

1.4 Sources of Drinking Water

Most Hawaii PWSs use ground water as their primary source of supply. Table 2 shows the number and percentage of systems that use ground and surface water, and the percentage of population served by each type of source water. Public water systems that use both ground water and surface water sources are categorized as surface water systems by convention. The population of systems served surface water is determined based on breakdowns of ground water vs. surface water served per system provided by the water departments.

TABLE 2: PRIMARY SOURCES OF DRINKING WATER USED BY PUBLIC WATER SYSTEMS

Source	No. of systems	Percent of Systems	Percent by population
Ground Water ²	128	92.8%	88.1%
Surface Water	10	7.2%	11.9%
Total Number of Systems	138		

1.5 Safe Drinking Water Act

Under the 1974 federal SDWA and subsequent reauthorizations in 1986 and 1996, the EPA set national limits on contaminant levels in drinking water for human consumption to protect the health of users. These limits are known as maximum contaminant levels (MCL) and maximum residual disinfectant levels (MRDL). For some regulations, treatment techniques (TTs) or action levels (ALs) have been established in lieu of an MCL to control levels of specific contaminants in drinking water. Water systems are also regulated as to the frequency of monitoring and the reporting (M/R) of water quality or rule compliance. Systems can incur a violation for failure to collect required samples during a monitoring period (monitoring violations) or failure to report sample results or rule compliance in the required manner (reporting violations).

There are three basic types of violations that a water system can incur:

- **MCL Violation**

Primary drinking water standards have been adopted by DOH for contaminants that may be found in drinking water supplies in Hawaii. These limits are known as MCLs and are necessary to protect the public from acute and chronic health risks associated with consuming water containing these contaminants.

² Catchment systems are treated as groundwater systems.

- **TT Violation**

Treatment techniques and performance standards have been adopted to provide safe drinking water in instances where adoption of a specific MCL may be impractical or impossible. Treatment techniques are a proven means to reduce the risk from various contaminants by closely controlling the treatment processes.

- **Monitoring and/or Reporting Requirement (M/R) Violation**

A water system is required to monitor and verify that the levels of contaminants present in the drinking water supplies do not exceed an MCL. A monitoring violation occurs when a water system fails to have its water tested as required within a compliance period. A reporting violation occurs when a water system fails to report test results in a timely fashion to the regulatory agency or fails to provide certification that mandated information was provided to the public, such as through the issuance of a public notice or the annual Consumer Confidence Report. A water system that fails to perform required monitoring for a group of chemicals (such as synthetic organic chemicals or volatile organic chemicals) would incur a violation of Monitoring and Reporting Requirements for each of the individual chemicals within this group.

The SDWA requires PWSs to notify their consumers when a drinking water standard has been violated, including MCL, TT, AL, and M/R requirements. Notifications must include:

- A clear and understandable explanation of the nature of the violation,
- The potential adverse health effects from the violation,
- The steps that the water system is undertaking to correct the violation, and
- The possible use of alternative water supplies available during the violation.

1.6 Annual Compliance Report

Section 1414(c)(3) of the federal Safe Drinking Water Act requires states to provide the EPA and the public with an annual report of violations of the federally-adopted primary drinking water standards. This report provides the numbers of violations in each of six categories: MCLs, MRDLs, TTs, variances and exemptions, significant monitoring and/or reporting violations, and significant public or consumer notification violations. Significant monitoring and/or reporting violations occur when no samples are taken, or no results are reported during a compliance period. A significant public notification or CCR notification violation occurs when a public water system completely fails to provide the required notification to its customers or to the public.

1.7 Data Presented in this Report

Each quarter, primacy states submit data to the 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, the incidence of MCL, Maximum Residual Disinfectant Level,

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monitoring, and TT violations for regulated contaminants; violations concerning public and consumer notification; information on enforcement activities related to these violations, and data associated with the Lead and Copper Rule. Data submitted to SDWIS/FED forms the basis of this Annual Compliance Report.

