City of Orem

2019 Annual Water Quality Report

This Water Quality Report provides information about the excellent water the City of Orem delivers to you every day. Our number one goal is to provide you and your family a safe and dependable supply of drinking water. Employees always strive to deliver a quality product and protect the city's precious water resources. To ensure the safety of your water, water professionals routinely monitor for water quality according to federal and state laws, rules, and regulations. This water report is based on the results from the most recent testing done in accordance with these laws and regulations.

Ensuring Safe Tap Water

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 the water poses a health risk. National Primary Drinking Water Regulations (NPDWRs or primary standards) are legally enforceable standards that apply to public water systems. Primary standards protect public health by limiting the amount of certain contaminants in water provided by public water systems. Orem treats its water according to these regulations. The Food and Drug Administration (FDA) has established limits for contaminants in bottled water to protect public health. Some people may be more vulnerable to contaminants in drinking water than the general population.

Safe Drinking Water

In 1974, the Federal Safe Drinking Water Act (SDWA) was passed to establish standards for public drinking water. The law was amended in 1986 and again in 1996 and requires many actions to protect drinking water. The United States Environmental Protection Agency (USEPA) and the Utah State Department of Health set water quality standards that require water suppliers to monitor and treat potentially harmful contaminants. Drinking water standards specifically relate to your health and are generally based on health affects which may occur if a person were to drink two liters (about two quarts) of water each day for seventy years.

Where Does My Water Come From?

Orem uses a variety of sources to provide water to its residents and customers. Approximately 60% of Orem's water comes from surface water sources, whereas 40% comes from ground water sources. Surface water sources include the Provo River, Deer Creek Reservoir, and Jordanelle Reservoir. All of Orem's surface water is treated (filtered and disinfected) at the Don A. Christiansen Regional Water Treatment Plant (DACRWTP), which is operated by the Central Utah Water Conservancy District (CUWCD). Orem's ground water sources consist of nine deep wells located throughout the city. Wells pump from subterranean aquifers and provide 25% of Orem's water. Two mountain spring sources located in Provo Canyon contribute 15% of Orem's water. Ground water (wells and springs) is pure enough to not require treatment. All of Orem's water, whether from surface or ground water, is blended together within the distribution system. In 2019, Orem produced over 8.4 billion gallons of clean, safe drinking water to its customers.

Bacteriological And Chemical Testing

More than 1,479 drinking water samples were analyzed for bacteriological contamination in 2019. No bacteriological contamination was confirmed in these samples. Additional sampling was performed for Disinfection By-products, Nitrates, Inorganics and Metals, Pesticides, Volatile Organic Compounds, Radioactive, and other parameters. Only trace amounts of chemicals identified in this document were detected in Orem source water. Orem drinking water meets or exceeds water quality standards set by the USEPA and the State of Utah.

Health Care Alert

The Central Utah Water Conservancy District's Don A. Christiansen Regional Water Treatment Plant has tested for cryptosporidium in its source water and the results show no presence. Cryptosporidium may at times be present in its untreated sources. Cryptosporidium must be ingested to cause disease and it may be spread through means other than drinking water. Ingestion of this parasite may cause abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Based on current knowledge, cryptosporidium does not present a health risk for the general public. Cryptosporidium has never been found in the DACRWTP's finished (treated) water.

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. These people should seek advice about drinking water from their health care providers. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791. They can provide EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants.

Citizen Participation

If you would like to participate in decisions that affect drinking water quality in the City of Orem, you are invited to attend an Orem City Council meeting. These public meetings are typically held on the 2nd and 4th Tuesday of each month at 6:00 p.m. in the City Council Chambers at the Orem City Center located at 56 North State Street in Orem, Utah. More information about contaminants and potential health affects can be obtained by visiting www.epa.gov/safewater/ or calling the USEPA Safe Drinking Water Hotline at (800) 426-4791.

Water Quality Data

The following table lists all detected contaminants in Orem's drinking water system during the 2019 calendar year. The presence of these contaminants does not necessarily indicate the water poses a health risk. A list of definitions and abbreviations is found on the next page for reference. Monitoring is required at least every 9 years for surface water and every 3 years for ground water.

