	0	0	1	0	1
2274	Hexachlorobenzene	0.001	0	0	0	0	0	0
2042	Hexachlorocyclopentadiene	0.05	0	0	0	0	0	0
2010	Lindane	0.0002	0	0	0	0	0	0
2015	Methoxychlor (DMDT, Marlate)	0.04	0	0	0	0	0	0
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	0	0	0
2037	Simazine	0.004	0	0	0	0	0	0
2020	Toxaphene	0.003	0	0	0	0	0	0
	Totals		0	0	0	4	0	1

MCL = maximum contaminant level
RTC = returned to compliance

Table 6. Total Coliform Rule Violations (2012)

Violation Name	MCL	# of Vios	# Vios RTC	# of Systems with Vios**
MCL, Acute (Fecal Coliform) Violation type code 21	Absence	18	18	17
MCL, Monthly (Total Coliform) * Violation type code 22	Absence	445	400	361
Monitoring, Routine and Repeat Major Violation type codes 23 – 26	N/A	277	169	113
Totals		740	588	470**

MCL = maximum contaminant level
RTC = returned to compliance

* For a system that serves 33,000 people or fewer and collects less than 40 samples per month, two positive samples in one compliance period is a violation. For a system that serves more than 33,000 people, greater than 5% of the samples testing positive in one compliance period is a violation.
** Some systems had violations in multiple categories and were counted once

Table 6-A. Ground Water Rule Violations (2012)

Violation Name	# of Vios	# Vios RTC	# of Systems with Vios
Monitoring of Source Water M/R (violation type code 34)	6	5	6
Public Notice (violation type code 75 or 76)	7	6	7
Totals	13	11	13

RTC = returned to compliance

Disinfection Byproduct Rule Compliance

Surface water systems that serve 10,000 or more persons are required to sample for haloacetic acids (HAA5) and total trihalomethane (TTHM). Beginning in 2004, all water systems that disinfect the drinking water with chlorine, chlorine dioxide, or ozone were required to monitor for disinfection byproducts. In 2012, four systems had MCL violations for disinfection byproducts. Two systems with on-going MCL violations have a compliance plan in place. These two systems have completed preliminary studies and are in the process of designing treatment modifications. In 2012, two systems exceeded an MCL for disinfection byproducts. One water system had a treatment technique (TT) violation for disinfection byproduct precursors.

Table 7. Disinfection Byproduct Rule Violations (2012)

Contaminant			MCL/TT Violations			Monitoring Violations		
Code	Name	MCL (mg/L)	# of Vios	# Vios RTC	# of Systems with Vios	# of Vios	# Vios RTC	# of Systems with Vios
2950	Total Trihalomethanes	0.08	47*	3	4	6	3	5
2456	Haloacetic Acids (5)	0.06	15*	1	2	6	3	5
2920	Total Organic Carbon - TT	N/A	1	0	0	6	6	2
0999	Chlorine Residual - MRDL	4	0	0	0	25	11	25
Totals			63	5	4***	43	23	36**

MCL = maximum contaminant level
RTC = returned to compliance

* Some THM violations have been on-going since 2005 and some HAA violations since 2006
**Thirty-six systems had monitoring violations for DBPs in 2012
***Four systems had MCL violations for DBPs in 2012

Treatment Technique Compliance

For some contaminants, the EPA establishes treatment techniques (TTs) in lieu of a Maximum Contaminant Level. In 2012, there were 29 Lead and Copper Rule (LCR) treatment technique violations. One new Surface Water Treatment Rule (SWTR) treatment technique violation occurred in 2012. Two systems have violations from the previous year. See Tables 8 and 9.

Lead and Copper Rule Community and non-transient non-community water systems 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, and/or if the service line leading to the building contains lead, and/or if the interior plumbing of the building contains lead pipes. Lead solder was prohibited from use in water system plumbing beginning in the mid-1980s. A water system's 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 lead public education, and treatment recommendations, are required. In 2012, 29 systems failed to conduct required lead public education activities (see Table 8).

Table 8. Lead and Copper Violations (2012)

Violation Name	# of Vios	# Vios RTC	# of Systems with Vios
Initial Tap Sampling for Lead and Copper M/R (violation type code 51)	6	3	6
Follow-up or Routine Tap Sampling M/R (violation type code 52)	107	62	107
Lead Public Education TT (violation type code 65)	29	18	29
Treatment Installation TT (violation type code 58)	0	0	0
Totals	142	83	137*

RTC = returned to compliance
# of Vios = Number of violations that occurred in 2012 plus 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. The treatment process is monitored throughout each day, and reported monthly to the State. Table 9 outlines the Surface Water Treatment Rule violations for 2012. No water systems exceeded the turbidity standards for treatment technique. Maryland does not have any water systems that are approved to use an unfiltered surface water source.

