

The header features a blue sky with white clouds on the left and a green water tower on the right. In the center, there is a logo of a white flower inside a brown circle. Below the logo, the text "CITY OF MILWAUKIE" is written in a white, sans-serif font. Below that, the words "WATER QUALITY REPORT" are written in a large, bold, white font with a blue outline. The background of the header is a dark green silhouette of a forest.

CITY OF MILWAUKIE WATER QUALITY REPORT

CITY COUNCIL

Mayor Mark Gamba

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A Message to Milwaukie Water Customers

Dear Milwaukie Water Customer,

The City of Milwaukie is proud to announce that our drinking water meets all Federal EPA and State of Oregon Health Authority standards. This document is the Consumer Confidence Report, and covers the 2016 operating and sampling year from Jan. 1 to Dec. 31, 2016.

Last year was very educational for water quality concerns nationwide, which included the lead and copper problems of Flint, Michigan and the local industrial contamination of air and water that made headlines. In Milwaukie, the 2016 round of lead and copper testing once again revealed that the Milwaukie water is not corrosive and there were no detections of lead or copper.

For the first time in more than 50 years, the city issued a precautionary boil water notice to all Milwaukie water customers in November 2016. This was a result of a water sample that tested positive for total coliform and E.coli bacteria while the city was connected to the Bull Run water supply during repairs to the elevated water tank. Fortunately, only a very small percentage of the drinking water was potentially affected, and there were no reported illnesses. City staff immediately closed the connection after the positive sample and flushed the system. It was later determined that the positive sample was a result of the water pipe connection to Bull Run, which hadn't been used in more than 20 years.

The big project of 2016 was the coating and repainting of the 1.5-million-gallon elevated tank at SE 40th and Harvey, with the interior coating completed in late February 2017. This type of work should not be required again for another 25-30 years. The project cost was close to the million-dollar mark.



Front Page (cont.)

Looking at this year and beyond, the city needs to replace Well #2 and redevelop Well #8. Well #2 replacement is due to a crack that has developed in the casing that cannot be repaired, and a new well must be installed. Well #8 has lost its ability to produce water at the quantity necessary to be cost effective, and requires work that will reestablish the flow capabilities. The 3-million-gallon reservoir on SE Stanley Ave. will be recoated as soon as funds are available. This tank work should not decrease the city's ability to supply water in the area. The project will have some minor impact to several residences whose property is very near the site, and staff will do what we can to mitigate any problems that may arise.

Please remember to do your part in protecting our water by having your backflow assemblies on irrigation systems and boilers tested annually. Commercial customers may have several backflow assemblies in place to protect the city water supply and the employees within the building. If your commercial facility has a fire sprinkler system they must be tested annually, the backflow assembly must comply with current Oregon Health Authority and City of Milwaukie rules. If you would like to have a no cost hazard survey please contact the city's Cross-Connection division at 503.786.7637 or BackflowCC@milwaukieoregon.gov.

Thank you for taking the time to read this report, and we welcome your feedback about how we can improve. A digital copy of this report is available on the city's website at www.milwaukieoregon.gov/WQR, and contains more information, answers to frequently asked questions, and links to educational videos, such as *Liquid Assets*, which reports on the current state of the nation's water infrastructure.

Don Simenson

Water Quality Coordinator

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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.

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.

The Big Green Tank at SE 40th & Harvey



Repainted elevated water tank

The elevated water tank at SE 40th Ave. and Harvey St. is a 1.5-million-gallon reservoir that was erected in 1963 and constructed to meet the design standards of that time. Since then, knowledge about earthquakes and how it relates to the construction of infrastructure has significantly improved. Beginning in 2004, the elevated reservoir was evaluated based on new seismic building standards for essential structures. Upgrades were needed to help ensure the elevated tank could withstand a major earthquake. Once the engineering was completed and a contractor selected, the reconstruction began. The project required several months to complete at a cost of more than \$345,000.

The tank painting project took longer than expected for a couple reasons. First, weather was a major factor as the interior coating removal and recoating must be done within a limited range of moisture and temperature. Second, vandalism of contractor equipment and tool theft, which included an unauthorized shut down of generators that provided the power to keep the structure warm enough to blast and paint. Last, work hours were limited due to noise. The loudest noise was from the vacuum equipment used to remove more than 500 tons (equivalent to 1,000,000 lbs.) of sandblast media. City staff are happy to report that this type of work should only happen about every 25 to 30 years. A special thank you to the nearby neighbors for their patience during construction!



Elevated water tank prior to painting



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	0-3.67	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.
Arsenic	10	N/A	0	No	Erosion of natural deposits; runoff from orchards, glass & electronics production wastes	Drinking water containing arsenic in excess of the MCL over many years could cause skin damage or problems with the circulatory system, and may increase the risk of getting cancer.
DISINFECTION BY-PRODUCTS						
TTHM's (Total Trihalomethanes)	80	N/A	0.14	No	By-product of drinking water chlorination	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.
			Range 0-0.14			
Haloacetic acids HAA5	60	N/A	0	No	By-product 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 contaminated 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	90 th Percentile	Homes Exceeding Action Level	Violation?	Source of Contaminate
COPPER & LEAD							
Copper	ppb	1,300	1,300	0	0	No	Corrosion of household plumbing
Lead	ppb	0	1,500	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 average	N/A	See Chromium 6 for use or source information
	Range .74-1.6		
Strontium	100.88 average	N/A	Naturally-occurring element. Historically, commercial use of strontium was used in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
	Range 79-130		
Vanadium	9.18 average	N/A	Naturally-occurring elemental metal used as vanadium pentoxide, which is a chemical intermediate and a catalyst.
	Range 7.9-120		
Hexavalent Chromium • Chromium 6	1.23 average	N/A	Naturally-occurring 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.
	Range .97-1.7		
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.



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 possible 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.

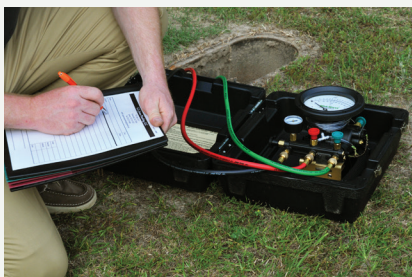
Conservation Tips

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 coordinator at 503.786.7622 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) or Landscape Contractor's Board (LCB). 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.

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.

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 by-products in 2016. These violations were corrected. City staff also had one violation for not reporting routine coliform. This violation was corrected as well.

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.



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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 Watershed Council

503.550.9282 or www.ncurbanwatershed.wordpress.com

Regional Water Providers Consortium

503.823.7528 or www.conserveh2o.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