



**2018 ANNUAL DRINKING WATER QUALITY & CONSUMER CONFIDENCE REPORT
(FOR CALENDAR YEAR 2017)
CITY OF PRESCOTT PUBLIC WATER SYSTEM 13-045**



**Public Works
Utilities Division
Water Operations**

Water Storage Tank—Zone 27

A NOTE FROM WATER OPERATIONS

As your water provider, we serve more than water. We provide customer service, reliability, peace of mind, and protect public health. Our job is to ensure that your safe supply of water keeps flowing not only today, but well into the future. It's all part of our service commitment to you and everyone in our community. The 2018 Water Quality Report is a comprehensive report issued by the City of Prescott Water Operations. This annual report identifies the sources of Prescott's drinking water, provides water quality information, and summarizes analytical tests of the City's drinking water supply for Calendar Year 2017. In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. During 2017, water from the City system met or exceeded all applicable federal and state drinking water health standards.

APPLICABLE FEDERAL AND STATE REQUIREMENTS

The United States Environmental Protection Agency (EPA) and the Arizona Department of Environmental Quality (ADEQ) require purveyors of drinking water to annually report the quality of the water they deliver. The City of Prescott safeguards its water supplies, and once again is pleased to report compliance with prescribed maximum contaminant levels and other water quality standards. The City regularly conducts testing beyond the minimum regulatory requirements to further assure the safety of our drinking water.

SOURCE OF WATER

Groundwater is the sole source of potable water in the City of Prescott. The City produces its water from seven production wells within the Prescott Active Management Area (AMA). These wells are drilled into the confined deep Lower Volcanic Unit of the aquifer underlying the Little Chino Sub-Basin. The water is pumped from the ground through one of the City's wells and then treated prior to entering the drinking water distribution system. The water is of excellent quality with a sustainable production capability of 12 million gallons per day (MGD). The wells are pumped in different combinations to meet daily demand. The City's annual average daily demand is 6.0 MGD. In 2017, Prescott produced (pumped) 6,770.10 acre-feet of water from the wells and delivered this water to approximately 24,144 customers through 523 miles of pipeline, 36 remote booster pump stations and 25 water storage tanks throughout the service area.



Secured Well Housing



Well Pump



Water Storage Tank



*Booster Pumps
for Distribution*



*Clean Water
To Your Tap*

NATURALLY OCCURRING CONTAMINANTS

A contaminant is any physical, chemical, biological or radiological substance or matter in the water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these contaminants generally are not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and may even have nutritional value at low levels.

WATER TREATMENT

All water produced for distribution undergoes a level of treatment. The City of Prescott is fortunate to draw from high quality aquifers, therefore, the water requires minimal treatment. Water Operations selects a combination of three appropriate treatment processes to reduce the contaminants found in our groundwater and ensure the delivery of potable water that not only meets safe levels, but surpasses state and federal regulations. The first of the three processes utilizes chlorine for disinfection to prevent the development of bacterial contamination that could occur in the water storage and distribution systems. The second is an ADEQ approved Blending Plan to manage arsenic levels naturally occurring in some wells. A Blending Plan is a process that combines water from various wells with various arsenic levels to achieve a uniform potable water with the lowest detected levels of arsenic possible. This process allows the City to meet daily demands while keeping the levels of arsenic below the regulatory requirement. The third of the three processes utilizes sorptive media for the removal of arsenic where water exceeds state quality requirements. Currently, the City has one well with this treatment system which maintains arsenic levels below the federal action level standards.

WATER QUALITY DATA REPORT

The Water Quality Data Report Table on Page 5 contains the most recent analysis for regulated testing. The frequency of sample collection is determined by state and federal regulations and based on many different parameters such as type of water source, number of people served, as well as past and current analyses of the contaminant to be tested. Sample frequency can range between 1 month and 3 years old.

The City of Prescott is also required to test for unregulated contaminants. The data generated by these tests is used by the EPA to evaluate and prioritize contaminants on the Drinking Water Contaminant Candidate List. Regulated and unregulated contaminants will appear in this report if they are found during testing. No unregulated contaminants on the EPA's Candidate List have been detected in the City's drinking water.