If you have questions regarding any of the information contained in this document, please contact the Orem Public Works Department at 311 or (801) 229-7500 or visit us on the web at *www.orem.org*. For more information about the Central Utah Water Conservancy District, please go to www.cuwcd.com or for a copy of the Don A. Christiansen Regional Water Treatment Plant consumer confidence report; please go to https://www.cuwcd.com/resources.html.

Definitions and Abbreviations

MCL	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.	**mg/L**	Milligrams Per Liter (mg/L) or Parts Per Million (ppm): One part per million corresponds close to one minute in two years or a single penny in $10,000.
MCLG	Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.	**µg/L**	Micrograms Per Liter (µg/L) or Parts Per Billion (ppb). One part per billion corresponds close to one minute in 2,000 years, or a single penny in $10,000,000.
AL	Action Level: The concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.	**MNR**	Monitoring Not Required.
Range	The range of detection of multiple samples for a contaminant.	**ND**	Laboratory analysis indicates that the constituent has not been detected.
pCi/L	Picocuries per Liter: A measure of the radioactivity in water.	**TT**	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
NTU	Nephelometric Turbidity Unit: A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.	**UV-254**	A measurement of ultraviolet light absorption by organic carbon, measured at a wavelength of 254 nanometers per 1/cm (reciprocal centimeters).
UR	Unregulated.	**NE**	None established.
µmhos/cm	Micromhos per Centimeter: A measurement of conductivity.	**grains/ gallon**	A unit of water hardness defined as 1 grain of calcium carbonate dissolved in 1 gallon of water.
Test Date	Due to sampling requirement intervals, i.e. yearly, 3 years, 4 years and 6 years, sampling dates may seem outdated.	**mrem/yr**	Measure of radiation absorbed by the body.

					City of Orem			DACR Water Treatment Plant			
Microbiological	Test Date	Units	MCL	MCLG	Lowest Level Detected	Highest Level Detected	Violation	Lowest Level Detected	Highest Level Detected	Violation	Typical Source of Contaminant or Other Comments
Total Coliform	2019	% positive per month	5%	0	0	0	No	0	0	No	Coliforms are naturally present in the environment.
Escherichia coli (E. coli)	2019	% positive per month	TT	TT	0	0	No	0	0	No	Fecal coliforms and E. coli only come from human and animal fecal waste.
	Test Date	Units	MCL	MCLG	Lowest Level Detected	Highest Level Detected	Violation	Lowest Level Detected	Highest Level Detected	Violation	Typical Source of Contaminant or Other Comments
Turbidity	2017, 2018, 2019	NTU	95% <0.3	NE	0	1.38	No	0.014	0.023	No	Erosion of natural deposits and soil runoff.
Organic Material	Test Date	Units	MCL	MCLG	Lowest Level Detected	Highest Level Detected	Violation	Lowest Level Detected	Highest Level Detected	Violation	Typical Source of Contaminant or Other Comments
Total Organic Carbon	2018, 2019	mg/L	TT	NE	MNR	0	No	1.68	2.51	No	Naturally occurring.
UV-254	2018	1/cm	UR	NE	MNR	0	No	0.01	0.31	No	Naturally occurring. This is a measure of UV-absorbing organic compounds.

