Annual

WATER QUALITY REPORT

Reporting Year 2012

TOWN OF QUEEN CREEK ARIZONA WATER

Presented By
Town of Queen Creek Water

PWS ID#: AZ0407033

There When You Need Us

The Town of Queen Creek Water Division ("Water Division") is proud to present the annual water quality report. This edition covers all testing completed January 1 through December 31, 2012. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please take a few minutes to look at the information provided; we believe you'll find many reasons to feel good about the quality of your water and to use it with confidence.

The Water Division ended the year with 10,260 active connections; increase from 2011 reflects both the 514 new meters that were installed in Queen Creek in 2012 and the lower number of vacant or "for sale" homes in the area. By the end of 2013, the Water Division will be servicing approximately 11,000 active connections, with an estimated population of 34,210, and approximately 246 miles of water mains that supply our customers.

In 2012, in an effort to continue to provide high-quality water and service for our customers, the Water Division upsized approximately 4,850 feet of water distribution mainline from six inches to eight inches as part of the new development in the Hawes, Ryan, and Superstition Roads area in the northern part of Queen Creek. These improvements will provide greater water distribution system flows, as well as replace aging water distribution piping. Approximately 2,200 feet of new water distribution mainline was installed in the Power and Riggs Road area to also improve systems flows and provide for new development in that area. A block wall was constructed at the Victoria well and storage facility to improve well site security. The Water Division continues to focus on system maintenance in the form of water main flushing, valve exercising, water storage tank maintenance, and improvements to our SCADA (supervisory control and data acquisition) system for well and distribution system operation. We continue to aggressively pursue our meter testing and replacement program to minimize water loss.

New technology advancements, such as website and automated bill payment options and the use of iPads and Notebooks in the field, have provided us the ability to reduce paperwork, speed payment processing, reduce vehicle miles, and speed the response time to waterline breaks. 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.

Please feel free to provide feedback about the information in this report by calling 480-358-3450. After all, well-informed customers are our best allies.

For more information about this report or to ask questions relating to your drinking water, please contact Greg Homol, Water Division Operator of Record, with the Town of Queen Creek Utility Services Department at 480-358-3459.

Information on the Internet

The U.S. EPA Office of Water (www.epa.gov/watrhome) and the Centers for Disease Control and Prevention (www.cdc.gov) websites provide a substantial amount of information on many issues relating to water resources, water conservation, and public health. Also, the Arizona Department of Environmental Quality has a website (www.azdeq.gov) that provides complete and current information on water issues in Arizona, including valuable information about our watershed.

Water Conservation

You can play a role in conserving water and save 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:

- Automatic dishwashers can use up to 15 gallons for every cycle, regardless of how many dishes are loaded. So get the most for your money by loading it to capacity.
- Turn off the tap when brushing your teeth.
- 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.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water-using appliances inside and outside of your home. Take a meter reading and write down all of the numbers. Then check the meter after 15 minutes. If the numbers on the meter have moved, you have a leak.

For more water conservation tips, visit our website at QueenCreek.org.

Where Our Water Comes From

The Town of Queen Creek Water Division's primary source of water is groundwater. In 2012, the Water Division had 9 source wells, with each having an Entry Point to the Distribution System (EPDS) designation. Well #1, Terra Ranch (EPDS #001), is located on Chandler Heights Road east of Hawes Road. Well #2, Villages (EPDS #005), is located on Rittenhouse Road at the Signal Butte Road alignment. Well #3, Schnepf (EPDS #004), is located on Combs Road east of Meridian Road. Well #4, Circle G (EPDS #001), is located on Hawes Road north of Chandler Heights Road. Well #5, Victoria (EPDS #007), is located on Ocotillo Road west of Ellsworth Road. Well #6, Barnes Elementary (EPDS #010), is located on Queen Creek Road west of Crismon Road. Well #7, Ocotillo Heights (EPDS #005), is located on Signal Butte Road south of Ocotillo Road. Well #8, Cortina (EPDS #099), is located on the northwest corner of Sossaman and Ryan Roads. Well #9, Hastings (EPDS #012), is located on Cloud Road at the Crismon Road alignment. These wells are drilled in excess of 900 feet deep. The water table in the Queen Creek area ranges from a depth of approximately 244 feet below the surface down to approximately 2,000 feet. The Water Division is presently pumping water from 500 feet to 640 feet.