CONTAMINANTS & HOW THEY MAY BE INTRODUCED

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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

- ◆ Inorganic contaminants such as salts and metals that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- ◆ Microbial contaminants such as viruses and bacteria which may come from sewage treatment plants, septic systems, agricultural livestock operations or wildlife.
- ◆ Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.
- ◆ Pesticides and herbicides which may come from a variety of sources such as agriculture, urban storm water runoff or residential uses.
- ◆ Radioactive contaminants, such as Radon, Alpha Emitters, Beta/Photon Emitters, combined Radium and Uranium that can be naturally-occurring or the result of oil and gas production or mining activities, decay or erosion of natural and man-made deposits.
- ◆ Total Trihalomethanes and Haloacetic Acids are the by-product of drinking water disinfection.

ABBREVIATIONS & DEFINITIONS

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

MCL (Maximum Contaminant Level) - The highest level of a contaminant allowed by the EPA in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

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.

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

MRDL (Maximum Residual Disinfectant Level) - The highest level of a disinfectant (chlorine) allowed in drinking water. There is convincing scientific evidence that the addition of a disinfectant is required for the control of microbial contaminants.

NA (Not Applicable) - Sampling was not completed by regulation or was not required.

ND (Not Detected) - Concentration too low to be detected

NTU (Nephelometric Turbidity Units) - A measure of water clarity

pCi/L (Picocuries per liter) - A measure of the radioactivity in water

PPM (Parts Per Million) - Or milligrams per liter (mg/L) 1ppm

PPB (Parts Per Billion) - Or micrograms per liter (µg/L), 1000 ppb = 1 ppm

TT (Treatment Technique) - A required process intended to reduce the level of a contaminant in drinking water

ADEQ (Arizona Department of Environmental Quality) - State Regulatory Agency

EPA (US Environmental Protection Agency) - Federal Regulatory Agency

WATER QUALITY DATA REPORT FOR CITY OF PRESCOTT

Primary Drinking Water Standards - Mandatory Health-Related Levels Established by EPA and ADEQ						
Water Samples Collected from homes qualified per ADEQ standards in Prescott, AZ						
Parameter	Violation Y or N	AL	Number of Samples Over the AL	90th Percentile	Unit	Date
Lead & Copper						
Lead Results - Homes	N	15	0	1	ppb	2016
Copper Results - Homes	N	1.3	0	0.062	ppm	2016
Regulated Substances - Measured from Water Leaving the Treatment Facilities						
Parameter	MCL	MCLG	Highest Level	Range	Unit	Date
RadioChemical Monitoring			Highest Detected Level	Range		
Gross Alpha	15	0	1.9	1.0 - 1.9	pCi/L	2017
Combined Radium 226 & 228	5	0	1.0	< 0.6 - 1.0	pCi/L	2017
Uranium 234, 235, 238	30	< 30	1.9	0.0004 - 1.9	ug/l	2017
Regulated Inorganic Compounds			Highest Detected Level	Range		
Arsenic	10	0	9.0	1.0 - 9.0	ppb	2017
Barium	2	< 2	0.037	0.005 - 0.037	ppm	2015
Chromium	100	100	7	2 - 7	ppb	2015
Nitrate (as N)	10	< 10	1.7	0.86 - 1.7	ppm	2017
Disinfection Byproduct Monitoring			Highest Detected level	Range		
Total Trihalomethane (TTHM)	80	0	5.9	2.5 - 5.9	ppb	2017
Haloacetic Acids (HAA5)	60	N/A	1.0	< 1.0	ppb	2017
Maximum Residual Disinfection Level (MRDL)	MRDL	MRDLG	Highest Detected level	Range		
Chlorine	4	< 4	1.95	0.23 - 1.95	ppm	2017
Biological Monitoring	MCLG	Entire Distribution System		Likely Source in Drinking Water	Unit	Date
Total Coliform - tested monthly	0	Highest monthly number of positive Coliform samples: 0 in 53		Naturally present in the environment	Absent or Present	2017

Monitoring Requirements Not Met for 2017 During the 2017 calendar year the City of Prescott was required to monitor for three elements of the Radionuclide group for four consecutive quarters. During the second quarter only one of the three elements was sampled, Radium 226 & 228 was not. The missed monitoring occurred at Entry Point to the Distribution System (EPDS) 011 located at the Chino Production facility. As a consumer there is nothing you need to do at this time and have the right to know what has been done to rectify this situation. What the City has done is to sample for all required elements the following quarter (3rd). The follow up sample returned a result that met the standard for Radium 226 & 228. This confirms that the City's water quality continues to meet and exceed federal and state guidelines for this contaminant. No emergency exists, this notice is for informational purposes only. Please share this information with other people who drink this water, especially those who may not have seen this notification.