					City of Orem			DACR Water Treatment Plant			
Inorganic Contaminants	Last Date Tested	Units	MCL	MCLG	Lowest Level Detected	Highest Level Detected	Violation	Lowest Level Detected	Highest Level Detected	Violation	Typical Source of Contaminant
Arsenic	2016, 2017, 2018, 2019	µg/L	10	0	0	2.09	No	ND	ND	No	Erosion of natural deposits; runoff from orchards, glass and electronics production wastes.
Barium	2016, 2017, 2018, 2019	mg/L	2	2	0	0.103	No	0.056	0.056	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Chromium (total)	2016, 2017, 2018	µg/L	100	100	0	8.18	No	ND	ND	No	Discharge from steel and pulp mills; erosion of natural deposits.
Cyanide	2016, 2017, 2018, 2019	µg/L	200	200	0	23.1	No	ND	ND	No	Discharge from plastic and fertilizer factories; discharge from steel/metal factories.
Fluoride	2016, 2017, 2018, 2019	mg/L	4	4	0	0.402	No	0.2	0.2	No	Erosion of natural deposits; discharge from fertilizer and aluminum factories.
Nickel	2016, 2017, 2018	µg/L	100	100	0	4.57	No	ND	ND	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Nitrate	2019	mg/L	10	10	0.299	1.83	No	0.3	0.3	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; erosion of natural deposits.
Selenium	2016, 2017, 2018, 2019	µg/L	50	50	0	3.62	No	0.7	0.7	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Pesticides, PCBs, VOCs	Last Test Date	Units	MCL	MCLG	Lowest Level Detected	Highest Level Detected	Violation	Lowest Level Detected	Highest Level Detected	Violation	Typical Source of Contaminant or Other Comments
Pentachlorophenol	2018	µg/L	1	0	0	0.20	No	ND	ND	No	Discharge from wood-preserving factories used mainly to treat utility poles and cross arms.
All other Parameters	2016, 2018	µg/L	Varies	Varies	ND	ND	No	ND	ND	No	Various sources.
Radioactive Contaminants	Last Date Tested	Units	MCL	MCLG	Lowest Level Detected	Highest Level Detected	Violation	Lowest Level Detected	Highest Level Detected	Violation	Typical Source of Contaminant
Alpha Emitters	2016, 2018	pCi/L	15	0	0	2.9	No	1	3.2	No	Erosion of natural deposits.
Combined Radium 226/ 228	2017	pCi/L	5	0	0.5	0.5	No	0.34	2.79	No	Erosion of natural deposits.
Gross Alpha (Including Radon and Uranium)	2014	pCi/L	15	0	1.6	1.6	No	0.5	0.5	No	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation.
Radium 226	2017	pCi/L	5	0	0.16	0.26	No	0.34	0.34	No	Erosion of natural deposits.
Radium 228	2016, 2018, 2019	pCi/L	5	0	0	1.3	No	0.28	0.28	No	Erosion of natural deposits.
Gross Beta	2010	mrem/yr	4	0	ND	ND	No	0.9	0.9	No	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation.

					City of Orem			DACR Water			
Disinfectants And Disinfection By-products	Test Date	Units	MCL	MCLG	Lowest Level Detected	Highest Level Detected	Violation	Lowest Level Detected	Highest Level Detected	Violation	Typical Source of Contaminant
Chlorine	2019	mg/L	4	4	0.05	1.0	No	0.2	1.9	No	Drinking water disinfectant.
Total Trihalomethanes (TTHM)	2019	µg/L	80	0	0	45.4	No	5.7	49.1	No	By-product of drinking water chlorination.
Haloacetic Acids (HAA5)	2019	µg/L	60	0	1.0	29.3	No	4.7	30.6	No	By-product of drinking water chlorination.
Bromate	2015, 2018	µg/L	10	0	MNR	MNR	No	ND	ND	No	By-product of drinking water disinfection.
Volatile Organic Compounds	Test Date	Units	MCL	MCLG	Lowest Level Detected	Highest Level Detected	Violation	Lowest Level Detected	Highest Level Detected	Violation	Typical Source of Contaminant or Other Comments
Chloroform (Trihalomethanes)	2019	µg/L	NE	70	0	36.1	No	2.9	39.8	No	By-product of drinking water disinfection.
Bromodichloromethane (Trihalomethanes)	2019	µg/L	NE	0	0	9.2	No	2.0	9.0	No	By-product of drinking water disinfection.
Dibromochloromethane (Trihalomethanes)	2019	µg/L	NE	60	0	3.0	No	0.6	3.1	No	By-product of drinking water disinfection.
All other Parameters	2017, 2018	µg/L	Varies	Varies	ND	ND	No	ND	ND	No	Various sources.

Secondary (Monitoring Not Required)

For your information, the following conditions are secondary standards and only affect the water aesthetically and are not an actual health risk.

				City of Orem			DACR Water Treatment Plant			
	Test Date	Units	MCL	Lowest Level Detected	Highest Level Detected	Violation	Lowest Level Detected	Highest Level Detected	Violation	Typical Source of Contaminant
pH	2018, 2019		6.5—8.5	7.21	8.28	No	7.22	8.14	No	Naturally occurring.
Sulfate	2016, 2017, 2018, 2019	mg/L	250	9.89	70.7	No	3	58	No	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills, and cropland.
Total Dissolved Solids	2016, 2017, 2018, 2019	mg/L	500	110	412	No	132	336	No	Erosion of natural deposits.
Sodium	2016, 2017, 2018	mg/L	500	0	73.2	No	7.6	58	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Calcium Hardness	2018, 2019	mg/L	NE	120	428	No	108	184	No	Naturally occurring.
	2018, 2019	grain/ gallon	NE	7	25	No	6.3	10.8	No	
Conductance	2018, 2019	µmhos/cm	NE	203	708	No	236	433	No	Naturally occurring.
Iron	2016, 2018	µg/L	NE	MNR	MNR	No	ND	21.6	No	Erosion of natural deposits.
Alkalinity	2016, 2018, 2019	mg/L	NE	MNR	MNR	No	110	166	No	Naturally occurring.

