

Notifications & General Information

Attention, Landlords and Other Property Managers

We recommend that landlords and other property managers display this report in a public location such as a lobby, laundry room or community room. If you would like to receive additional copies of this report, please call MMWD's Water Quality Laboratory at 415-945-1550.

Atención, Consumidores Que Hablan Español

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

Para más información, o para solicitar una copia del reporte en Español, llame 415-945-1453.

Special Notice for Immuno-Compromised Persons

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk from infections. Persons in these categories should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

General Information About Drinking Water and Potential Contaminants

Federal regulations require us to include the following information in this report. Because it is general information, it does not necessarily apply to the drinking water provided by MMWD. Information specific to MMWD's drinking water can be found in the tables on the reverse.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source (untreated) water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

- Inorganic contaminants, such as salts and metals, that can be naturally occurring or can be the result of urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.

- Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agricultural applications and septic systems.

- Radioactive contaminants, which can be naturally occurring or can be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.



MARIN MUNICIPAL
WATER DISTRICT

ANNUAL WATER QUALITY REPORT

Covering the reporting period of January – December 2017

We are proud to report that in 2017 as in prior years, your water continued to meet or surpass all federal and state drinking water health standards. This report describes where our water comes from, what it contains, how it compares to the state and federal drinking water standards and summarizes the results of the water quality analyses we conducted on your drinking water during 2017.

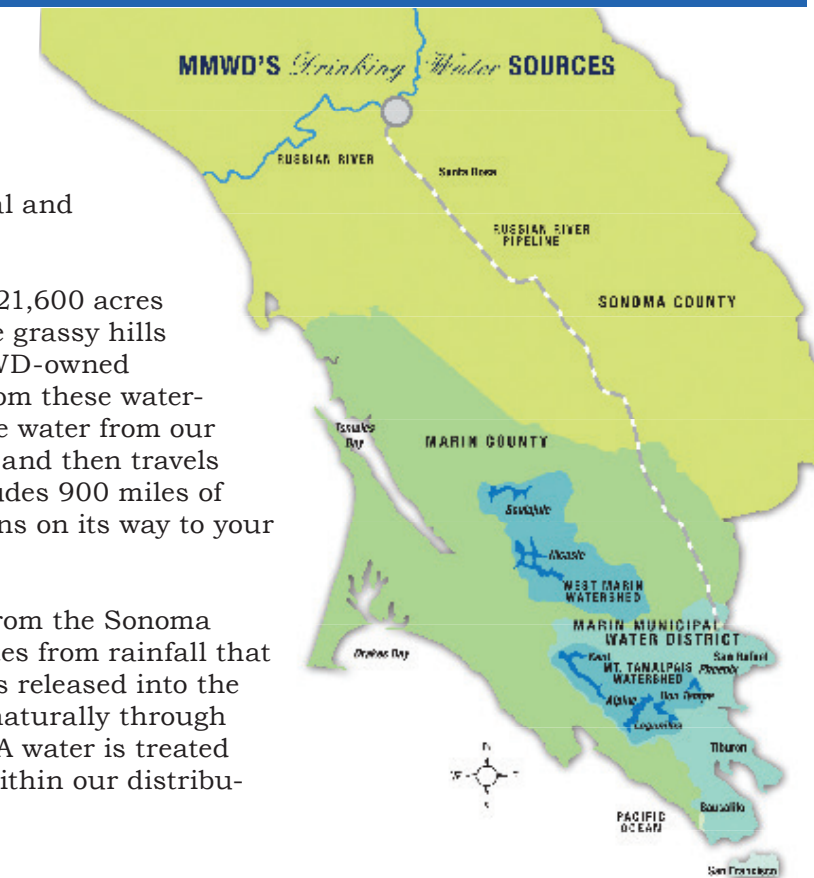
About Us

About Your Drinking Water

Marin Municipal Water District (MMWD) has been providing high-quality drinking water to Marin County since 1912. Currently, MMWD provides drinking water to over 190,300 customers in central and southern Marin County.