The 2022 Annual Compliance Report compiles violations for the following rule families:

- Revised Total Coliform Rule (RTCR)
- Surface Water Treatment Rule (SWTR), including the Filter Backwash Rule (FBR), Interim Enhanced SWTR (IESWTR), Long Term 1 (LT1) Enhanced SWTR, and Long Term 2 (LT2) Enhanced SWTR
- Ground Water Rule (GWR)
- Inorganic Contaminants (IOC)
- Synthetic Organic Contaminants (SOC)
- Volatile Organic Contaminants (VOC)
- Disinfectants and Disinfection By-Products Rule (DBPR), including Stage 1 DBPR and Stage 2 DBPR
- Lead and Copper Rule (LCR)
- Radionuclides Rule (RAD)
- Public Notification Rule (PNR)
- Consumer Confidence Report Rule (CCR)
- Variances and Exemptions (V&E)

2. Review of 2022 Violation Data

For this Annual Compliance Report, EPA has deemed that significant M/R violations are reportable. A M/R violation is significant if no samples were collected in the monitoring period.

Appendix A-3 shows the number of violations by rule family and by system for MCL/TT and M/R requirements for calendar year 2022. A summary of the violations with the water system names, is provided in Appendix A-4.

2.1 Discussion of Violations

Hawaii's annual compliance report is based on State records and the violations submitted to the federal EPA SDWIS database.

Revised Total Coliform Rule

There were no RTCR violations in 2022.

Surface Water Treatment Rule

Two (2) PWS incurred violations in 2022.

PWS 130, South Kohala, incurred three (3) TT violations in December 2022. The TT violations were due to NTU exceedances on three (3) separate days in the month.

PWS 320, Mililani Memorial Park incurred two (2) violations in April 2022. A TT violation was due to failing to conduct grab sampling every four (4) hours in lieu of continuous monitoring when the system lost power and the analyzer wasn't functioning. A M/R violation was incurred due to failure to demonstrate that the system was meeting the disinfection criteria required to determine contact times and a total inactivation ratio of 1.0 or greater.

Ground Water Rule

There was one (1) GWR violation in August 2022. PWS 331, Honolulu-Windward-Pearl Harbor, incurred a M/R violation for failing to collect TSWM samples at all required sources.

Inorganic Chemicals

There were two (2) violations for the IOC rule in April 2022. Both PWS 249, Kahakuloa and PWS 239, Kalaupapa each incurred a M/R violation for failing to collect its cyanide sample for the 2020 – 2022 sampling period.

Volatile Organic Chemicals

There were no VOC violations incurred in 2022.

Semi-volatile Organic Chemicals

Three(3) PWSs incurred a total of 107 violations for SOCs in December 2022.

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PWS 304 incurred a M/R violation for each of the three (3) contaminants it failed to collect in the quarterly sampling period. The SOCs were EDB, DBCP, and TCP.

PWS 237, Lanai incurred a total of 96 M/R violations for failing to collect samples in the 2020-2022 sample period. A violation was incurred for each of the 32 regulated SOCs, for each of the three (3) sample points.

PWS 239 incurred a M/R violation for each of the six (6) organic contaminants it failed to collect in the 2020 – 2022 sample period. The contaminants were benzo(a)pyrene, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, dioxin, diquat, and endothall.

Disinfectant/Disinfectant By-Product Chemicals

Two (2) PWS incurred DBPR violations in 2022.

PWS 117, Hawaiian Beaches incurred a M/R violation in February 2022 for failing to take its annual TTHM sample.

PWS 256 Maui Highlands incurred an MCL violation in August 2022 when it exceeded the TTHM MCL of 80 micrograms per liter (ug/L). Maui Highlands had a TTHM result of 83.9 ug/L.

Lead and Copper Rule

There were no LCR violations in 2022.