Variances and Exemptions

Due to the high quality of Orem's water, the State of Utah and the USEPA have granted the City of Orem and the Don A. Christiansen Regional Water Treatment Plant exemptions that allow for a reduction in conducting some chemical testing less frequent than yearly.

Unregulated Contaminant Monitoring (UCMR 3 and 4)

For your information, the 1996 Safe Drinking Water Act (SDWA) amendments require that once every five years EPA will issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems. Between 2013 and 2015, UCMR 3 required monitoring for 30 contaminants (28 chemicals and 2 viruses). EPA uses the Unregulated Contaminant Monitoring Rule (UCMR) to collect data for contaminants that are suspected to be present in drinking water but do not have health-based standards set under the Safe Drinking Water Act (SDWA). The City is currently testing for 30 new UCMR 4 contaminants during the 2018 to 2020 period.

				City of Orem			
UCMR 3	Test Date	Units	MCL	Lowest Level Detected	Highest Level Detected	Exceeds MCL	Typical Source of Contaminant
Chromium	2013, 2014, 2015	µg/L	50	ND	1.840	No	Discharge from steel and pulp mills; erosion of natural deposits.
Chromium-6	2013, 2014, 2015	µg/L	10	ND	1.860	No	Naturally-occurring element; used in making steel and other alloys; Chromium-3 or -6 forms are used for chrome plating, dyes, pigments, leather tanning, and wood preservation.
Molybdenum	2013, 2014, 2015	µg/L	40	ND	3.909	No	Naturally-occurring element found in ores, plants, animals, and bacteria; commonly used form molybdenum trioxide used as a chemical reagent.
Strontium	2013, 2014, 2015	µg/L	NE	174.6	994.2	No	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
Vanadium	2013, 2014, 2015	µg/L	NE	ND	1.305	No	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst.
UCMR 4	Test Date	Units	MCL	Lowest Level Detected	Highest Level Detected	Exceeds MCL	Typical Source of Contaminant
Cyanotoxins							
Cylindrosper-mopsin	2019	µg/L	0.7	0	0	No	Common to freshwater and marine ecosystems; can under certain conditions (high nutrient concentrations and high light intensity) form scums or “blooms” at the surface of a water body.
Total microcystin	2019	µg/L	0.3	0	0	No	Common to freshwater and marine ecosystems; can under certain conditions (high nutrient concentrations and high light intensity) form scums or “blooms” at the surface of a water body.
Metals							
Manganese	2019	µg/L	500	0	1.4	No	Erosion of natural deposits; production of iron and steel alloys, batteries, glass and fireworks. Occurs naturally in many food sources, such as leafy vegetables, nuts, grains, and animal products.

Contaminants Tested for in the UCMR 4 Sampling

Cyanotoxins

- Total microcystins
- Microcystin-LA
- Microcystin-RR
- Microcystin-LF
- Microcystin-YR
- Microcystin-LR
- Microcystin-LY
- Nodularin
- Cylindrospermopsin
- Anatoxin-a

20 Additional Contaminants

- Germanium
- Manganese
- Alphahexachlorocyclohexane
- Profenofos
- Chlorpyrifos
- Tebuconazole
- Dimethipin
- Total permethrin (cis- & trans-)
- Ethoprop
- Tribufos
- Oxyfluorfen
- HAA5
- HAA6Br
- HAA9
- 1-Butanol
- 2-Propen-1-ol
- 2-Methoxyethanol
- Butylated hydrox-yanisole
- O-toluidine

What are PFAS Chemicals?

Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many other chemicals. PFAS have been manufactured and used in a variety of industries around the globe, including in the United States since the 1940s. PFOA and PFOS have been the most extensively produced and studied of these chemicals. PFAS are found in a wide range of consumer products that people use daily such as cookware, pizza boxes, and stain repellants. Most people have been exposed to PFAS.

Where are PFAS Found?

- Food packaged in PFAS-containing materials, processed with equipment that used PFAS, or grown in PFAS-contaminated soil or water.
- Commercial household products, including stain- and water-repellent fabrics, nonstick products (e.g., Teflon), polishes, waxes, paints, and cleaning products.
- Workplace, including production facilities or industries (e.g., chrome plating, electronics manufacturing, or oil recovery) that use PFAS.
- Drinking water, typically localized and associated with a specific facility (e.g., manufacturer, landfill, wastewater treatment plant, firefighter training facility).
- Living organisms, including fish, animals and humans, where PFAS have the ability to build up and persist over time.
- Firefighting foams and retardants. (a major source of groundwater contamination at airports and military bases where firefighting training occurs).

Certain PFAS chemicals are no longer manufactured in the United States . Although PFOA and PFOS are no longer manufactured in the United States, they are still produced internationally and can be imported into the United States in consumer goods such as carpet, leather and apparel, textiles, paper and packaging, coatings, rubber, and plastics.

Drinking water can be a source of exposure in communities where these chemicals have contaminated water supplies. Such contamination is typically localized and associated with a specific facility, such as:

- Industrial facility where PFAS were produced or used to manufacture other products,
- Oil refineries,
- Airfield or military bases, or
- Other location at which PFAS were used for firefighting,

Why are PFAS important?

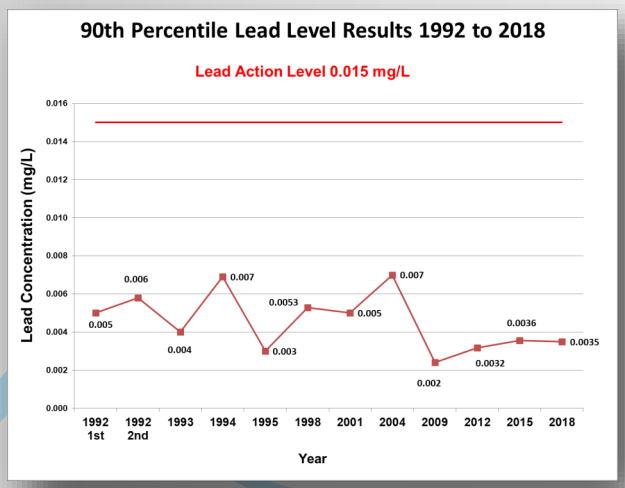
Certain PFAS can accumulate and stay in the human body for long periods of time. There is evidence that exposure to PFAS can lead to adverse health outcomes in humans. The most-studied PFAS chemicals are PFOA and PFOS. Studies indicate that PFOA and PFOS can cause reproductive and developmental, liver and kidney, and immunological effects in laboratory animals. Both chemicals have caused tumors in animals. The most consistent findings are increased cholesterol levels among exposed populations, with more limited findings related to:

- Low infant birth weights,
- Effects on the immune system, and
- Cancer (for PFOA),
- Thyroid hormone disruption (for PFOS).

PFOA, PFOS, and GenX have been found in a number of drinking water systems due to localized contamination. The City of Orem tested for these chemicals with the Unregulated Contaminant Monitoring 3 between 2013 and 2015 and did not detect these chemicals in the water supplies. Additional sampling will occur with the Unregulated Contaminant Monitoring 5 in 2022 to 2024.

					City of Orem					
Lead and Copper	Test Date	Units	AL	MCLG	Lowest Level Detected	Highest Level Detected	90th Percentile	# of sites over AL	Violation	Typical Source of Contaminant
Copper	2018	mg/L	1.3	1.3	0.011	0.982	0.212	0	No	Erosion of natural deposits; Corrosion of household plumbing.
Lead	2018	mg/L	0.015	0	0.0005	0.0093	0.0022	0	No	Erosion of natural deposits; Corrosion of household plumbing.

