CITY OF MILWAUKIE

WATER QUALITY REPORT

CONSUMER CONFIDENCE REPORT • 2017

A Message to Milwaukie Water Customers

Dear Milwaukie Water Customer,

The city is proud to announce that Milwaukie's drinking water meets or exceeds all Federal EPA and State of Oregon Health Authority Standards. This document is the Consumer Confidence Report, which is published once a year under the direction of the Environmental Protection Agency (EPA) and the State of Oregon Drinking Water Program (DWP) standards. This report provides information for the 2017 operating and sampling year from Jan. 1 to Dec. 31, 2017.

Milwaukie is a member of the Regional Water Providers Consortium (RWPC), a collaborative organization that helps improve the planning and management of municipal water supplies, including conservation outreach. Public support in water conservation has paid off in many ways, most notably, in how much water the city produces to meet its customers' needs. For example, in 1994 Milwaukie produced 976 million gallons of water, and, by 2017 production decreased to 771 million gallons—a 205-million-gallon reduction. Given the steady increase in costs to produce water, every gallon saved makes a difference that is reflected in energy savings and reduced greenhouse gas emissions. Keep up the good work Milwaukie! As part of the city's Climate Action Plan, Milwaukie is developing strategies that will help its water system be more resilient to the effects of climate change and ensure that the community has a quality source of water into the future.

In February 2017, the interior of the elevated tank at Water Tower Park was completed. The overall cost of recoating the interior and exterior of the tank was just more than $1 million. Fun fact: the original 1962-63 construction bond was for $295,000.

In 2017, public works staff began the process to make improvements to the SE Stanley Avenue 3-million-gallon storage

Message to Water Customers (cont.)

reservoir, and hired a consultant to assist with construction plans and documents. The Stanley Reservoir is an at-grade welded steel tank constructed in 1970 and is supplied directly from Well No. 6 on the same site. The coating on the exterior has failed and large pieces are peeling off the tank. The project will replace the exterior and interior coating on the tank. As part of the work, the old coating will be blasted off, and the new coating will be applied using a 3-coat process. The work will require a full containment tent using shrink wrap plastic with scaffolding access around and over the top. The estimated cost to complete the project cost is estimated at $1.5 million, and will also include security upgrades to the site.

The city's water crew recently completed some significant projects, which included moving the water main along McLoughlin Boulevard to Main Street, as well as the relocation of fire hydrants and customer service lines. This work was accomplished mostly at night with little to no impact to most water customers. The city is especially grateful to the crew for completing this challenging and more dangerous night work. Crews also replaced a failing 2-inch water main on Wood Court and connected nearby water customers to the new 4-inch ductile iron water main that was fitted with a specialized valve for flushing.

Staff often handle routine customer service calls, which includes requests to check for potential leaks and other inquiries. The team also replaces old meters, failed meters and meters that have been damaged by large vehicles. Milwaukie's system is comprised of more than 7,000 water meters, 900 fire hydrants and thousands of valves that must be kept in working order in addition to the city's production equipment and multiple water facilities. It sounds like a lot of work, but the city's water division is committed to tackling any challenges that may come up.

Thank you for taking the time to read this report for 2017. It is also available on the city's website at **www.milwaukieoregon.gov/WQR**. The website contains more information, answers to frequently asked questions and links to educational videos, such as Liquid Assets that reports on the current state of the nation's infrastructure. Thank you to all water customers for supporting this healthy drinking water and keeping Milwaukie's water system operating and improving.

Don Simenson
Water Quality Coordinator
503.786.7622
simensond@milwaukieoregon.gov

Where Does Milwaukie's Drinking Water Come From?

Milwaukie water comes by way of the Troutdale Gravel Aquifer, located more than 200 feet below ground, rather than local rivers or streams. This aquifer provides water for communities on both the north and south sides of the Columbia River. The Troutdale Aquifer encompasses about 300 square miles and extends from northern Clark County in Washington state, to south of Milwaukie and from east of Troutdale to the Willamette River. The land mass above the aquifer and the Columbia River's prehistoric paleo-channel (old-channel) serves to maintain water levels within the aquifer. In Milwaukie, the groundwater flows primarily from the northeast to southwest.

