ANNUAL

WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2016

TOWN OF QUEEN CREEK ARIZONA

WATER

Produced by the Town of Queen Creek

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien. Versión en español también está disponible. Queencreek.org/waterquality2016spanish

PWS ID#: AZ0407033

Growing With The Community

Once again we are proud to present our annual water quality report covering the period between January 1 and December 31, 2016. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at any hour—to deliver the highest quality drinking water without interruption. Although the challenges ahead are many, we feel that by relentlessly investing in customer outreach and education, system upgrades, and training, the payoff will continue to be the reliable, high-quality tap water delivered to you and your family.

The Water Division ended the year with more than 25,000 active connections, reflecting the exceptional new single family home and commercial growth within the service area. By the end of 2017, the Water Division will be servicing approximately 27,000 active connections, with an estimated service population of approximately 77,000.

The Water Division continues to focus on system maintenance in the form of water storage tank maintenance and painting to preserve both water quality and infrastructure lifespan. Miles of new water mainlines have been installed allowing the Town to move water through the system more efficiently, with approximately five more miles being installed in 2017. We continue to aggressively pursue our meter testing and replacement program, which helps the Water Division ensure that water meters measure accurately minimizing water loss.

The rehabilitation and conversion of agriculture wells to potable water sources continues in 2017 to provide additional water production to serve the fast-paced growth within the community.

Our GIS and technology staff continue to evaluate and develop methods to improve efficiencies through technology to allow staffing to access information remotely, enabling faster response to work order completion or emergency mitigation. Improvements are also continually evaluated and improved upon to allow customers more access to billing and scheduling for potable water information. 2017 will also see the first phase of implementation of Flexnet meter reading, which will allow remote access of water meters and data in an effort to achieve real-time monitoring.

This is all in an effort to meet our Mission Statement of providing our citizens and community with the highest quality service and water in the most economical, safe, reliable, and timely manner.

For more information about this report, to ask questions relating to your drinking water, or to provide feedback about the information in this report, please contact the Water Division at (480) 358-3450 or Greg Homol, Water Division Operator of Record, with the Town of Queen Creek Utility Services Department at (480) 358-3459. After all, well-informed customers are our best allies.

Unregulated Contaminant Monitoring

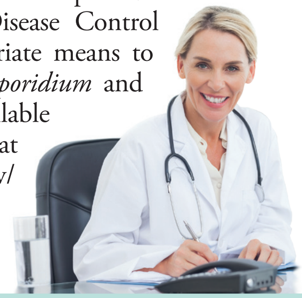
We participated in the 3rd stage of the EPA's Unregulated Contaminant Monitoring Rule (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if EPA needs to introduce new regulatory standards to improve drinking water quality. Contact us for more information on this program.

Important Health Information

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask advice from your health care provider.

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.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or http://water.epa.gov/drink/hotline.



Where Our Water Comes From

The Town of Queen Creek Water Division's primary source of water is ground water. In 2016, the Water Division finished the year with 13 active potable source wells with each being associated to an Entry Point to the Distribution System (EPDS). The following wells were associated with Public Water System AZ0407033: Terra Ranch well (EPDS #001) is located on Chandler Heights Road east of Hawes Road; Villages well (EPDS #005) is located on Rittenhouse Road at the Signal Butte Road alignment; Schnepf well (EPDS #004) is located on Combs Road east of Meridian Road; Circle G well (EPDS #001) is located on Hawes Road north of Chandler Heights Road; Victoria well (EPDS #007) is located on Ocotillo Road west of Ellsworth Road; Ocotillo Heights well (EPDS #005) is located on Signal Butte Road south of Ocotillo Road; Cortina well (EPDS #099) is located on the northwest corner of Sossaman and Ryan roads; QCR Well 4 (EPDS #101) is located approximately 1/2 mile north of Ocotillo Road on Schnepf Road; Castlegate well (EPDS #102) is located south of Ocotillo Road on Scott Drive; Pecan Creek South well (EPDS #104) is located along Kenworthy Road and East Shari Street; Shea well (EPDS #105) is located on Kenworthy Road just north of Hash Knife Draw; Ironwood Crossing well (EPDS #107) is located north of Ocotillo Road and west of Ironwood Road; and Ironwood Crossing North well (EPDS #107) is located just over a half mile north of Ocotillo Road and west of Ironwood Road. These wells are drilled in excess of 900 feet deep. The water table in the Queen Creek area ranges from a depth of approximately 232 feet below the surface down to approximately 2,000 feet. The Water Division is presently pumping water from 500 to 640 feet.