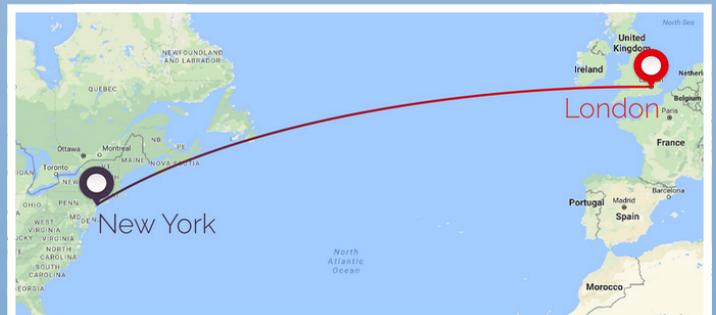
What is a ppm (parts per million) measurement? What is a ppb (parts per billion) measurement?



A simple way to visualize the Water Quality Table measurement scale is to consider the following analogies:

One ppm is like:
 One penny in a stack of \$10,000 dollars

One ppb is like:
 One sheet in a roll of toilet paper stretching from New York to London



POSSIBLE HEALTH EFFECTS OF CONTAMINANTS IN DRINKING WATER

ARSENIC If Arsenic is less than or equal to the MCL, your drinking water meets EPA's standards. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. For more information about Arsenic: http://legacy.azdeq.gov/environ/water/dw/download/epa_arsenic.pdf

BARIUM Some people who drink water containing barium in excess of the MCL over many years may experience an increase in blood pressure.

CHLORINE Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.

COPPER & LEAD Copper is an essential nutrient however if present in drinking water, short term exposure to elevated levels of copper could cause gastrointestinal distress and prolonged use above the action level could cause liver or kidney damage in some people. If present, elevated levels of lead could cause health issues 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, slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Lead primarily comes from erosion of components associated with service lines and home plumbing. If your water has been sitting for several hours flushing your tap for 30 seconds or more prior to drinking or cooking can minimize the potential for exposure. Information on lead in drinking water and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <https://www.epa.gov/safewater/lead>

MONITORING FOR CRYPTOSPORIDIUM Cryptosporidium is an emerging pathogen resistant to chlorination and can appear even in high quality water supplies. New regulations from the EPA require water systems to monitor Cryptosporidium and adopt a range of treatment options based on source water Cryptosporidium concentrations. The City of Prescott has not detected or had any occurrence of Cryptosporidium.

NITRATES Nitrates are inorganic substances that are monitored due to run off from fertilizer use. Nitrates 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." The City of Prescott nitrate levels are well below the maximum contaminant level at 1.69 ppm. (See chart on Page 5) Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, and detected nitrate levels are above 5 ppm, you should ask advice from your health care provider. For more information on nitrates: <http://www.epa.gov/nitratefaq>

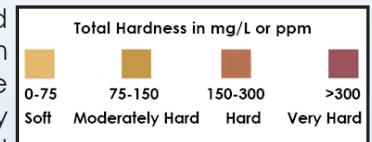
RADIONUCLIDES are a group of contaminants consisting of Alpha and Beta/Photon emitters, combined Radium 226 & 228 and Uranium. Certain minerals are radioactive and may emit a form of radiation known as Alpha, Beta or Photon radiation. Some people who drink water in excess of the MCL for this group of contaminants over many years may have an increased risk of getting cancer or in some cases kidney problems. Radon gas is a colorless, odorless and tasteless gas that comes from the natural breakdown of Uranium. Although there is no federal standard for Radon in drinking water The City of Prescott does monitor the Radionuclide group and surpasses mandatory health levels established by the EPA and ADEQ. For more information on Radon: <https://www.epa.gov/radon>

DISINFECTION BY-PRODUCTS Some people who drink water containing trihalomethanes and Haloacetic Acids in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of cancer.

FREQUENTLY ASKED WATER QUESTIONS & TOPICS

GENERAL WATER CONSUMPTION: Statistics show that U.S. consumers average between 100 to 160 gallons, per person, per day for all uses. Usage can greatly vary based on an individual's particular habits. Between 2 quarts and 1 gallon are consumed for cooking, drinking water and prepared beverages such as coffee and tea. The remainder includes household cleaning, bathing, laundry, outdoor watering and more. Most new low use toilets use about 1.5 gallons per flush, compared to older ones using about 4 gallons per flush. Showers can use anywhere from 2 to 5 gallons per minute and a bath can consume 35+ gallons per use depending on size. Outdoor usage generally accounts for the largest volume of water consumed especially during Spring and Summer months.

