



TOWN OF
QUEEN CREEK
ARIZONA

ANNUAL
Water Quality Report

WATER TESTING PERFORMED IN 2019



Where Our Water Comes From

The Town of Queen Creek's drinking water comes from groundwater sources. Groundwater is pumped from a combination of the 22 active drinking water wells located throughout the water distribution system. Water is either pumped directly into the distribution system or pumped to fill a water storage tank for future use. A small amount of chlorine disinfection is applied at entry points to the distribution system in order to maintain federal drinking water standards.

Commitment to Quality

The Town of Queen Creek Water Division is proud to present our 2019 Annual Water Quality Report demonstrating our exceptional water quality. We are grateful to the countless individuals who have worked hard to maintain our excellent drinking water quality. We remain dedicated to meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of our community. Thank you for allowing us the opportunity to serve you and your family.

The Water Division ended 2019 with over 30,000 active connections, attributed to the remarkable new single-family home and commercial growth. We expect continued growth, with an estimated service population of approximately 85,000 by end of 2020.

The Water Division continues to focus on system integrity and reliability through water storage tank maintenance and restoration to preserve water quality and infrastructure lifespan. Nearly 20 miles of new waterlines have been designed and approximately seven miles installed, allowing the water system to operate more efficiently. Construction began on the Church Farms East three million gallon reservoir, to be completed and in service by the end of 2020.

Four new wells were added to our water sources. Nitrate analyzers were installed at integral locations to efficiently minimize nitrate levels to lower concentrations. Two wells were purchased and two wells were drilled, these four wells are scheduled to come online in 2020. 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.

Our geographic information systems and technology staff continue to develop efficiency improvements through technological changes, allowing staffing to access information remotely and enabling faster responses, work order completions and emergency mitigation. Improvements are continually evaluated to allow customers more access to billing and scheduling.

Responsible water use continues to be a large focus of the Water Division. We held eight free water saving workshops and several community events throughout 2019. The Water Conservation Division collaborated with various Arizona agencies to create educational activities for students and teachers. We held approximately 20 assemblies and 34 classroom presentation reaching roughly 3,278 students in the Town of Queen Creek and San Tan Valley area schools.

We excitingly embrace the growth the Town of Queen Creek is experiencing. The Water Division remains dedicated to providing reliable high quality water. We greatly appreciate the partnership we have cultivated with the community and are honored to serve you in the future.

— Paul Gardner, Utilities Director, Town of Queen Creek



Substances That Could be in Water

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 and, in some cases, radioactive material, and can pick up 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, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water 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 storm water runoff, and residential uses.

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

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

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 online at EPA.gov/Safewater or by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.

Count on Us

Delivering high-quality drinking water to our customers involves far more than just pushing water through pipes. Because tap water is highly regulated by state and federal laws, water system operators must be licensed and are required to commit to long-term, on-the-job training before becoming fully qualified.

Our licensed water professionals are knowledgeable on a wide range of subjects, including mathematics, biology, chemistry, and physics.

Some of the tasks they complete on a regular basis include:

- Operating and maintaining equipment to produce and store water.
- Monitoring and inspecting machinery, meters, gauges, and operating conditions.
- Conducting tests and inspections on water and evaluating the results.
- Maintaining optimal water chemistry.
- Applying data to formulas that determine treatment requirements, flow levels, and concentration levels.
- Documenting and reporting test results and system operations to regulatory agencies.
- Serving our community through customer support, education, and outreach.

So, the next time you turn on your faucet, think of the skilled professionals who stand behind every drop.



Water Quality

To ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health. Some people may be more vulnerable to contaminants in drinking water than the general population.

The Town of Queen Creek is proud to be a part of the Arizona Department of Environmental Quality (ADEQ) Monitoring Assistance Program (MAP). MAP performs required monitoring of specific contaminants of applicable water systems. In May of 2019, ADEQ proposed a new schedule for contaminant monitoring of newly activated water sources. In the 4th quarter of 2019 the MAP program failed to take a Radionuclide Analyte sample due to an internal scheduling conflict. This missed sample resulted in a monitoring and reporting deficiency violation for Radionuclides. Once the Town was made aware of MAP's error, the required sample was taken immediately and found to be below the national maximum contaminant level. To ensure this error is not repeated, the Town has asked MAP to provide documentation at every visit to ensure they are conducting the required compliance monitoring accurately.