The City of Milwaukie reaches this source of water by means of seven operating wells that range from 250 to nearly 500 feet deep. Milwaukie's wells are located in several locations around town. Emergency water connections with Clackamas River Water District (CRWD) and the Portland Water Bureau, as well as a possible future connection with Oak Lodge Water Services, are capable of supplying the water Milwaukie may need in an emergency situation. These interties allow the city's water system to assist other water systems when they need water in times of emergency or high level maintenance.

Milwaukie's water system currently isn't using water from the interties. Typically, when the City of Portland issues a boil water notice, Milwaukie residents do not need to boil water. This is the same for the CRWD area as well. The only time Milwaukie would use City of Portland or CRWD water is during an emergency or during a project, such as the elevated tank painting work in fall and winter of 2016-17. The project required city staff to drain the elevated tank to sand blast and make repairs before the interior and exterior of the tank was recoated. For more information about Milwaukie's drinking water, visit **www.milwaukieoregon.gov/water**.

Source Water Assessment

In 2004, a drinking water source assessment was conducted by Oregon DEQ and the Oregon Health Authority Drinking Water Program, with assistance from city staff. The report indicates that the water system would be moderately to highly susceptible to a contamination event inside the drinking water protection area. The drinking water protection area is defined in the Source Water Assessment Report based on the distance water moves toward a well over a specified amount of time.

The presence of several high and moderate risk potential contaminant sources within the protection area were confirmed through a potential contaminant source inventory. Under a "worst case" scenario, where it is assumed that nothing is being done to protect groundwater quality at the identified potential contaminant sources, the assessment results indicate that the water system would be highly susceptible to several of the identified potential contaminant sources.

In 2010, the drinking water protection area around Well #4 was reevaluated and the area was expanded slightly to the north and west. Oregon DEQ is currently working to update source assessments and the city will publish any changes to the assessment when it is complete. In addition, the assessment results indicate that Milwaukie's water system is currently considered susceptible to viral contamination. Viral contamination is typically caused by failed septic systems.

A copy of the source assessment can be viewed or obtained for no charge at the Public Works and Community Development Facility, located at 6101 SE Johnson Creek Blvd.

How Milwaukie Keeps Your Water Safe

Johnson Creek

The city works hard to protect Milwaukie's ground water resource and its water distribution system. The city has extended its wastewater service area to reduce the viral threat from septic systems, and works closely with Oregon DEQ and Federal EPA to monitor and cleanup past contaminated sites and to properly evaluate and render safe any newly discovered sites.

Contaminated sites include former gas stations, dry cleaners, industrial and residential properties with contaminants ranging from naphthalene, heating oil and industrial solvents. Oregon DEQ maintains a complete listing of these sites that can be viewed at Oregon DEQ: Search Environmental Cleanup Site Information (ECSI) Database.

Milwaukie's storm water, erosion control, and Cross-Connection programs all work together keeping our ground water, surface water, and the drinking water safe.

Water Sampling Report Available Online

The community can view all of Milwaukie's water sampling results anytime at the State of Oregon Drinking Water Program website. Just visit **www.yourwater.oregon.gov/namelook.php** and enter "Milwaukie." This online tool allows anyone to browse through water sampling results for not only the City of Milwaukie, but any other water system in Oregon. For more information or questions about the reports, contact Don Simenson, water quality coordinator, at 503.786.7622 or simensond@milwaukieoregon.gov.

By the Numbers: Milwaukie Water Quality Data

The table below shows the results of the city's most recent water quality analyses. Staff examine Milwaukie's water at each of the city's wells and entry points, which are points where treated water enters the drinking water system. The city doesn't test for every contaminant each year. Some pose greater risks than others and, therefore, tested more frequently. Others are less harmful and tested for sporadically. Each regulated contaminant, no matter how small the trace, is listed in this table. The name of each substance, highest level allowed by regulation, ideal goal for public health, amount detected and usual sources for contamination are presented in this data table.

