

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

2016 Water Quality Report

The following is Maury Mutual Water Company's annual update on the quality and safety of our drinking water. It is hoped that this report 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 water quality results that follow are from for the monitoring period ending 12/31/2016. 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 any changes in water quality or 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 Department of Health standards. We are also happy to share the following observation from the Department of Health's 2016 inspection of MMWC:

"This small water system is well operated and maintained- please keep up the good work! Your Small Water System Management Plan is superb! The Operations and Maintenance section is excellent! You've also done a good job addressing the issues from the last sanitary survey, and by doing so have increased the sanitary integrity of the system."

Source Information

We collect 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 gravity fed to the springhouse from wellpoints driven into a shallow, unconfined aquifer. Chlorine is added to achieve CT6 disinfection. Water from the springs requires no additional treatment. The well draws water from 260 feet below grade (25 feet below mean sea level). The well contains elevated levels of naturally occurring hydrogen sulfide, iron, and manganese. To make the water more palatable, these contaminants are oxidized with chlorine and then removed via a greensand filter.

Finished water from both sources is pumped to the storage tank on 63rd Ave SW through a shared pipe. The system does not currently allow for both sources to operate simultaneously, limiting source capacity to that of the active source.

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 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/eh/dw/swap/maps>

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. Daily readings ranged from 0.32 - 0.70 ppm chlorine.

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.

N/A = not applicable; **ppb** = parts per billion; **ppm** = parts per million

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). The springs (S01) - 2010, the well (S02) - 2013. Both sources 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 (hence, just one sample, and one result).

Table 1: Disinfectant & Disinfection By-Products

The Department of Health requires that MMWC maintain a minimum chlorine residual of 0.30 ppm at entry to distribution and a measurable 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	0.47 (average chlorine residual)	Y	Water additive used to kill microbes; oxidant used in iron and manganese removal process
Disinfection By-Product	Year Tested	MRDL	MRDLG	YOUR WATER	Compliant? (Y/N)	Typical Source of Contaminant in Drinking Water
Total Trihalomethanes, TTHM (ppb)	2014	80	N/A	5.3	Y	By-product of drinking water disinfection

Table 2: Primary Inorganic Contaminants Detected in Your Drinking Water

Inorganic Contaminant (units)	Springs (date tested)	Well (year tested)	MCL	MCLG	Compliant? (Y/N)	Typical Source of Contaminant in Drinking Water
Nitrate (ppm)	5.0 (8/2016) 4.9 (10/2016)	<0.2 (2016)	10	10	Y	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits

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 (year tested)	Well (year tested)	SMCL	Compliant? (Y/N)	Typical Source of Contaminant in Drinking Water
Iron (ppm)	<0.1 (2010)	0.17 (2016)	0.3	Y	Leaching from natural deposits; industrial wastes
Manganese (ppm)	<0.01 (2010)	<0.01 (2016)	0.05	Y	Leaching from natural deposits
Chloride (ppm)	5.9 (2010)	6 (2013)	250	Y	Runoff/leaching from natural deposits; seawater influence
Sodium (ppm)	6.19 (2010)	8 (2013)	N/A	Y	Erosion of natural deposits; seawater influence
Hardness (ppm)	50.7 (2010)	74 (2013)	N/A	Y	Erosion of natural deposits

Sodium: The EPA recommends 20 ppm as a level of concern for customers who must restrict their dietary intake.

Hardness: Equivalent to 3.0 (springs) and 4.3 (well) "grains per gallon of hardness. 0-75 ppm hardness is considered to be "soft" water, 75-150 ppm is "moderately hard", 150-300 ppm is "hard", and >300 ppm is "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)	2016	15	5	1.5	0	Y	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppm)	2016	1.3	5	0.42	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:

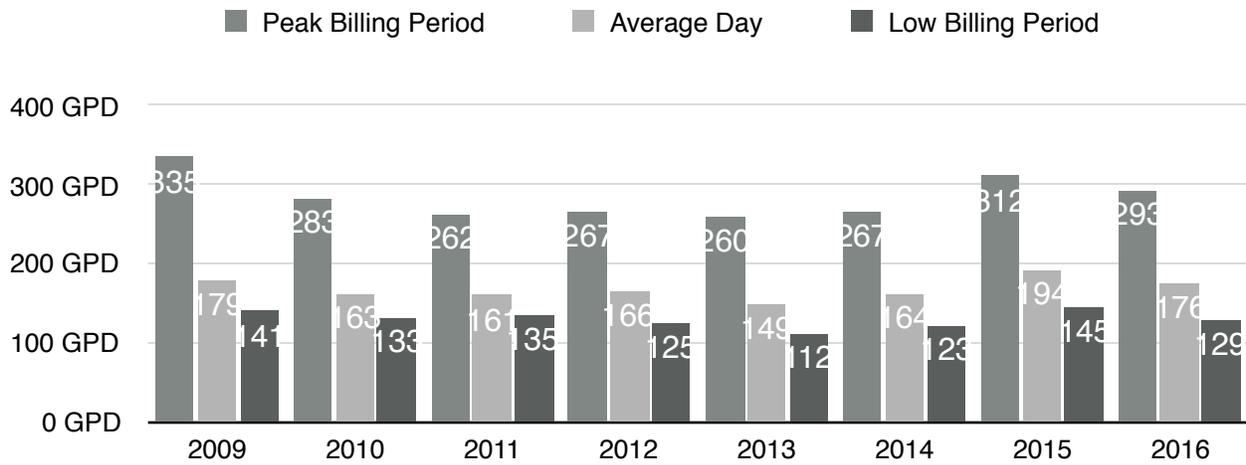
MMWC tested its water sources for 14 different herbicides and 31 pesticides in 2009, as well as 46 different volatile organic chemicals (VOC's) in 2014. There were no detections of any of these contaminants. VOC's are by-products of industrial processes and petroleum production, and can also come from gasoline stations and dry cleaning facilities. The Department of Health has granted monitoring waivers for any further organics monitoring through at least 2017. Waiver eligibility is based on the sources' susceptibility ratings, water quality history, and from information gathered from across the state.

Water Usage:

2016 was another hot year for the region, and water usage reflects the warmer temperatures. We did manage to meet our goal of maintaining <309 gallons per day (GPD) per full-time residence during the July/August billing period. A graph on the following page shows water use per full-time residence in recent years during peak and low billing periods, as well as 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 (President), Jerry Balcom (Vice President), Steve Brown (Treasurer), John Martinak (Secretary) and Will Lockwood (at large). 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, general information	MMWC 5210 SW Pt Robinson Rd Vashon, WA 98070	mmwater@comcast.net	(206)463-9449
Company business, policy issues, questions/comments for the Board	MMWC 5210 SW Pt Robinson Rd Vashon, WA 98070	mmwater@comcast.net	
Emergencies, water quality, additional information	John Martinak 23226 63rd Ave SW Vashon, WA 98070	jjmartinak@gmail.com	(206)588-9207

This report was prepared by John Martinak