Seventy-five percent of MMWD's water comes from 21,600 acres of protected watershed on Mt. Tamalpais and in the grassy hills of west Marin. These areas are either forested MMWD-owned lands or other undeveloped rural lands. Rainfall from these watersheds flows into MMWD's seven reservoirs. Next the water from our reservoirs is treated at our water treatment plants, and then travels through an extensive distribution system that includes 900 miles of buried pipe, 128 storage tanks and 97 pump stations on its way to your home or business.

Twenty-five percent of MMWD's water is imported from the Sonoma County Water Agency (SCWA). SCWA water originates from rainfall that flows into Lake Sonoma and Lake Mendocino and is released into the Russian River. The Russian River water is filtered naturally through 80 feet of sand beds adjacent to the river. The SCWA water is treated before it is blended with MMWD's reservoir water within our distribution system.



How We Maintain the Quality of Our Water

MMWD takes many steps to ensure that high-quality water is delivered to your tap. These steps include carefully managing our watershed lands and reservoirs, treating the water, operating and monitoring a complex distribution system, and maintaining and upgrading our facilities.

Every year MMWD conducts more than 120,000 water quality and process control tests from

watershed to faucet to ensure your water is safe to drink. This includes ongoing process control testing at our treatment plants as well as laboratory testing. Many of these samples undergo chemical, bacteriological and physical analysis in the district's water quality laboratory, which is certified by the California Department of Public Health Environmental Laboratory Accreditation Program. Other samples are sent to specialty labs for testing.

MMWD Water Quality Contact & Public Participation

If you have additional questions about water quality, please contact our Water Quality Lab at 415-945-1550 or waterquality@marinwater.org. MMWD's Board of Directors meets at 7:30 p.m. on the first and third

Tuesdays of every month in the MMWD Board Room, 220 Nellen Avenue, Corte Madera, unless otherwise noticed. All board meetings are open to the public.

This information is provided in compliance with requirements established by the State Water Resources Control Board Division of Drinking Water and the U.S. Environmental Protection Agency and as a policy of the Marin Municipal Water District to inform customers of their drinking water and water quality standards. This report and additional water quality information is available on our website: marinwater.org



Is bottled water better than tap?

It is a matter of personal preference. There is no significant health difference between tap water and bottled water, which comes from many sources, including wells, springs and even the tap. There is a significant cost

difference, however. Drinking one liter of bottled water daily averages more than \$1,000 per year, while drinking one liter of MMWD tap water daily costs less than \$1 per year—and that includes 24/7 delivery to your home!

What can you tell me about Chloramines?

Water can come from a variety of sources, such as lakes and wells that can be contaminated with germs that can make people sick. Bacteria and viruses can also contaminate water as it travels through miles of piping to get to a community. To prevent this, drinking water providers add a disinfectant that kills germs. The most commonly added disinfectants are chlorine and mono-chloramine.

At MMWD's treatment plants chlorine is added as a primary disinfectant to make the water safe from microbial pathogens (germs) that may be present in the water. However, chlorine can also form disinfection by-products, some of which may be cancer-causing. In order to limit the formation of these by-products, which are regulated

by state and federal agencies, MMWD adds ammonia to chlorinated water in the correct proportion to form mono-chloramine.

Specifically, mono-chloramine is a long-lived and very effective disinfectant that stops the formation of chlorine by-products and ensures the treated water remains free from germs and safe to drink as it flows through the distribution system to our taps.

Chloramines have been used to disinfect municipal water supplies since the 1930s. Today, many agencies in California and the rest of the country use chloramines. In California these agencies include SFPUC, EBMUD, Contra Costa Water District and Metropolitan Water District.

Do I have hard or soft water?

Our water is on the soft side. Water hardness, a measure of dissolved calcium and magnesium in water, is commonly expressed in grains per gallon (gpg). Water from MMWD's reservoirs ranges in hardness from 2-3 gpg, while water imported from the Russian River ranges from 6-7 gpg. We blend the Russian River water with reservoir water, so the average hardness of the water provided to customers in the northern and central portions of our service area is 4-6 gpg.



Are our dams safe?