FOG (fats, oils, and grease)

You may not be aware of it, but every time you pour fat, oil, or grease (FOG) down your sink (e.g., bacon grease), you are contributing to a costly problem in the sewer collection system. FOG coats the inner walls of the plumbing in your house as well as the walls of underground piping throughout the community. Over time, these greasy materials build up and form blockages in pipes, which can lead to wastewater backing up into parks, yards, streets, and storm drains. These backups allow FOG to contaminate local waters, including drinking water. Exposure to untreated wastewater is a public health hazard. FOG discharged into septic systems and drain fields can also cause malfunctions, resulting in more frequent tank pump-outs and other expenses.

Communities spend billions of dollars every year to unplug or replace grease-blocked pipes, repair pump stations, and clean up costly and illegal wastewater spills. Here are some tips that you and your family can follow to help maintain a well-run system now and in the future:

NEVER:

- Pour fats, oil, or grease down the house or storm drains.
- Dispose of food scraps by flushing them.
- Use the toilet as a waste basket.

ALWAYS:

- Collect fryer oil and grease and dispose of it at a proper fryer oil recycling site or facility such as the ones located at each of the Town of Queen Creek fire stations and/or former fire station(s).
- Place food scraps in waste containers or garbage bags for disposal with solid wastes.
- Place a wastebasket in each bathroom for solid wastes like disposable diapers, creams and lotions, and personal hygiene products including non-biodegradable wipes. Just because the container says "flushable" doesn't mean it should be.

Source Water Assessment

In 2002, the Arizona Department of Environmental Quality (ADEQ) completed a source water assessment for six of the ground water wells used by the Queen Creek Water Company, now known as the Town of Queen Creek Water Division. The assessment reviewed adjacent land uses that could pose risks to water sources. These risks include, but are not limited to, gas stations, landfills, dry cleaners, agricultural fields, wastewater treatment plants, and mining activities. Once ADEQ identified the adjacent land uses, the source waters were ranked according to their potential to become contaminated. The result of the assessment for the six wells was low risk from adjacent land use and low risk to source water. To request a copy of the 2002 Source Water assessment, please go to www.queencreek.org/departments/town-clerk/public-records-request.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. 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 www.epa.gov/lead.

Benefits of Chlorination

Disinfection, a chemical process used to control disease-causing microorganisms by killing or inactivating them, is unquestionably the most important step in drinking water treatment. By far, the most common method of disinfection in North America is chlorination.

Before communities began routinely treating drinking water with chlorine (starting with Chicago and Jersey City in 1908), cholera, typhoid fever, dysentery, and hepatitis A killed thousands of U.S. residents annually. Drinking water chlorination and filtration have helped to virtually eliminate these diseases in the United States. Significant strides in public health are directly linked to the adoption of drinking water chlorination. In fact, the filtration of drinking water plus the use of chlorine is probably the most significant public health advancement in human history.

How chlorination works:

Potent Germicide Reduction in the level of many disease-causing microorganisms in drinking water to almost immeasurable levels.

Taste and Odor Reduction of many disagreeable tastes and odors like foul-smelling algae secretions, sulfides, and odors from decaying vegetation.

Biological Growth Elimination of slime bacteria, molds, and algae that commonly grow in water supply reservoirs, on the walls of water mains, and in storage tanks.

Chemical Removal of hydrogen sulfide (which has a rotten egg odor), ammonia, and other nitrogenous compounds that have unpleasant tastes and hinder disinfection. It also helps to remove iron and manganese from raw water.

Water Conservation

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Check your landscape watering system regularly for leaks, missing emmitters, and broken sprinkler heads.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Change your landscape watering controller according to the season.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.
- Visit QueenCreek.org/WaterSmart to find free workshops offered by the TOQC that may help you save water!

Protecting Your Water

Bacteria are a natural and important part of our world. There are around 40 trillion bacteria living in each of us; without them, we would not be able to live healthy lives. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern, however, because it indicates that the water may be contaminated with other organisms that can cause disease.

