

**MAURY MUTUAL WATER COMPANY
STATE ID #52100D**

2022 Water Quality Report

The following is Maury Mutual Water Company's annual report on the quality and safety of our drinking water. It is hoped that this information will provide a better understanding of where our water comes from, what it contains, and how it compares to standards set by regulating agencies. This information is made available to help you make personal, health-based decisions regarding your drinking water consumption. The following information covers the monitoring period from 1/1/2022 to 12/31/2022. This report, and additional information is available on MMWC's website (<http://maurymutual.org>) We hope you find this information helpful and reassuring.

For additional information on water quality, source of supply, and/or system operation, please refer to the Contact Information provided at the end of this report. Also, MMWC water quality data and system information is available online through the Department of Health's Sentry Internet at:

<https://fortress.wa.gov/doh/eh/portal/odw/si/Intro.aspx>

Simply follow screen prompts and enter MMWC's I.D. number (52100) to access the records. (If you do not have internet access to the web, we encourage you to use the internet service available at our local library.)

Should you ever experience changes in water quality, or simply have concerns, contact John Martinak (206-588-9207) and we will investigate the situation.

Operating Status

We are pleased to report that the drinking water delivered to you continues to meet all applicable EPA and Washington State Department of Health standards.

Source Information

MMWC collects water from two groundwater sources: springs (S01) and a deep well (S02). Both sources are located on an 18-acre parcel along Luana Beach Road. Spring water is drawn from a shallow, unconfined aquifer, and gravity fed to the springhouse. Chlorine is added to safeguard against pathogenic organisms. Water from the springs requires no filtration or additional treatment. Well water is pumped from 260 feet below grade (25 feet below mean sea level). This deep aquifer contains elevated levels of iron, and manganese. To make the water more palatable, these secondary contaminants are oxidized with chlorine and then removed via greensand filtration.

Finished water from both sources is pumped to the storage tank on 63rd Ave SW through a shared pipe.

MMWC's lower system is gravity fed from the tank on 63rd Ave SW. Water for the upper system is pumped from 63rd Ave SW to the storage tank on 59th Ave SW & 248th St. The upper system is gravity fed from this tank.

The springs are MMWC's primary, and preferred source of water. The well provides service reliability during peak demand, and when the springs need to be taken offline for maintenance and/or repair.

Source water assessment and its availability:

The Department of Health Office of Drinking Water has compiled Source Water Assessment Program (SWAP) data for all community water systems in Washington. SWAP data is available online at:

<https://fortress.wa.gov/doh/swap/>

Reminder:

Any hazardous material that you put onto the ground or in your septic system could potentially pollute the groundwater. Please help us prevent groundwater contamination for this and future generations.

Contaminants

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and can pick up substances resulting from the presence of animals or from human activity.

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 EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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. These people should seek advice about drinking water from their health care providers. EPA/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 Water Drinking Hotline (800-426-4791) or by visiting EPA's web site: <http://water.epa.gov/drink/index.cfm>

Contaminants that may be present in source water include:

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

Inorganic contaminants, such as salts and metals, which can occur naturally or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming.

Pesticides and herbicides, which may come from various sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by products of industrial processes and petroleum production. They can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants, which can occur naturally or result from oil and gas production and mining activities.

Water Quality Data

Our water is tested for more than 100 contaminants for which state and federal standards have been set. **Tables 1, 2 & 4** list all of the primary contaminants that were detected (in any amount) along with their respective Maximum Contaminant Levels (MCL's). Primary standards protect public health by limiting the levels of these contaminants in drinking water. **Table 3** shows the levels of secondary contaminants and common water properties of interest to many customers. Secondary contaminants have no known health effects but can impact the aesthetic properties of water (taste, odor, and appearance). Secondary Maximum Contaminant Levels (SMCL's) are guidelines only.

All water quality monitoring is done in compliance with state and federal regulations. Not all testing is required to be done every year.

Terms & Abbreviations Used:

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

Average Chlorine Residual: The running annual average of residual (available) chlorine as measured at the entry point of the distribution system.

Lead & Copper 90th Percent Value: Out of every 10 homes sampled, 9 were below this level. This must be equal to or less than the AL or additional steps must be taken.

Maximum Contamination Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

Maximum Contamination Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contamination (e.g. chlorine, chloramines, chlorine dioxide).