Yes. MMWD's seven dams and reservoirs are rigorously inspected annually by the California Division of Safety of Dams, most recently in February 2018. The State determined the district's dams and reservoirs are safe for continued use. MMWD's reservoirs include Phoenix, Lagunitas, Bon Tempe, Alpine and Kent on Mt. Tamalpais, and Nicasio and Soulajule in west Marin. Together they hold 79,566 acre-feet of water, or about 30 billion gallons.

MMWD has a comprehensive Dam Safety Program to ensure all of our dams and spillways are safe and functioning properly. This program includes three main components: monitoring, routine inspections and



maintenance, and emergency preparedness and response planning. The district also works closely with state and federal regulators and local emergency response partners to ensure public safety.

Does MMWD test for lead in drinking water?

Yes. MMWD drinking water is virtually lead-free when it is delivered from our reservoirs and distribution system. However, water is naturally corrosive, and in some cases, can corrode plumbing in older homes and buildings, potentially leaching lead into the water.

In response, MMWD maintains an active corrosion control program to reduce the potential for pipes to corrode and to leach lead. MMWD regularly

performs corrosion tests at the treatment plants and at points throughout the distribution system. MMWD also conducts at-the-tap lead monitoring at select households and all public schools throughout the district's service area. For testing conducted in 2017, lead was not detected above the federal regulatory standard or action level of 15 micrograms per liter (µg/L) in 100% of the homes and schools tested.

How can I better understand the Water Quality Report?

To help you better understand this report, key definitions are shown below.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

Maximum Residual Disinfectant Level (MRDL): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment be-

low which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.

Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements and water treatment requirements.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Regulatory Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Abbreviations	
mg/L = milligrams per liter (equals parts per million)	NTU = Nephelometric Turbidity Units
µg/L = micrograms per liter (equals parts per billion)	SCWA = Sonoma County Water Agency
TON = Threshold Odor Number	MCL = Maximum Contaminant Level
NA = Not Applicable	NL = Notification Level
ND = Not Detected	PHG = Public Health Goal
pCi/L = PicoCuries per liter	UCMR = Unregulated Contaminant Monitoring Rule
µS/cm = microSiemens per centimeter	

What is 1 mg/L?
One milligram per liter = One part per million
One part per million is equivalent to:
1 cent in \$10,000
1 minute in 2 years
1 inch in 16 miles

Water Quality Results

THE FOLLOWING ARE THE DETECTED CONTAMINANTS WITH PRIMARY MCL, AL, OR TT

DISTRIBUTION SYSTEM						
CONSTITUENT	UNITS	MCLG (PHG)	MCL	AVERAGE	RANGE	SOURCE
Coliform Bacteria	% presence	0	5	1.4 [1]	0 - 1.4	Naturally present in the environment
Copper	mg/L	(0.3)	1.3 [2]	0.12 [3]	No site over action level	Internal corrosion of household plumbing systems
Lead	µg/L	(0.2)	15 [2]	ND [3]	No site over action level	Internal corrosion of household plumbing systems
Lead in schools	µg/L	(0.2)	15	ND [4]	No site over action level	Internal corrosion of household plumbing systems
Haloacetic Acids	µg/L	NA	60 [5]	22 [6]	2 - 21 [7]	By-product of drinking water disinfection
Total Trihalomethanes	µg/L	NA	80 [5]	34 [6]	10 - 37 [7]	By-product of drinking water disinfection
Chloramines	mg/L	4 [8]	4 [8]	1.73	ND - 2.7	Drinking water disinfectant added for treatment

[1] Highest percentage of positive samples collected in any one month.
 [2] Action level for 90th percentile value.
 [3] 50 sites were analyzed in 2015, and the sixth highest concentration out of 50 (90th percentile) is listed.
 [4] 11 schools were tested in 2017, no site over action level.
 [5] Compliance is based on the locational four quarter running average of distribution system samples.
 [6] Highest locational running annual average for 2017. This value is compared to the MCL.
 [7] Range of individual sample results for all monitoring locations.
 [8] Maximum Residual Disinfection Level (MRDL) is a term used for disinfectants such as chloramine, in contrast to Maximum Contaminant Level (MCL) used for other parameters. The Maximum Residual Disinfectant Level Goal (MRDLG) is the same as the MCL. Disinfectants provide protection from viruses and bacteria, such as E. coli.