What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection.

For more information, review the Cross-connection Control Manual from the U.S. EPA's website at http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm. You can also call the Safe Drinking Water Hotline at 800-426-4791.

What's Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water are needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water are used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water are required to produce one quart of milk, and 4,200 gallons of water are required to produce two pounds of beef.

According to the U.S. EPA, the average American uses about 100 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet; twice the global per capita average. With water use increasing six-fold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish.

To check out your own water footprint, go to www.h2oconserve.org or visit www.waterfootprint.org to see how the water footprints of other nations compare.

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.

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.

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:

- Scrape and collect fat, oil, and grease into a waste container such as an empty coffee can, and dispose of it with your garbage.
- 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 nonbiodegradable wipes.

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/safewater/lead.

Naturally Occurring Bacteria

The simple fact is, bacteria and other microorganisms inhabit our world. They can be found all around us: in our food; on our skin; in our bodies; and, in the air, soil, and water. Some are harmful to us and some are not. 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 because it indicates that the water may be contaminated with other organisms that can cause disease. Throughout the year, we tested many water samples for coliform bacteria. In that time, none of the samples came back positive for the bacteria. Federal regulations require that public water that tests positive for coliform bacteria must be further analyzed for fecal coliform bacteria. Fecal coliform are present only in human and animal waste. Because these bacteria can cause illness, it is unacceptable for fecal coliform to be present in water at any concentration. Our tests indicate no fecal coliform is present in our water.

Regulating Arsenic

Arsenic contamination of drinking water sources may result from either natural or human activities. Volcanic activity, erosion of rocks and minerals, and forest fires are natural sources that can release arsenic into the environment. Although about 90 percent of the arsenic used by industry is for wood preservative purposes, it is also used in paints, drugs, dyes, soaps, metals, and semiconductors. Agricultural applications, mining, and smelting also contribute to arsenic releases. Arsenic is usually found in the environment combined with other elements, such as oxygen, chlorine, and sulfur (inorganic arsenic) or carbon and hydrogen (organic arsenic). Organic forms are usually less harmful than inorganic forms.

Low levels of arsenic are naturally present in water – about 2 parts arsenic per billion parts of water (ppb). Thus, you normally take in small amounts of arsenic in the water you drink. Some areas of the country have unusually high natural levels of arsenic in rock, which can lead to unusually high levels of arsenic in water.

In January 2001, the U.S. EPA lowered the arsenic Maximum Contaminant Level (MCL) from 50 to 10 ppb in response to new and compelling research linking high arsenic levels in drinking water with certain forms of cancer. All water utilities were required to implement this new MCL in January 2006.

Removing arsenic from drinking water is a costly procedure but well worth the expenditure considering the health benefits. For a more complete discussion, visit the U.S. EPA's arsenic website at http://water.epa.gov/lawsregs/rulesregs/sdwa/arsenic/index.cfm.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the 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.

Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen, disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use and avoid using hot water.

Source Water Assessment

In 2002, the Arizona Department of Environmental Quality (ADEQ) completed a source water assessment for six of the groundwater wells used by the Queen Creek Water Company, now 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.

The Water Division plans to address protection of water sources by a wellhead protection program. Residents can help protect water sources by practicing regular septic system maintenance, taking hazardous household chemicals to hazardous-material collection sites, and limiting pesticide and fertilizer use.