Maximum Residual Disinfectant Level Goal (MRDLG): The level of drinking water disinfectant below which there are no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

MFL = million fibers per liter

N/A = not applicable

ppb = parts per billion

ppm = parts per million

pCi/L = picocuries per liter (a measure of radioactivity)

Secondary Maximum Contamination Level (SMCL): No known health risks, guidelines only.

Year Tested: Most recent testing done, in accordance with current regulations. (e.g. Lead & Copper standard testing is every 3 years). Both sources (S01 & S02) were granted a 9-year monitoring waiver for Inorganic Chemicals (IOC's) by the Department of Health (DOH) based on water quality history. With a waiver, one IOC sample (28 different tests) is required every 9 years rather than every 3 years. DOH uses the monitoring waivers allowed by EPA because they save system money without compromising public health. The waivers are good for such a long time because the inorganic chemicals in groundwater do not typically change over time, since the source is natural and consistent. Annual nitrate testing is never waived (see Table 2).

Your Water: The water supplied to your homes is a blend of two sources (springs and a well). The springs are the primary source of supply. Effective in 2014, any water quality testing of the source may be done on the blend of water being served to customers (one sample, one result).

Table 1: Disinfectant & Disinfection By-Products

The Department of Health requires that MMWC maintain a minimum chlorine residual of 0.3 ppm at entry to distribution and 0.2 ppm chlorine residual throughout the system. Residuals are measured during daily inspections at least 5 days per week.

Disinfectant	Tested	MRDL	MRDLG	YOUR WATER	Compliant? (Y/N)	Typical Source of Contaminant in Drinking Water
Free Chlorine (ppm) at entry to distribution system	Daily	4	4	0.77 (average chlorine residual at entry to distribution)	Y	Water additive used to kill microbes; oxidant used in iron and manganese removal process
Disinfection By-Product	Year Tested	MRDL	MCLG	YOUR WATER	Compliant? (Y/N)	Typical Source of Contaminant in Drinking Water
Total Trihalomethanes, TTHM (ppb)	2020	80	N/A	8.89	Y	By-product of drinking water disinfection
Haloacetic Acids, HAA (ppb)	2020	60	N/A	2.4	Y	By-product of drinking water disinfection

Table 2: Primary Inorganic Contaminants Detected in Your Drinking Water

Inorganic Contaminant (units)	Springs/S01 (date tested)	Well/S02 (date tested)	MCL	MCLG	Compliant? (Y/N)	Typical Source of Contaminant in Drinking Water
Arsenic (ppb)	<1.0 (10/2019)	<1.0 (8/2013)	10	0	Y	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Asbestos (MFL)	<0.12 (10/2019), sample collected in distribution		7	7	Y	Decay of asbestos cement water mains; Erosion of natural deposits
Nitrate (ppm)	5.02 (05/2022)	<0.20 (10/2022)	10	10	Y	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits

Arsenic:

Your drinking remains far below EPA's revised drinking water standard for arsenic. The Department of Health requires the following information for reporting between 5 - 10 ppb arsenic. We are providing it as additional information: "There is a small chance that some people who drink water containing low levels of arsenic for many years could develop circulatory disease, cancer, or other health problems. Most types of cancer and circulatory diseases are due to factors other than exposure to arsenic. EPA's standard balances the current understanding of arsenic's health effects against the costs of removing arsenic from drinking water."

Asbestos:

A portion of Maury Mutual's distribution systems consists of asbestos cement water mains. Routine samples are collected to detect the onset of decay. Maury Mutual's asbestos cement pipes have shown no sign of decay. Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.

Nitrate:

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

Table 3: Secondary Inorganic Contaminants Detected in Your Drinking Water

Inorganic Contaminant (units)	Springs/S01 (year tested)	Well/S02 (year tested)	SMCL	Compliant? (Y/N)	Typical Source of Contaminant in Drinking Water
Iron (ppm)	<0.10 (2022)	<0.10 (2022)	0.3	Y	Leaching from natural deposits; industrial wastes
Manganese (ppm)	<0.010 (2022)	<0.010 (2022)	0.05	Y	Leaching from natural deposits
Chloride (ppm)	6.1 (2019)	10.1 (2022)	250	Y	Runoff/leaching from natural deposits; seawater influence
Sodium (ppm)	6.8 (2019)	9.8 (2022)	N/A	Y	Erosion of natural deposits; seawater influence
Hardness (ppm)	92.0 (2019)	72 (2022)	N/A	Y	Erosion of natural deposits

Iron & Manganese: Water from the Springs/S01 is naturally low in iron and manganese, and is not treated. The opposite is true of water from the Well/S02. Raw/pre-treatment water samples from the Well/S02 contained 1.23 mg/L of iron and 0.086 mg/L of manganese, both exceeding the Secondary Maximum Contamination Level (SMCL). The results posted in Table 3 for the Well/S02 are post-treatment results. The SMCL for iron and manganese are not based on health effects as primary MCL's are, but based on aesthetic cosmetic effects. Left untreated, water from the Well/S02 would likely have noticeable odor and taste issues, as well as stain clothes and/or plumbing fixtures.