WATER HARDNESS: Hardness in drinking water is caused by calcium and magnesium which are two non-toxic, naturally occurring minerals in water. Calcium and magnesium enter water mainly through the weathering of rocks. The more calcium and magnesium in water, the harder the water. Water hardness is usually expressed in parts per million (ppm) or grains per gallon of dissolved calcium and magnesium carbonate. The City's water is considered moderately hard, averaging 75 to 130 ppm, which equals 4.3 to 7.6 grains per gallon. In hard water, lathering of soap for washing is more difficult to do and cleaning becomes less efficient. As a result, more soap or detergent is needed to get things clean, be it your hands, hair, or your laundry. Dull hair, spots on dishes, glasses, faucets and film on shower doors can be related to water that is considered hard in nature.



WATER SOFTENERS: A water softener can reduce the formation of scale in your water system to make washing and cleaning easier. Depending on the type of system selected, they replace the calcium and magnesium with sodium or potassium which dissolve in water and are less likely to leave deposits. Softening does not however remove all dissolved minerals such as sodium, sulfate, chloride and bicarbonates therefore deposits, scale and film could still be present. If a softening system appears to be the choice for you, make sure you select a system that is least likely to impact the environment. The discharge stream by-products that are produced flow directly to the City's wastewater treatment facilities.

WHY IS MY WATER CLOUDY? Oxygen in the water: Sometimes water fresh from the tap appears cloudy.



Within a minute or two, the cloudiness rises toward the top of a glass and before long the whole glass is crystal clear. This is caused by excess oxygen escaping from the water. Changes in water temperature and pressure can cause the oxygen dissolved in it to reach a supersaturated state where more oxygen is in the water than it can hold. When water passes through a faucet, the disturbance is enough to release the excess oxygen out of the water, forming microscopic bubbles. The bubbles are so tiny that it takes them a long time to rise through the water. No harm will come from using oxygenated water, and you need not take any corrective action if you experience it.

WATER PRESSURE: The most common question regarding water is about a change in water pressure to the house. Low water pressure to the home can be caused by many things: Mineral deposit build-up can reduce the flow in domestic pipes and faucet aerators may become plugged if not regularly cleaned and maintained. If a water heater is not regularly maintained per factory specifications, the inside can degrade causing pieces of scale, minerals and particulates to dislodge and migrate through a home's water system. Another common cause of water pressure concerns can be related to the setting of a water pressure



Clogged Aerator

regulator valve (PRV). A previous home owner may have had a regular set to limit the pressure of water diverted from the municipal supply line. A PRV factory setting is 50 PSI. It is important to understand that a PRV has a shelf life and can be damaged directly from the manufacturer. A failing PRV can cause low or high water pressure. Installing a PRV for each property ensures that the pressure coming from the municipal supply line is reduced to an acceptable pressure. If the PRV is placed at the meter, instead of just at the entrance to the building, then the regulator will also protect the supply line to the house and many parts of the property's irrigation system. An added benefit of regulating the pressure to the irrigation system is that it will help reduce misting, thereby increasing the efficiency of the irrigation system—saving water and money.



PRV

Where to Learn More about Your Drinking Water

Specific information about this report can be obtained by contacting:

- ◆ **City of Prescott Water Operations Staff**

Office Location: 1481 Sundog Ranch Road, Prescott, AZ 86301

Phone: (928) 777-1118 Email: water.operations@prescott-az.gov

Hours of Operation: 7:00 a.m. to 3:30 p.m. Monday—Friday

City of Prescott Website: <http://www.prescott-az.gov/water-sewer/water-operations/>

- ◆ **Environmental Protection Agency Safe Drinking Water Hotline (800) 426-4791**

Website: <https://www.epa.gov/ground-water-and-drinking-water>

- ◆ **Arizona Department of Environmental Quality (800) 234-5677**

Website: www.azdeq.gov/environ/water/index.html

- ◆ Water related topics are discussed at City Council meetings and in other forums in which the public can participate. Meeting notices are published in the local newspaper and posted at **City Hall, 201 S. Cortez Street, Prescott, Arizona**. Opportunities for public participation in decisions that affect water quality will be announced through the City of Prescott Calendar of Events. Follow this link for upcoming events: <http://prescott-az.gov/events/>



2018 City of Prescott Water Operations Staff