The complete source water assessment is available for viewing, Monday through Friday, from 8 a.m. to 5 p.m., at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, Arizona, 85007. Electronic copies are also available by emailing dml@azdeq.gov. For more information, call Greg Homol, Water Division Operator of Record, at 480-358-3459 or visit ADEQ's Source Water Assessment and Protection Unit website at www.azdeq.gov/environ/water/dw/swap.html.

Sampling Results

The Town of Queen Creek Water Division works to ensure water quality by performing numerous tests throughout the year. Chlorine is added to the water supply as a disinfectant. We test to make sure there is both an appropriate amount of chlorine for customers' tastes and an adequate amount to remove bacteria that may enter the system.

During the past year, we have taken hundreds of water samples to determine the presence of any microbiological contaminants, and the Water Division continues to contract with the State of Arizona's Monitoring Assistance Program (MAP) to do regular sampling of all our wells for radioactive, inorganic, volatile organic, or synthetic organic contaminants, to assure the quality of our water. Our water has met or exceeded all health standards. The table below shows only those contaminants that were detected in the water. Although all the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water.

In 2009, the Water Division took part in sampling for the Unregulated Contaminant Monitoring Regulation Two (UCMR2) program. The groundwater from all of our wells were sampled and tested for the following analytes: 245-HBB; BDE-100; BDE-153; BDE-47; BDE-99; dimethoate; Terbufos Sulfone; 1,3-dinitrobenzene; 2,4,6-trinitrotoluene; and RDX. These analytes were sampled in June and again in December with no detects.

The next phase, Unregulated Contaminant Monitoring Regulation Three (UCMR3), is sampling in March and September 2013 with the following analytes being tested:

- Seven Volatile Organic Compounds: 1,2,3-trichloropropane; 1,3-butadiene; chloromethane (methyl chloride); 1,1-dichloroethane; bromomethane (methyl bromide); chlorodifluoromethane (HCFC-22); bromochloromethane (halon 1011)
- One Synthetic Organic Compound: 1,4-dioxane
- Six Metals: vanadium; molybdenum; cobalt; strontium; chromium-3; chromium-6
- One Oxyhalide Anion: chlorate
- Six Perfluorinated Compounds: perfluorooctanesulfonic acid (PFOS); perfluorooctanoic acid (PFOA); perfluorononanoic acid (PFNA); perfluorohexanesulfonic acid (PFHxS); perfluoroheptanoic acid (PFHpA); perfluorobutanesulfonic acid (PFBS)

The state requires us 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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2010	15	0	6.2	2.3–6.2	No	Erosion of natural deposits
Arsenic (ppb)	2010	10	0	2.7	2.2–2.7	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2010	2	2	0.072	0.037–0.072	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2012	[4]	[4]	0.69	0.48–1.42	No	Water additive used to control microbes
Chromium (ppb)	2010	100	100	6.8	3.3–6.8	No	Discharge from steel and pulp mills; Erosion of natural deposits
Dibromochloropropane (ppt)	2010	200	0	15	ND–15	No	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards
Fluoride (ppm)	2010	4	4	0.41	0.29–0.41	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA]–Stage 1 (ppb)	2012	60	NA	0.6	ND–1.2	No	By-product of drinking water disinfection
Nitrate (ppm)	2012	10	10	9.1	0.41–9.1	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes]–Stage 1 (ppb)	2012	80	NA	2.95	1.2–4.7	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2012	5% of monthly samples are positive	0	2.5	NA	No	Naturally present in the environment

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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2010	1.3	1.3	0.17	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2010	15	0	2.1	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

UNREGULATED AND OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Calcium (ppm)	2011	82	33–82	Runoff/leaching from natural deposits
Magnesium (ppm)	2011	17	2.4–17	Runoff/leaching from natural deposits
pH (Units)	2007	7.4	6.5–8.5	Naturally occurring
Sodium (ppm)	2010	105	82–105	Naturally occurring
Sulfate (ppm)	2007	60	NA	Runoff/leaching from natural deposits; Industrial wastes

Definitions

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

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).

ppt (parts per trillion): One part substance per trillion parts water (or nanograms per liter).