In 2016, the U.S. EPA passed a new regulation called the Revised Total Coliform Rule, which requires additional steps that water systems must take in order to ensure the integrity of the drinking water distribution system by monitoring for the presence of bacteria like total coliform and E. coli. The rule requires more stringent standards than the previous regulation, and it requires water systems that may be vulnerable to contamination to have in place procedures that will minimize the incidence of contamination. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment of their system and correct any problems quickly. The U.S. EPA anticipates greater public health protection under the new regulation due to its more preventive approach to identifying and fixing problems that may affect public health.

Although we have been fortunate to have the highest quality drinking water, our goal is to eliminate all potential pathways of contamination into our distribution system, and this new rule helps us to accomplish that goal.

Substances That Could Be in Water

To ensure that tap water is safe to drink, Arizona Department of Environmental Quality prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material; and substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

More information about contaminants in tap water and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791 or visit online at www.epa.gov/safewater/hotline. Information on bottled water can be obtained from the U.S. Food and Drug Administration.

Tip Top Tap

The most common signs that your faucet or sink is affecting the quality of your drinking water are discolored water, sink or faucet stains, a buildup of particles, unusual odors or tastes, and a reduced flow of water. The solutions to these problems may be in your hands.

Kitchen Sink and Drain

Hand washing, soap scum buildup, and the handling of raw meats and vegetables can contaminate your sink. Clogged drains can lead to unclean sinks and backed up water in which bacteria (i.e., pink and black-colored slime growth) can grow and contaminate the sink area and faucet, causing a rotten egg odor. Disinfect and clean the sink and drain area regularly. Also, flush regularly with hot water.

Faucets, Screens, and Aerators

Chemicals and bacteria can splash and accumulate on the faucet screen and aerator, which are located on the tip of faucets, and can collect particles like sediment and minerals resulting in a decreased flow from the faucet. Clean and disinfect the aerators or screens on a regular basis.

Check with your plumber if you find particles in the faucet screen as they could be pieces of plastic from the hot water heater dip tube. Faucet gaskets can break down and cause black, oily slime. If you find this slime, replace the faucet gasket with a higher-quality product. White scaling or hard deposits on faucets and shower heads may be caused by hard water or water with high levels of calcium carbonate. Clean these fixtures with vinegar or use water softening to reduce the calcium carbonate levels for the hot water system.

Water Filtration/Treatment Devices

A smell of rotten eggs can be a sign of bacteria on the filters or in the treatment system. The system can also become clogged over time so regular filter replacement is important. (Remember to replace your refrigerator filter!)

Test Results

Our water is monitored for many different kinds of contaminants on a very strict sampling schedule. The information below represents only those substances that were detected; our goal is to keep all detects below their respective maximum allowed levels. Water quality sample results for the former H2O, Inc. water system remain for informational purposes, though that system has been fully integrated into the Town water system and results for AZ0407033 cover the entire water distribution system. The Water Division continues to contract with the State of Arizona's Monitoring Assistance Program (MAP) to perform regular sampling and testing of all system wells for radioactive, inorganic, volatile organic, and synthetic organic contaminants.

The state requires the Water Division to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

				Town of Queen Creek Water AZ0407033; All Zones		Former H20 Inc AZ0411060			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2016	15	0	2.9	0.9–4.6	1.7[1]	1.7–1.7[1]	No	Erosion of natural deposits
Arsenic (ppb)	2016	10	0	2.8	ND–5.5	2.2[2]	1.9–2.7[2]	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2016	2	2	0.0455	0.031–0.080	0.028[2]	0.018–0.041[2]	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2016	[4]	[4]	0.90	0.47–1.30	0.94[1]	0.54–1.50[1]	No	Water additive used to control microbes
Chromium (ppb)	2016	100	100	4.5	2.4–7	2.3[2]	1.4–3.6[2]	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Radium (pCi/L)	2016	5	0	0.3	ND–1.5	0.9[2]	ND–0.9[2]	No	Erosion of natural deposits
Fluoride (ppm)	2016	4	4	0.32	ND–0.5	0.22[2]	0.18–0.24[2]	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2016	60	NA	0.4	ND–1.4	0.1[1]	ND–1.1[1]	No	By-product of drinking water disinfection
Nitrate (ppm)	2016	10	10	6.8	0.48–6.8	5.8[1]	1.6–5.8[1]	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	2016	50	50	1.8	0.61–1.8	NA	NA	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes] (ppb)	2016	80	NA	3.4	ND–17	0.6[1]	ND–3.7[1]	No	By-product of drinking water disinfection
Uranium (ppb)	2016	30	0	1.4	0.9–2	NA	NA	No	Erosion of natural deposits