2019 RESULTS

CONTAMINANT	SAMPLE YEAR	VIOLATION	RANGE	AVERAGE	MCL	MCLG	TYPICAL SOURCE
Alpha emitters (pCi/L)	2019	No	ND – 4.2	0.5	15	0	Erosion of natural deposits
Arsenic (ppb)	2019	No	2.0 – 3.7	2.58	10	0	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2019	No	0.012 – 0.061	0.038	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2019	No	0.5 – 1.1	0.8	4	4	Water additive used to control microbes
Chromium (ppb)	2019	No	2.6 – 11.0	5.2	100	100	Discharge from steel and pulp mills; Erosion of natural deposits
Dibromochloropropane (ppb)	2019	No	ND – 0.01	0.01	0.2	0	Discharge from rubber and chemical factories
Fluoride (ppm)	2019	No	0.2 – 0.9	0.39	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids (ppb)	2019	No	<2.0	ND	60	NA	By-product of drinking water disinfection
Nitrate (ppm)	2019	No	0.5 – 7.4	4.3	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Combined Radium 226 and 228 (pCi/L)	2019	No	ND – 3.3	1.1	5	0	By-product of drinking water disinfection
Sodium (ppm)	2019	No	73 – 120	88	NA	NA	Erosion of natural deposits
Total Trihalomethanes (ppb)	2019	No	0.5 – 6.8	4.6	80	NA	By-product of drinking water disinfection
Uranium (ppm)	2017	No	2.2	2.2	30	0	Erosion of natural deposits

Tap water samples collected for lead and copper analyses from specific community sample sites

CONTAMINANT	YEAR	VIOLATION	NUMBER OVER AL	90 TH PERCENTILE	AL	MCLG	TYPICAL SOURCE
Copper (ppm)	2019	No	0	0.13	1.3	1.3	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2019	No	0	1.5	15	0	Corrosion of household plumbing systems; Erosion of natural deposits

UCMR - UNREGULATED CONTAMINANT RULE

This year Queen Creek completed the fourth round of unregulated contaminant monitoring required by the EPA every 5 years. The intent of this rule is to provide baseline occurrence data that the EPA can combine with toxicological research to make decisions about potential future drinking water regulations. The unregulated contaminants results are provided in the water quality table shown below. For more information about unregulated contaminant monitoring and emerging contaminants visit www.epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule.

CONTAMINANT	YEAR	RANGE	AVERAGE	TYPICAL SOURCE
Alpha-Hexachlorocyclohexane (ppb)	2019	0.0032	0.0032	Component of benzene hexachloride (BHC); formerly used as an insecticide
Chlorpyrifos (ppb)	2019	0.0096 – 0.0098	0.0097	Organophosphate; used as an insecticide, acaricide and miticide
Dimethipin (ppb)	2019	0.064 – 0.065	0.064	Used as an herbicide and plant growth regulator
Ethoprop (ppb)	2019	0.0096 – 0.0098	0.0097	Used as a fungicide
Tribufos (ppb)	2019	0.022	0.022	Used as an insecticide and cotton defoliant
Oxyfluorfen (ppb)	2019	0.016 – 0.017	0.016	Used as an herbicide
Total permethrin (ppb)	2019	0.013	0.013	Used as an insecticide
Profenofos (ppb)	2019	0.096 – 0.098	0.097	Organophosphate; used as an insecticide and acaricide
Tebuconazole (ppb)	2019	0.064 – 0.065	0.064	Used as a fungicide
Butylated hydroxyanisole (ppb)	2019	0.0096 – 0.0098	0.0097	Used as a food additive (antioxidant)
Quinoline (ppb)	2019	0.0065 – 0.0066	0.0065	Used as a pharmaceutical (anti-malarial) and flavoring agent; produced as a chemical intermediate; component of coal
O-toluidine (ppb)	2019	0.0022 – 0.0023	0.0022	Used in the production of dyes, rubber, pharmaceuticals and pesticides
1-Butanol (ppb)	2019	0.67	0.67	Used as a solvent food additive and in production of other chemicals
2-Methoxyethanol (ppb)	2019	0.13	0.13	Used in a number of consumer products such as synthetic cosmetics, perfumes, fragrances, hair preparations and skin lotions
2-Propen-1-ol (ppb)	2019	0.17 – 0.17	0.17	Used in the production flavorings perfumes and other chemicals
Germanium (ppb)	2019	0.032 – 0.67	0.44	Naturally-occurring element; commercially available in combination with other elements and minerals; a byproduct of zinc ore processing; used in infrared optics, fiber-optic systems, electronics and solar applications
Manganese (ppb)	2019	0.28 – 2.6	0.72	Naturally-occurring element; commercially available in combination with other elements and minerals; used in steel production, fertilizer, batteries and fireworks; drinking water and wastewater treatment chemical; essential nutrient
Bromide (ppm)	2019	0.01 – 1.4	0.13	Erosion of natural deposits
Total Organic Carbon (ppb)	2019	ND – 0.41	0.03	Naturally present in environment
HAA5 (ppb)	2019	1.1 – 0.67	0.88	By-product of drinking water disinfection
HAABr (ppb)	2019	1.1 – 0.67	0.88	By-product of drinking water disinfection
HAA9 (ppb)	2019	0.067	0.67	By-product of drinking water disinfection