City of Orem Lead And Copper Results



The City of Orem collects 32 samples from taps in homes every three years as required by the EPA. The City of Orem has never had a violation of the lead and copper standards since the EPA required sampling in 1992 and is not required to treat the water it provides for corrosivity. The city completed the last required sampling in July and August of 2018. Orem's water has calcium and manganese in the water, which creates a protective lining or "scale" on the inside of the plumbing, protecting the materials from most corrosion. In addition to these samples, pH and conductivity monitor chemical changes and the corrosiveness of the water. If your home was built prior 1986 and has not had the plumbing replaced and you would like to participate in the next lead and copper sampling in 2021, please contact the Orem Public Works Department at (801)229-7500 or oremcitywater@orem.org. Because of the limited numbers of samples collected, replacement of original plumbing or point-of-use treatment (e.g. water softener, carbon filter system, etc.), your home may or may not be selected for testing.

What Are Lead's Health Affects?

The primary source of lead exposure for most children is lead-based paint in older homes, though lead in drinking water can add to that exposure. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development, including behavioral problems and learning disabilities. Children six years old and under are most at risk because this is when the brain is developing. Children could show slight deficits in attention span and develop learning disabilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. The current Maximum Contaminant Level for lead is 0.015 mg/L, and the EPA is recommending the addition of a triggered level of 0.010 mg/L. Systems above 0.010 mg/L, but below 0.015 mg/L would be required to set an annual goal for conducting replacements of city-owned service lines and conduct outreach to encourage resident to replace their plumbing that may be contributing to lead.

Lead in Drinking Water in Schools and Childcare Facilities

Currently, there are no federal regulations that require testing of drinking water in schools and childcare facilities. Only water sources and homes are tested for lead. With changes to EPA regulations, sampling will be required in the future at public schools and licensed childcare facilities. These test results will be supplied to the schools and childcare facilities as soon as they become available. City personnel will work with and train school and childcare staff on how to protect children from the harmful effects of lead and help to determined the source of lead within the building.

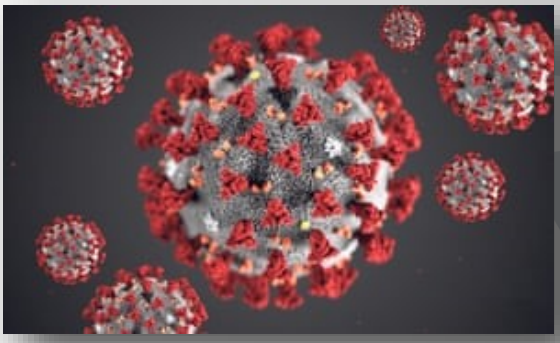
How Will I know If Lead Is In My Drinking Water?

Since you cannot see, taste, or smell lead dissolved in water, testing is the only sure way of determining whether there are harmful quantities of lead in your drinking water. Testing costs for lead vary from $20 to $100. For a list of certified labs, please visit www.drinkingwater.utah.gov. Indicators that your home may have lead in the water are if your home has lead pipes (lead is a dull gray metal that is soft enough to be easily scratched with a key) or if you see signs of corrosion (e.g., frequent leaks or rust-colored water). Homes built between 1982 and 1986 are especially susceptible due to the lead contained in the soldered joints. Additional information may be obtained by visiting www.epa.gov/safewater/lead/ or calling the USEPA Safe Drinking Water Hotline at (800) 426-4791.

How Can I Reduce My Family's Exposure To Lead In Tap Water?

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The most important time to flush your internal plumbing is after long periods of no use, such as first thing in the morning, after work, or upon returning from vacation. Running cold water from the faucets for drinking can improve water quality by drawing fresh water into the home, particularly after long periods of time when water has not been used. The amount of time you should run cold water to flush your internal plumbing depends on whether you have a lead service line, the length of the lead service line, and the amount of plumbing in your home. Typically, 30 seconds to 2 minutes (or until you feel the temperature of the water change) is sufficient. To conserve water, other household water usage activities such as showering, washing clothes, flushing the toilet, and running the dishwasher are effective methods for flushing pipes and allowing water from the city distribution system to enter household pipes. Use cold water for cooking but do not cook with or drink water from the hot water tap. Since it is important to note that lead dissolves more easily into hot water, boiling water will not reduce lead. When purchasing replacement plumbing products, make sure the products have been tested and certified to "lead-free" standards. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water.