Substance	MCL	MCLG	Results	Violation?	Primary Source	Possible Health Effects
CHEMICALS						
Nitrate	10	0	3.59 **Range** 0.12-3.59	No	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits	Infants younger than 6 months old who drink water in excess of the MCL could become seriously ill and, if untreated, die. Symptoms include shortness of breath and blue baby syndrome.
Barium	2	0	.00495 **Range** 0.0033-0.00495	No	Discharge from drilling waste, discharge from metal refineries, and erosion of natural deposits.	Drinking water containing barium in excess of the MCL can cause an increase in blood pressure, gastrointestinal problems, muscle weakness, and have affects on the nervous and circulatory systems.
Fluoride	4	4	.17	No	Naturally occuring in ground water	For children, drinking water with fluoride in excess of the MCL can have adverse affects on tooth enamel. For adults, it can increase the likelihood of bone fractures, or lead to bone pain and/or tenderness.
Chlorine	4	2	.23 **Range** 0.19-0.41	No	Disinfection chemical used to remove bacteria and prevent waterborne illnesses.	Drinking water containing chlorine in excess of the MCL could lead to irritating effects to the eyes and nose, as well as stomach discomfort.
DISINFECTION BYPRODUCTS						
TTHM's (Total Trihalomethanes)	80	N/A	0.09 **Range** 0-0.09	No	Byproduct of the disinfection process when organic matter is present in the raw water	Drinking water containing Trihalomethanes in excess of the MCL over many years may cause problems with the liver, kidneys or central nervous system. It may also increase the risk of getting cancer.
Haloacetic acids HAA5	60	N/A	0	No	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
MICROBIAL CONTAMINANTS						
Total Coliform bacteria	Presence of coliform bacteria in 5% of samples	0	2	No	Naturally present in the environment	Coliforms are bacteria naturally present in the environment, and used as an indicator that other potentially harmful bacteria may be present. **Repeat sampling revealed false positive or sampling error.**
Fecal coliform & E. coli	If routine sample and repeat sample are total coliform positive, and one is also fecal coliform or E. coli positive	0	1	No	Human & animal fecal waste	Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaominated with human or animal waste. Microbes in these wastes can cause diarrhea, cramps, nausea, headaches or other symptoms. They may pose a special health risk for infants, young children and people with severely compromised immune systems. **Repeat sampling revealed false positive or sampling error.**

Substance	Units	Goal	Action Level	90th Percentile	Homes Exceeding Action Level	Violation?	Source of Contaminate
COPPER & LEAD							
Copper	mclg	1.3	1.3	0	0	No	Corrosion of household plumbing
Lead	ppb	0	15	0	0	No	Corrosion of household plumbing

UNREGULATED CONTAMINANTS

This data reports on Milwaukie's Unregulated Contaminant Monitoring Rule 3 (UCMR3) sampling. UCMR3 is a requirement set by the EPA for public water systems to monitor for a list of 21 contaminants that don't yet have a drinking water standard. The purpose of monitoring for them is to help the EPA decide whether the contaminants should have a standard and set Maximum Contaminant Level (MCL). From the list of 21, five contaminants were found in the city's water with the results listed below.

Substance	Results of Sampling	MCL Limit	Primary Sources in Drinking Water
Chromium	1.08 **Range** .74-1.60	N/A	See Chromium 6 for use or source information
Strontium	100.88 **Range** 79-130	N/A	Naturally-occuring element. Historically, commercial use of strontium was used in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
Vanadium	9.18 **Range** 79-120	N/A	Naturally-occuring elemental metal used as vanadium penoxide, which is a chemical intermediate and a catalyst.
Hexavalent Chromium • Chromium 6	1.123 **Range** .97-1.7	N/A	Naturally-occuring element used in making steel and other alloys. Forms of Chromium-3 or 6 are used for chrome plating, dyes and pigments, leather tanning and wood preservation.
1,4-Dioxane	1 positive sample 7.8	0 to 17.8	Cyclic aliphatic ether used as a solvent or solvent stabilizer in the manufacturing and processing of paper, cotton, textile products, automotive coolant, cosmetics & shampoos.