Radiological Contaminants

There were no MCL violations for Radiological contaminants and no significant M/R violations. The next Radionuclides monitoring period for most CWS ends on December 31, 2025.

Public Notification Rule

There were no PNR violations incurred in 2022. However, PWS 337, Aliamanu incurred a PNR violation in 2021 that remains unresolved as of this report (August 2023).

Consumer Confidence Report Rule

One system, PWS 356, Marine Core Base Hawaii, incurred a M/R violation for not delivering its 2021 CCR by the July 1, 2022 due date.

Variances and Exemptions Rule

No variances or exemptions were granted by the State of Hawaii, and no variances or exemptions were already in existence. Therefore, there were no violations of variances or exemptions in 2022.

A-1. Glossary

<u>Term</u>	<u>Definition</u>
Community Water System (CWS)	A PWS that serves the same people year-round.
Consumer Confidence Report (CCR)	An annual summary of water quality data collected during the year for a particular CWS, sent from the CWS to its consumers. The report includes educational material, information on the source water(s), levels of any detected contaminants, and any issues in complying with the drinking water regulations.
Disinfection Byproducts (DBP)	Also called trihalomethanes, are formed when chlorine and bromine interact with natural organic materials in water
Public Notification Rule (PNR)	This rule requires all PWS to notify its consumers any time a PWS violates a national primary drinking water regulation or has a situation posing a risk to public health. The timeframe in which a PWS must notify the public depends on the risk posed by the violation or situation. Notices must be provided to persons served (not just billing consumers).
Public Water System (PWS)	A system that provides water for human consumption via piping or other constructed conveyances to at least 15 service connections, or serves an average of at least 25 people. A public water system may be publicly or privately owned.
Maximum Contaminant Level (MCL)	The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the MCL Goals as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water. In Hawaii, there is one MCL for a contaminant which EPA does not regulate: 1,2,3-Trichloropropane (TCP). In Hawaii, there are two MCLs for federally regulated contaminants that are lower than the federal MCL (more stringent). These MCLs are for 1,2-Dibromo-3-chloropropane (DBCP) and Ethylene dibromide (EDB).
Maximum Residual Disinfectant Level (MRDL)	The EPA sets national limits on residual disinfectant levels in drinking water to reduce the risk of exposure to disinfectant byproducts formed when public water systems add chemical disinfectant for either primary or residual treatment.

<u>Term</u>	<u>Definition</u>
Monitoring and Reporting (M/R)	A water system is required to monitor and verify that the levels of contaminants present in the water do not exceed the MCLs. A monitoring violation occurs when the system fails to have its water tested as required or fails to report test results correctly to the DOH.
Non-transient noncommunity (NTNC)	A PWS that serves the same people more than six (6) months per year, but not year-round. This may include schools, businesses or other facilities.
Safe Drinking Water Act (SDWA)	A law established in 1974 to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources.
Significant Monitoring or Reporting Violations (M/R)	For this report, EPA defined significant monitoring or reporting violations as occurring when required samples were not taken, or results not reported.
Transient non-community (TNC)	A PWS that serves the public but not the same individuals for more than six (6) months.
Treatment Technique (TT)	A required process intended to reduce the level of a contaminant in drinking water in lieu of an MCL. For example, TTs have been established for the treatment of surface waters to control the level of viruses and bacteria.