Coronavirus (COVID-19)



Over the past few months, there has been some concern about the safety of drinking water and COVID-19. The City of Orem wants residents to know that their public water supply is safe. Drinking water treatment and disinfection has effectively protected Utah's population for many decades. In addition, the city performs over 100 tests each month for the presents of microorganisms and has not detected these organisms in the system. These protections will safeguard residents against drinking water borne viral infections, including coronavirus. The City of Orem drinking water system is designed to continuously deliver safe drinking water to your tap.

System Upgrades

In 2017, the Division of Water Quality requested that three of the lids covering spring collection boxes be upgraded to a newer standard. City crews have replaced the lids and boxes and upgraded the spring collection area to improve the flow of the water and help to keep potentially harmful contaminants out of the spring area.

Cross Connection Control

To protect Orem's water supply, a cross connection control program has been adopted. This program is required by federal and state agencies and is designed to preserve safe drinking water once the supply has entered the system. Common hazards in and around your house can contaminate your drinking water as well as your neighbor's. These hazards are known as cross-connections and can result in contaminated water back-flowing into your home's drinking water supply without you even knowing. A cross connection is any connection that provides a path for contamination to occur and is not protected by a backflow prevention device or assembly. A cross connection may be as simple as a hose-end sprayer for fertilizers or pesticides that you use in your yard or a hose forced into a drain pipe to free a plug. When this happens, it may be possible for contaminated water to be introduced into the drinking water system. Backflow prevention devices and assemblies provide protection from pollution or contamination of the drinking water system. The proper installation, use, and maintenance of this protection are required for backflow devices or assemblies and is outlined in Section 21-1-14 of the Orem City Municipal Code, which can be accessed through the Government Menu at *www.orem.org*.

COMMON CROSS CONNECTIONS

Any hose is a possible cross connection if left submerged in a swimming pool, laundry sink, or any other container filled with fluids. To protect your water from these types of cross connections, make sure to have hose bib vacuum breakers installed on each of your hose bibs. These simple devices are inexpensive and can be purchased from your local hardware store. To install, simply screw it on.

Your in-ground irrigation system is also a cross connection so make sure to do the following:

1. Verify that your irrigation system has a backflow assembly. If you don't have one, please get one installed.

2. Test the backflow prevention assembly annually.

All lawn sprinkler systems are required to have an approved backflow assembly installed on the system and all backflow assemblies are to be tested within 10 days of installation and annually thereafter by a state certified backflow technician. A link to certified testers can be found at https://waterlink.utah.gov/deqWater/public/publicBackflowComm.html. Backflow reports are to be mailed to the Orem Public Works Department at 1450 West 550 North Orem, Utah, 84057 or emailed to orembackflowreports@orem.org. The city is available to meet with residential or commercial property owners to consult on possible hazards that may contaminate their drinking water. Please contact the Orem Public Works Department at (801) 229-7500 with any questions regarding cross connection control or backflow.

Source Water Contaminants

The sources of drinking water for the City of Orem include rivers, lakes, streams, reservoirs, wells, and springs. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive materials. It can also dissolve or pickup substances from human or animal activity. The following contaminants may be present in source water before it is treated:

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

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

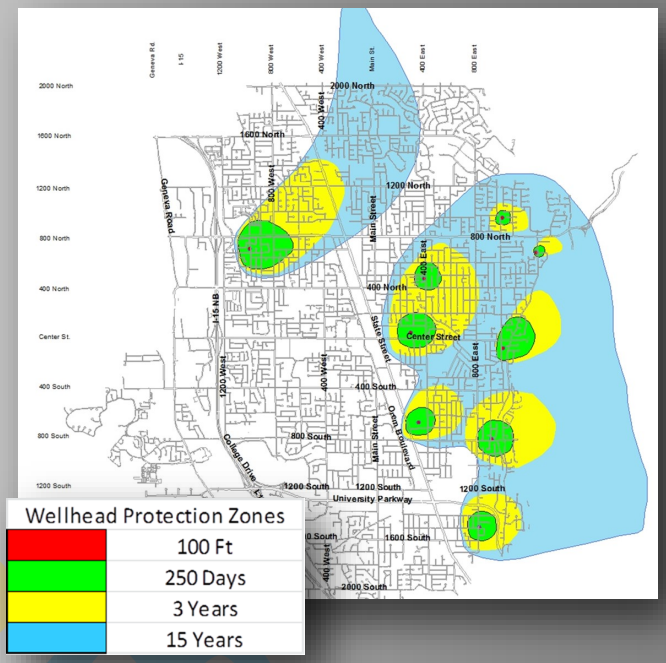
- *Pesticides and herbicides* come from a variety of sources such as agricultural and residential uses.