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 the highest 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

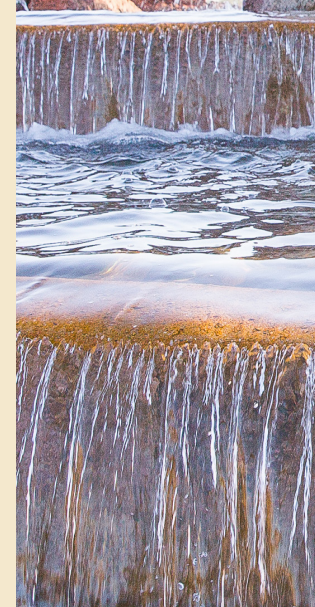
NA: Not applicable

ND: Not detected – Concentration too low to be detected by laboratory equipment

pCi/L: picocuries per liter – A measure of radioactivity

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

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



Source Water Assessment

In 2002, the Arizona Department of Environmental Quality (ADEQ) completed a source water assessment for six groundwater 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. For more information or to request a copy of the source water assessment, please contact Nicole Petker at (480) 358-3459 or email Nicole.Petker@queencreek.org



IMPORTANT Health Information

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 for infections. These people should seek advice from their health care provider about drinking water. EPA/CDC 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.

While your drinking water meets EPA standards for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of 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.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six (6) 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. Visit www.epa.gov for additional information.

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. The Town of Queen Creek is responsible for providing high-quality drinking water, but we 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 before using water for drinking or cooking. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at (800) 426-4791 or EPA.gov/Safewater.



Water Conservation

Water is a precious natural resource. Please join the Town of Queen Creek and reduce your water use. QueenCreek.org/ReducetheUse



FIVE TIPS TO REDUCE YOUR USE

- 1. Water your landscape efficiently**
Up to 70% of water use is outdoors. Find out how much water your landscape needs.
QueenCreek.org/WaterGuides
- 2. Are you using a lot of water and don't know where it's going?**
Learn how to read your water meter and take charge!
QueenCreek.org/WaterAudit
- 3. Attend a FREE landscape workshop**
Learn about drip system design and install, how to water your landscape properly, maintain and repair your irrigation system, utilize proper pruning techniques, use low water use plants for an inviting backyard and much more.
QueenCreek.org/WaterSmart
- 4. Hire a Smartscape trained landscape professional**
A Smartscape landscaper is trained in planning, planting and caring for landscapes in our desert environment. Smartscape.org/Directory
- 5. Take the guess work out of watering**
For FREE monthly watering reminders, text **WHENTOWATER** to **33222**.



WATER CONSERVATION EDUCATION IN THE SCHOOLS

The Town of Queen Creek is committed to creating a sustainable future for residents. We proudly partner with the Environmental Education Exchange and Abracadabra Productions to offer innovative, educational outreach to Queen Creek and San Tan Valley area schools.

Abracadabra Water Conservation Magic Shows are visually-engaging presentations, designed for 2-4th grades.

Queen Creek's **Our Water, Our Future** is a water education program designed for 4th–5th grade students, addressing the water cycle, Queen Creek's water supply and water conservation.

HAVE YOU CHECKED YOUR WATER BILL LATELY?

Reading your water bill each month can alert you to any possible water leaks. Meter readings indicate how much water you use each month. Compare the current month's use to the prior month's use. If you see a significant increase or you notice that your water use increases slowly each month and you have made no household or irrigation changes, this may be an indication you have a water leak. If you suspect you may have a leak, visit QueenCreek.org/WaterAudit to learn ways to locate those sneaky leaks!

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 U.S. 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 HELPS:

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.



QUESTIONS?

For more information about this report, or to ask drinking water related questions, please contact Nicole Petker, Water Resource Analyst, at (480) 358-3459 or Nicole.Petker@QueenCreek.org.

Residents may provide public comment to the Queen Creek Town Council regarding water quality at the regularly scheduled Town Council Meetings, usually held on the first and third Wednesdays of each month. The Town Council meeting calendar can be viewed online at QueenCreek.org/Calendar.