KEY

MCL: maximum contaminant level
MCLG: maximum contaminant level goal
ND: none detected
PPM: parts per million, or milligrams per liter
PPB: parts per billion, or micrograms per liter
PPT: parts per trillion, or nanograms per liter

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

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

Everyone Can Help Protect Our Groundwater

The community can help control which chemicals are used in yards and what falls onto driveways. The city encourages everyone to limit their use of chemicals and cleaners that are harmful to the environment. Please clean up any oil or gas spills in your driveway, do not wash them into the street. Do not store fertilizers, pesticides and herbicides outdoors. These chemicals should be stored in a weatherproof shed equipped with a floor.

Properly discard old or unused chemicals, including cleaners, solvents, paints and lubricants, through the Metro hazardous waste program. Free household hazardous waste collection events are held in communities across the Portland region each year. For a list of upcoming dates and locations near Milwaukie, or more information, visit **www.oregonmetro.gov**. Metro also maintains an online database for other disposal options in the area.

Do you have a septic system? If so, please contact the city's engineering department at 503.786.7600 and ask for information about connecting to the sewer. Old septic systems are the leading cause of high nitrate levels, which leads to viral contamination of the drinking water aquifer.

Conservation Tips

Minor water leaks account for more than 1 trillion gallons of water wasted each year in U.S. homes. To make sure leaks do not put a drain on your wallet, here are some things you can do around the house:

- Check wear on faucet washers and gaskets — if necessary replace worn parts.
- Leaky toilets are most often the result of a worn toilet flapper.
- Replacing the rubber flapper is a quick fix that could save a home with a constantly running toilet up to 200 gallons of water per day.
- Landscape irrigation systems should be checked each spring before use to make sure they were not damaged by frost or freezing.

If it is necessary to replace plumbing fixtures, residents are reminded to look for the WaterSense label. WaterSense labeled toilets, faucets, and showerheads have been independently tested and certified to save water and perform as well as or better than standard models. Visit **www.epa.gov/watersense** for more information about WaterSense labeled products.

Cross-Contamination & Backflow Assemblies

Cross-contamination is the leading cause of waterborne disease. This occurs whenever the water contacts anything that is contaminated or objectionable. Wherever cross-connections can occur is known as a cross-connection. As the water supplier, the city is mandated by State of Oregon drinking water rules (OAR 333-061-0020, 0070 through 0074) to eliminate or control all actual and potential cross-connections.

A cross-connection is any actual or potential connection between drinking water piping and any other substance. Examples of cross-connections include residential irrigation, fire sprinkler systems, commercial beverage dispensers, boilers and garden hose spray attachments. In most cases, a backflow assembly can be installed to prevent a cross-connection. If you would like to know if your home or commercial building is safe from cross-contamination, call the city's water quality specialist at 503.786.7637 for a free safety survey.

If you know of any backflow assemblies on your property, have them tested annually by a certified tester—it's the law. The Oregon Drinking Water Program (DWP) provides a current list of Oregon Health Authority (OHA)-certified Backflow Assembly Testers. Community members can use this list to contact a tester who currently certified, available and appropriate licensed to test assemblies for compensation. Only OHA-certified testers can test assemblies in Oregon.

Certified public Backflow Assembly Testers on this list are also required to obtain licensing through the Construction Contractor's Board (CCB) at **www.ccb.state.or.us/search** or Landscape Contractor's Board (LCB) at **www.oregonlcb.com/contractorsearch.aspx**. DWP does not verify CCB or LCB licensing for individuals on this list of public Testers. Customers should always verify the licensing of any contractor they hire by using the above links or by calling the CCB at 503.378.4621 or the LCB at 503.986.6561.