- *Radioactive contaminants* are naturally occurring in water and soil.

- *Organic chemical contaminants*, including synthetic and volatile organic chemicals, are by-products of industrial processes and petroleum production. These contaminants can also come from gas stations, urban storm water runoff, and septic systems.

Protecting our Valuable Water Resources

Many of the homes and businesses in Orem are built within the city's drinking water source protection zones as established in accordance with State regulations. The City of Orem obtains its drinking water from both ground water, such as wells and springs, and surface water. Much of Provo Canyon is the watershed area supplying Orem with high quality water we have come to expect. Improper usage, storage, and disposal of chemicals or other substances could potentially contaminate the ground water and surface water sources. Examples of such substances are fertilizers, pesticides, cleaning solvents, motor oil, and fuels. All residents and property owners are encouraged to use best management practices when using and storing these substances. Proper storage, mixing, spill cleanup, watering, and disposal procedures for chemicals are essential in protecting our environment. The complete Drinking Water Source Protection Plan for the City of Orem is available for review at the Orem Public Works Department,1450 West 550 North Orem, Utah, 84057, www.orem.org, or the Utah Division of Drinking Water website.



When using herbicides:

- Store in a safe place that cannot be accessed by children.
- Never mix chemicals in street, gutter, sidewalk, driveway, or any area where chemicals can enter into storm drains or ditches.
- Mix on an impermeable surface so spills can be cleaned up thoroughly.
- Treat only the area needed, using the proper amount.
- Follow label instructions for proper mixing and dosage.
- Clean up spills and properly dispose of any extra chemicals by following manufacturer instructions.

When using pesticides:

- Be willing to accept a low level weed, insect, and plant disease infestation.
- Use pesticides only when absolutely necessary. Properly identify pests and use the proper pesticide.
- Read and follow label directions; the label is the law.
- Calibrate spreader/sprayer to keep from applying too much.
- Don't over water after application.
- Store chemicals in a dry, locked cabinet away from children and pets.

Hard Water & Scale

You may notice white flakes in your water, especially if you make ice from tap water, and whitish deposits (scale) on faucets, cookware and eating utensils. These flakes or deposits are most likely calcium and magnesium compounds that come out of solution, typically from freezing or heating. Sometimes, these substances will form a very thin film on the top of boiled water. Please be aware that hard water is not a health risk. Calcium is vitally important for bone development. The City of Orem's source water is considered hard to very hard, ranging between 6 to 22 grains per gallon. Scaling of pipes and faucets may be made worse by setting your water heater above 120° F. Most water heater manufacturers recommend flushing the sediment (hardness scale) from your water heater twice a year.

Wise Water Use

Utah is the second driest state in the nation. Water conservation by individual citizens is an important part of making sure we'll have enough today and in the future. Here are some things we can all do to help preserve this precious resource:

- Fix plumbing leaks.
- Take shorter showers.
- Replace regular shower heads with low-volume heads.
- Remember, a bath takes about 36 gallons of water. A shower takes about 25.
- Be conservative with toilet flushes. Don't use the toilet for trash disposal.
- Don't leave the water running when shaving or brushing teeth.
- Wash full loads of laundry and dishes, not partial loads.
- Don't rinse dishes with running tap water. Instead, rinse dishes by dipping.
- Keep a pitcher of cold water in the refrigerator instead of running tap water until it cools.
- Water lawn, gardens, etc. in the coolest part of the day. Deep soak weekly instead of lightly sprinkling daily.
- Water the plants, not concrete.

Community Education

Each year, the City of Orem goes to schools and presents information regarding one of the most important and precious resources on the planet, WATER. The presentation includes: the hydrologic cycle, where Orem's water comes from, how it gets to your home, water quality, pollution, conservation, and how to protect this precious resource. This unique educational opportunity, provides information pertaining to the Orem area and the state of Utah, the second driest state in the nation. We use interactive models, videos and class participation, and make the presentation interesting and fun for the students. If you are interested in these educational opportunities, please contact Chris Clements at (801)229-7559 or by email at cmclements@orem.org