A-2. Safe Drinking Water Rules and Effective Dates

	RULE	PROMULGATION DATE	EFFECTIVE DATE
1	Phase I Volatile Organic Chemical Rule	7/8/1987	1/9/1989
2	Total Coliform Rule	6/29/1989	12/31/1990
3	Surface Water Treatment Rule	6/29/1989	12/31/1990
4	Lead and Copper Rule	6/7/1991	12/7/1992
5	Phase II Synthetic Organic/Inorganic Chemical Rule	1/30/1991	1/1/1993
6	Phase V Synthetic Organic/Inorganic Chemical Rule	7/17/1992	1/1/1993
7	Stage 1 Disinfectant/Disinfection By-Products Rule	1/16/1998	2/16/1999
8	Consumer Confidence Reports Rule	8/19/1998	10/19/1999
9	Lead and Copper Rule Minor Revisions	9/20/1999	4/11/2000
10	Public Notification Rule	5/4/2000	6/5/2000
11	Unregulated Contaminant Monitoring Rule	9/17/1999	1/1/2001
12	Interim Enhanced Surface Water Treatment Rule	12/16/1998	1/1/2002
13	Long Term 1 Enhanced Surface Water Treatment Rule	1/14/2002	2/13/2002
14	Revised Radionuclides Rule	12/7/2000	12/8/2003
15	Filter Backwash Rule	6/8/2001	6/8/2004
16	Arsenic and Clarifications to Compliance and New Source Monitoring Rule	1/22/2001	1/23/2006
17	Long Term 2 Enhanced Surface Water Treatment Rule	1/5/2006	3/6/2006
18	Stage 2 Disinfectant/Disinfection By-Products Rule	1/5/2006	3/6/2006
19	Ground Water Rule	10/11/2006	12/1/2009
20	Revised Total Coliform Rule	2/13/2013	4/1/2016

A-3. Number Of Violations Incurred in CY 2022 by Rule and by System for MCLs / TT, and Significant M/R

Rule Family Name	MCL/TT		M/R	
	Violations	Systems in violation	Violations	Systems in violation
RTCR	-	-	-	-
SWTR, FBR, IESWTR, and LT 1 and 2 SWTR	4	2	1	1
GWR	-	-	1	1
IOC	-	-	2	2
SOC	-	-	105	3
VOC	-	-	-	-
DBPR, including Stages 1 and 2 DBPR	1	1	1	1
LCR	-	-	-	-
RAD	-	-	-	-
PNR	-	-	-	-
CCR	-	-	1	1
V&E	-	-	-	-
Total Number of Federally Regulated PWS in Hawaii in CY 2022:		138		
Total Number of PWSs with 1 or more Violations		10 (7.2%)		
Total Number of Violations in CY 2022:		116		

A-4. Summary of Violations by Rule and Water System

PWS ID	PWS Name	Population Served	Rule	Violation Trigger
130	South Kohala	10,095	SWTR	NTU exceedance
320	Mililani Memorial Park	100	SWTR	Failed to conduct grab sampling every four (4) hours in lieu of continuous monitoring. Failed to demonstrate meeting disinfection criteria to determine contact times and a total activation ratio of 1.0 or greater.
331	Honolulu-Windward-Pearl Harbor	635,070	GWR	Failed to collect TSWM samples at all required sources
249	Kahakuloa	150	IOC	Failed to collect cyanide sample
239	Kalaupapa	110	IOC, SOC	Failed to collect samples for seven (7) contaminants (3 SOCs, cyanide, dioxin, diquat, and endothall)
304	Hawaii Country Club	400	SOC	Failed to collect samples for three (3) contaminants (EDB, DBCP, and TCP)
237	Lanai	3,300	SOC	Failed to collect samples for the full suite of regulated SOCs (32 total contaminants per EPD)
117	Hawaiian Beaches	3,546	DBPR	Failed to collect its TTHM sample
256	Maui Highlands	45	DBPR	TTHM exceedance
337	Aliamanu	6,440	PNR	Failed to deliver a Tier 1 PNR in 11/2021 and as of 8/2023 has not returned to compliance
356	Marine Core Base Hawaii	16,300	CCR	Failed to deliver the 2021 CCR by the 7/1/2022 due date

EDB Ethylene Dibromide
 DBCP Dibromochloropropane
 NTU Nephelometric Turbidity unit
 TCP 1,2,3-Trichloropropane
 TTHM Total Trihalomethanes
 TSWM Triggered Source Water Monitoring
 SVOC Semi-volatile Organic Compound