Is Milwaukie's Water Hard?

Water described as hard is high in dissolved minerals, specifically calcium and magnesium. Hard water is not a health risk, but a often a nuisance because of mineral buildup on fixtures and poor soap and/or detergent performance.

Milwaukie's well water is classified as moderately hard with a hardness factor between 40-120 mg/L as calcium carbonate. Hardness is caused by compounds of calcium and magnesium, and by a variety of other metals.

General guidelines for classification of waters are:

- **Soft** - 0 to 60 mg/L
- **Moderately Hard** - 61 to 120 mg/L
- **Hard** - 121 to 180 mg/L
- **Very Hard** - more than 180 mg/L

Water systems using groundwater as a source are concerned with water hardness. As water moves through soil and rock, it dissolves small amounts of naturally-occurring minerals and carries them into the groundwater supply. Water is a great solvent for calcium and magnesium, so if the minerals are present in the soil around a water-supply well, the hard water may be delivered to homes. Water hardness varies throughout the United States. In areas of the country where the water is relatively hard, industries might have to spend money to soften their water as hard water can damage equipment.

Living with moderately hard water can be easy by remembering to take some simple steps each day. Leaving water on a surface will leave behind tan colored minerals as it evaporates. Always dry the area around your sink and faucet, and be sure to use a good rinse agent in your dishwasher. A rinse agent also elimates the need to use a heated dry cycle. There are also products to use in showers and tubs that help keep hardwater spots from getting out of control. These products are typically sprayed on shower walls and doors to prevent build-up. It's important to flush hot water heaters at least once a year as well to keep calcium levels under control.

To learn more about living with hard water, visit **www.milwaukieoregon.gov/publicworks/hard-water** or visit the U.S. Geological Survey's website at **www.water.usgs.gov/edu/hardness.html**.

Drinking Water Information from the EPA

Drinking water, including bottled water, may be reasonably expected to contain small amounts of some contaminants.

However, the presence of contaminants does not necessarily indicate that the water poses a health risk.

For more information about contaminants and potential health effects, contact the EPA's Safe Drinking Water Hotline at 1.800.426.4791.

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 persons, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA and Centers for Disease Control guidelines on the appropriate ways to reduce the risk of infection by microbiological contaminants are available at **www.epa.gov/safewater**.

Reporting Violations

City staff had two violations for late/nonreporting of disinfection byproducts in 2017. These violations were corrected.

The violations were for reporting, due to sample collection schedule change or timing of data transmitted to the state, and did not have any impact on water quality. Sample collection schedules have been corrected, and sample results revealed no violation of contaminant levels.

CITY OF **MILWAUKIE**
6101 SE Johnson Creek Blvd
Milwaukie, OR 97222
Don Simenson, water quality coordinator
503.786.7622 | simensond@milwaukieoregon.gov

ECRWSS

POSTAL CUSTOMER

Well #2 & Concrete Water Tank at SE 40th & Harvey

MORE INFORMATION

City of Milwaukie

Water Quality Coordinator • Don Simenson
503.786.7622 or simensond@milwaukieoregon.gov

Utility Billing
503.786.7525 or utilitybilling@milwaukieoregon.gov

Public Works
503.786.7600 or publicworks@milwaukieoregon.gov

Public Works • 24-Hour Emergency Dispatch
503.786.7500

City Hall
503.786.7555

Johnson Creek Watershed Council
503.652.7477 or www.jcwc.org

North Clackamas Urban Watersheds Council
503.550.9282 or www.ncurbanwatershed.wordpress.com

Regional Water Providers Consortium
503.823.7528 or www.conserveh20.org

Water Environment Services
503.742.4567 or www.clackamas.us/wes

Oregon Health Authority • Drinking Water Services
503.731.4010 or www.oregon.gov/oha

United States Environmental Protection Agency
1.800.426.4791 or www.epa.gov