SOURCE WATER								
CONSTITUENT	UNITS	MCLG (PHG)	MCL (AL)	Reservoir Water AVG	RANGE	SCWA Water AVG	RANGE	SOURCE
Radium 228 [1]	pCi/L	(0.019)	NA	ND	ND - 0.1	ND	ND	Erosion of Natural Deposits
Fluoride	mg/L	(1)	2	ND	ND - 0.1	ND	ND - 0.1	Erosion of Natural Deposits

[1] 2016 data.

MINIMUM % MEETING						
CONSTITUENT TURBIDITY	UNITS	PHG	TT	TURBIDITY LIMITS	RANGE	SOURCE
Reservoir Water	NTU	NA	0.3 [1]	100%	0.04 - 0.15	Soil runoff
Reservoir Water	NTU	NA	1 [2]	100%	0.04 - 0.15	Soil runoff

[1] 95% of all readings shall be less than or equal to this value.
 [2] No single reading shall exceed 1 NTU.

OTHER DETECTED CONTAMINANTS INCLUDING THOSE WITH SECONDARY MCLS (SMCL)

CONSTITUENT	UNITS	SMCL	Reservoir Water		SCWA Water		SOURCE
			AVG	RANGE	AVG	RANGE	
Odor	TON	3	ND	ND - 2	ND	ND - 1	Naturally occurring organic materials
Chloride	mg/L	500	33	27 - 39	8	7 - 9	Runoff/leaching of natural deposits
Specific Conductance	µS/cm	1,600	217	170 - 264	312	272 - 356	Substances that form ions in water
Sulfate	mg/L	500	4	3 - 6	13	11 - 15	Runoff/leaching of natural deposits
Total Dissolved Solids	mg/L	1,000	123	91 - 151	177	156 - 202	Runoff/leaching of natural deposits
Turbidity	NTU	5	0.11	0.06 - 0.28	0.10	0.06 - 0.18	Soil runoff
Zinc	mg/L	5.0	0.21	0.21 - 0.22	0.17	0.14 - 0.19	Corrosion inhibitor
Sodium	mg/L	NA	20	16 - 24	21	19 - 24	
Hardness [1]	mg/L	NA	54	41 - 64	116	105 - 126	
Hardness	grains/gal	NA	3.2	2.4 - 3.7	6.8	6.1 - 7.4	
Alkalinity [1]	mg/L	NA	50	30 - 67	138	121 - 155	
Radon [2]	pCi/L	NA	NA	NA	145	80 - 302	

[1] Expressed as Calcium Carbonate or CaCO₃.
 [2] Radon is a naturally occurring radioactive gas of geologic origin. It can migrate into indoor air through cracks in foundations. Tap water contributions to indoor air are small by comparison. Breathing air containing radon can lead to lung cancer. Ingesting water that contains radon may increase the risk of incurring stomach cancer. For additional information, contact USEPA's radon hotline (800-767-7236). SCWA 2017 data.

UCMR DATA*							
CONSTITUENT	UNITS	NL [MCL]	Reservoir Water		SCWA Water		HEALTH EFFECTS
			AVERAGE	RANGE	AVERAGE	RANGE	
Chlorate [1]	µg/L	800	99	36-420	24	21-26	
Strontium [1]	µg/L	NA	76	46-140	205	200-210	
Vanadium [1]	µg/L	50	ND	ND	0.8	0.8	The babies of some pregnant women who drink water containing vanadium in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.

[1] 2014 Data collected under the EPA's Unregulated Contaminant Monitoring Rule 3 (UCMR3).
 *Unregulated contaminant monitoring helps EPA and the State Water Resources Control Board to determine where certain contaminants occur and whether the contaminants need to be regulated.

DISTRIBUTION SYSTEM FLUORIDE			
UNITS	TT	AVERAGE	RANGE
mg/L	0.6 - 1.2	0.7	0.1 - 0.9

Fluoride occurs naturally in almost all surface and ground waters. Following a voter initiative passed in 1972, the fluoride level is maintained at 0.7 mg/L, the optimum level for cavity prevention.

Report Summary

We are proud to report that in 2017 as in prior years, your water continued to meet or surpass all federal and state drinking water standards.