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

				Town of Queen Creek Water AZ0407033; All Zones		Former H20 Inc AZ0411060			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2016	1.3	1.3	0.13	0/32	0.13[2]	0/30[2]	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2016	15	0	1.5	1/32	1.4[2]	0/30[2]	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES (TOWN OF QUEEN CREEK WATER AZ0407033; ALL ZONES)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2016	250	NA	130	130–130	No	Runoff/leaching from natural deposits
Copper (ppm)	2016	1.0	NA	0.002	0.0017–0.0023	No	Corrosion of household plumbing systems; Erosion of natural deposits
pH (Units)	2016	6.5-8.5	NA	8.0	7.6–8.0	No	Naturally occurring
Sulfate (ppm)	2016	250	NA	63	62–63	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2016	500	NA	690	460–880	No	Runoff/leaching from natural deposits

UNREGULATED AND OTHER SUBSTANCES

		Town of Queen Creek Water AZ0407033; All Zones		Former H20 Inc AZ0411060		
SUBSTANCE (UNIT OF MEASURE)	**YEAR SAMPLED**	**AMOUNT DETECTED**	**RANGE LOW-HIGH**	**AMOUNT DETECTED**	**RANGE LOW-HIGH**	**TYPICAL SOURCE**
2-Butanone (ppb)	2016	7.5	6.2–8.4	NA	NA	Industrial solvent, Also occurs naturally in small traces
Bromodichloromethane (ppm)	2016	0.00022	ND–0.0014	0.00059[1]	0.00059–0.00059[1]	By-product of chlorine disinfection
Bromoform (ppm)	2016	0.000041	ND–0.0026	0.0017[1]	0.0017–0.0017[1]	By-product of chlorine disinfection
Calcium (ppm)	2016	90	45–90	NA	NA	Runoff/leaching of natural deposits
Chlorodibromomethane (ppm)	2016	0.0011	0.0011–0.0011	0.0012[1]	0.0012–0.0012[1]	By-product of chlorine disinfection
Chromium–UCMR3 (ppb)	2013	2.2	2.1–6.3	2.7[3]	1.5–3.9[3]	Erosion of natural deposits; Discharge from steel and pulp mills
Dibromoacetic Acid (ppm)	2016	0.0006	ND–0.0077	NA	NA	By-product of disinfection
Dibromochloromethane (ppm)	2016	0.0014	0.00065–0.006	NA	NA	Disinfection by-product
Dichloroacetic Acid (ppm)	2016	0.00009	ND–0.0021	NA	NA	By-product of chlorine disinfection
Hexavalent Chromium (Dissolved)–UCMR3 (ppb)	2013	2.5	2.3–6.8	2.8[3]	1.4–4.2[3]	Textile dyes, wood preservation, and anti-corrosion and conversion coating
Magnesium (ppm)	2016	30	9–30	NA	NA	Runoff/leaching of natural deposits
Molybdenum–UCMR3 (ppb)	2013	0.16	ND–1.3	0.38[3]	ND–1.2[3]	Naturally occuring
Monobromoacetic Acid (ppm)	2016	0.0001	ND–0.0015	NA	NA	By-product of chlorine disinfection
Nickel (ppm)	2016	0.0018	0.00082–0.0018	NA	NA	Occurs naturally
Sodium (ppm)	2016	110	81–110	62[2]	39–75[2]	Naturally occuring
Strontium–UCMR3 (ppb)	2013	820	230–1,100	682[3]	400–870[3]	Naturally occuring
Vanadium–UCMR3 (ppb)	2013	10	7.6–17	9.6[3]	7.9–11[3]	Naturally occuring

[1] Sampled in 2015.
[2] Sampled in 2014.
[3] Sampled in 2014-2015.

Definitions

AL (Action level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a community water system shall follow.

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as LRAAs.

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.

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.

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

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

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

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