Chloride & Sodium: Given the Well/S02's proximity to the north shore of Maury Island, and the pump draws from below mean sea level, an increase in chloride levels could indicate salt water intrusion. This has not been the case. The EPA identifies 20 ppm of sodium as a level of concern for customers who must restrict their dietary intake.

Hardness: Hardness is the amount of dissolved calcium and magnesium there is in water. Hardness is not considered a health concern, but a nuisance. Hard water can cause mineral build in plumbing, water heaters/fixtures, and poor performance of soaps and detergents.

0-75 ppm = "soft" water

75-150 ppm = "moderately hard"

150-300 ppm = "hard"

>300 ppm = "very hard"

Table 4: Lead & Copper Monitoring:

Samples are collected at customer faucets. The number of homes monitored is based on population served by the system. Specific EPA-mandated criteria are used to select the homes

Primary Inorganic Contaminant	Year Tested	AL	No. of homes sampled	90th Percentile Value	No. of homes exceeding the AL	Compliant? (Y/N)	Typical Source of Contaminant in Drinking Water
Lead (ppb)	2022	15	5	1.05	0	Y	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppm)	2022	1.3	5	0.3650	0	Y	Corrosion of household plumbing systems; erosion of natural deposits

Lead & Copper: In Washington State, lead in drinking water comes primarily from materials and components used in household plumbing. The more time water has been sitting in pipes, the more dissolved metals, such as lead, it may contain. Elevated levels of lead can cause serious health problems, especially in pregnant women and young children.

To help reduce potential exposure to lead: for any drinking water tap that has not been used for 6 hours or more, flush water through the tap until the water is noticeably colder before using for drinking or cooking. You can use the flushed water for watering plants, washing dishes, or general cleaning. Only use water from the cold water tap for drinking, cooking, and especially for making baby formula. Hot water is likely to contain higher levels of lead. If you are concerned about lead in your water, you may wish to have your water tested.

Information on lead in drinking water is available from EPA's Safe Drinking Water Hotline at 1-800-426-4791 or online at:

<http://www.epa.gov/safewater/lead>.

Organic Chemicals & Contaminants:

MMWC tested its water sources for 14 different herbicides and 31 pesticides in 2018, as well as 58 different volatile organic chemicals (VOC's) in 2020. There were no detections of any of these contaminants. VOC's are by-products of industrial processes and petroleum production, and can also come from gasoline stations and dry cleaning facilities. The Department of Health has granted monitoring waivers for any further organics monitoring. Waiver eligibility is based on the sources' susceptibility ratings, water quality history, and from information gathered from across the state.

Table 5: Radioactive Contaminants:

Analyze Name (Units)	Springs/S01 (date tested)	Well/S02 (date tested)	MCL	MCLG	Compliant? (Y/N)	Typical Source of Contaminant in Drinking Water
Radium 228 (pCi/L)	1.6600 (09/2021)	1.1400 (9/2021)	5	0	Y	Erosion of natural deposits
Gross Alpha (pCi/L)	<3.0000 (09/2021)	<3.0000 (09/2021)	15	0	Y	Erosion of natural deposits

Radium:

Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.

Gross Alpha:

Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

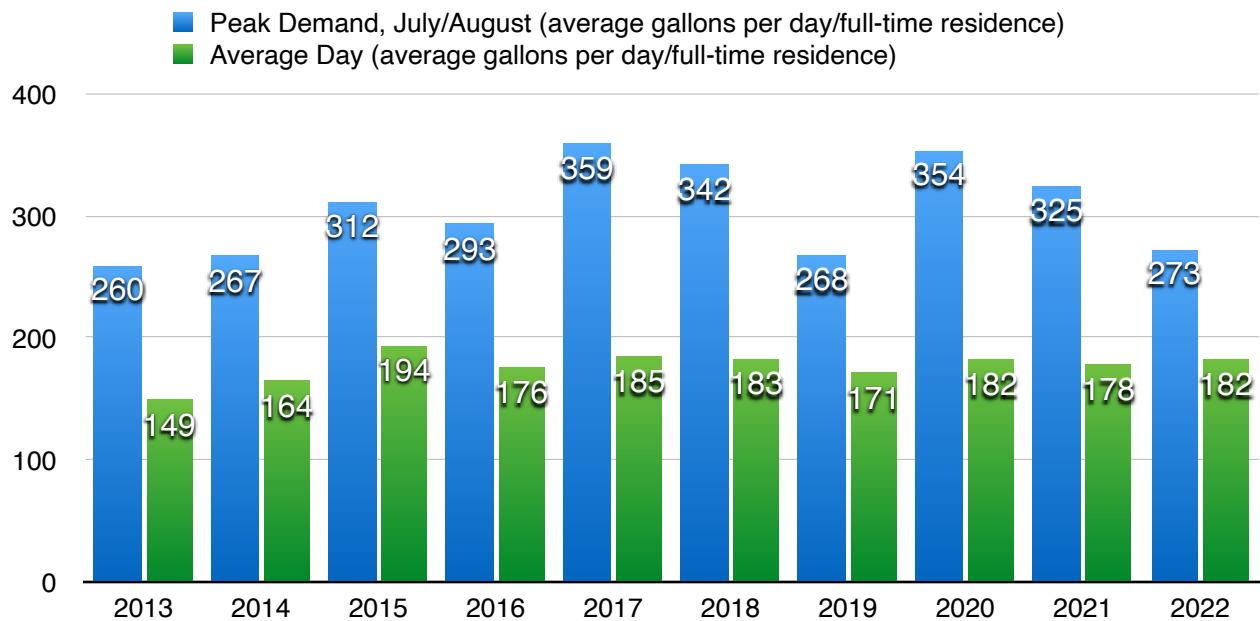
Water Usage:

The summer of 2022 started out cool and wet, but conditions became drier and warmer into late summer and fall. As a result, peak demand was lower than it has been in recent years, but average day usage remained similar. Water demand is also driven by leaks. When meters are read at the end of each billing period, we do our best to notify members of a possible leak in their plumbing system. Please refer to "Leak Detection" on the following page to learn how to check for lost water on your own.

Bear in mind the same seasonal factors that increase demand tend to reduce supply, especially from our shallow springs. *Please irrigate wisely, your conservation efforts help to maintain the quality and reliability of water service.*

The following graph shows water use (gallons per day) per full-time residence during peak demand (July/August), and average day use throughout the year. To track your water use, simply multiply the "Amount used" on your water bill by 7.48 to convert from cubic feet to gallons. Divide this number by 60 (days in a billing period) to identify average day usage. For example:

$$\text{Amount used} = 830 \text{ (cubic feet)} \times 7.48 = 6,208 \text{ gallons, divided by } 60 = 103 \text{ gallons per day}$$



Leak Detection:

It is recommended that members occasionally check for unnoticed leaks. This is easily done with service meter inspections. Most meters have low flow indicators. After ensuring no water is being used on the premises, inspect the meter. All dials, spinners and sweep hands should be still. Any movement represents a leak. Another method is to track meter activity over periods of nonuse: overnight, or while away from home. Simply record the number on the meter register after all water use has stopped, and again prior to any water use. Any change represents lost water.

Your conservation efforts are greatly appreciated.

Governance:

Company business is conducted and managed by the Board of Trustees: Steve Hunter, Paul Gilland, Sam Cooper, Richard Foulkes and Scott Harrison. The Board meets monthly. If you wish to have an item placed on the agenda or have any questions regarding company business and/or policy, please contact the Board using the contact information provided below.

Contact Information:

Topic	Mailing Address	Email	Telephone
Billing	Maury Mutual Water Co. PO Box 633 Vashon, WA 98070	accounts@maurymutual.org (web site: http://maurymutual.org/)	(206)588-9207
Company business, policy issues, questions/ comments for the Board	Maury Mutual Water Co. PO Box 633 Vashon, WA 98070	mmwc@maurymutual.org (web site: http://maurymutual.org/)	
Emergencies, water quality, general information	John Martinak PO Box 633 Vashon, WA 98070	jjmartinak@gmail.com	(206)588-9207

This report was prepared by John Martinak, System Operator/Manager