Maryland continues to evaluate new ground water systems for vulnerability to surface water contamination. Untreated raw water samples are analyzed for E. coli, turbidity, temperature and pH. If a ground water source is determined to be under the direct influence of surface water, they have 18 months to install treatment or to replace the wells with and approved water source. Three water systems (two CWS and one TNCWS) have exceeded the 18-month deadline.

Table 9. Surface Water Treatment Rule Violations (2012)

Type of System	Violation Name	# of Vios	# Vios RTC	# of Systems with Vios
Filtered Water Systems	Treatment Technique (violation type code 41)	0	0	0
Filtered Water Systems	Treatment Technique - Exceeds 1 NTU (violation type code 43)	0	0	0
Filtered Water Systems	Treatment Technique - Exceeds 0.3 NTU (violation type code 44)	0	0	0
Filtered Water Systems	Monitoring, Routine/Repeat (violation type code 36)	0	0	0
Filtered Water Systems	Turbidity Monitoring, Filtered (violation type code 38)	0	0	0
Unfiltered Water Systems	Treatment Technique - Failure to Filter – GWUDI (violation type code 42)	3*	1	3
Totals		3	1	3

RTC = returned to compliance

* Two violations are on-going violations that began prior to 2012

Variances

A primacy state can grant a PWS a variance from a primary drinking water regulation if the characteristics of the raw water sources 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 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 2012, no variances were granted by MDE.

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 or 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 2012, one exemption was granted by MDE for the City of Hagerstown for compliance with the new standards for TTHMs and HAA5s, under the Stage 2 Disinfection By Products Rule. The City entered into a consent agreement to make improvements to the water treatment and water distribution system to meet these new requirements.

Consumer Confidence Report (CCR) Rule Compliance

Every community water system is required to deliver to its customers a brief annual water quality report. This report is required to include some educational material, and provides information on the source water, the levels of any detected contaminants, and compliance with drinking water regulations. Table 10 presents a summary of the CCR Reporting Violations.

Table 10. Consumer Confidence Reporting Violations (2012)

Violation Name	# of Vios	# Vios RTC	# of Systems with Vios
Failure to Produce or Deliver Report (violation type code 71)	59	59	58
Adequacy, Availability, Content or Certification (violation type code 72)	35	31	31
Totals	94	90	73*

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

Conclusion

Generally, smaller drinking water systems struggle both financially and technically to comply with continually increasing number of complex regulations. However, MDE's commitment to providing extensive technical assistance to water systems, frequent visits with water system operators by WSP engineers, and assistance with water quality sampling and analysis for the smallest systems have helped public drinking water systems in Maryland achieve one of the highest rates of compliance. This high rate of compliance is attributed to the strong commitment of MDE to public health protection and the dedicated operators and managers of the water systems throughout the State.

Attachment 1

DEFINITIONS

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

Inorganic Contaminants Non-carbon-based compounds such as metals, nitrates, and asbestos. These contaminants are naturally occurring in some water, but can get into water through farming, chemical manufacturing, and other human activities. 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 four 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 required public education about reducing or avoiding lead intake from water.

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

Monitoring EPA specifies which water testing methods the water systems must use, and sets schedules for the frequency of testing. A water system that does not follow EPA's schedule or methodology is in violation [40 CFR 141].

States must report monitoring violations that are significant as determined by the EPA Administrator and in consultation with the states. For purposes of this report, significant monitoring violations are major violations and they occur when no samples are taken or no results are 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 for these contaminants are to be reported using the following three 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 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.

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 ground water 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 four 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 Code 41 shows a system's failure to properly treat its water. States report Code 41 for filtered and unfiltered systems to EPA.

Failure to filter (for unfiltered systems): SDWIS Violation Code 42 shows a system's failure to properly treat its water.

Total Coliform Rule (TCR) The Total Coliform Rule establishes regulations for microbiological contaminants in drinking water. These contaminants can cause short-term health problems. If no samples are collected during the one month compliance period, a significant monitoring violation occurs. States are to report four categories of violations:

Acute MCL violation: SDWIS Violation Code 21 indicates that the system found fecal coliform or E. coli, potentially harmful bacteria, in its water, thereby violating the rule.

Non-acute MCL violation: SDWIS Violation Code 22 indicates that the system found total coliform in samples of its water at a frequency or at a level that violates the rule. For systems collecting fewer than 40 samples per month, more than one positive sample for total coliform is a violation. For systems collecting 40 or more samples per month, more than 5% of the samples positive for total coliform is a violation.

Major routine and follow-up monitoring: SDWIS Violation Codes 23 and 25 show that a system did not perform any monitoring.

Sanitary Survey: SDWIS Violation Code 28 indicates a sanitary survey was not performed.

Treatment Technique A water treatment process that 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 and the Lead and Copper Rules have also been included in this category of violation for purposes of this report.

Unfiltered Systems Water systems that 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.