



2010 Drinking Water Quality Report

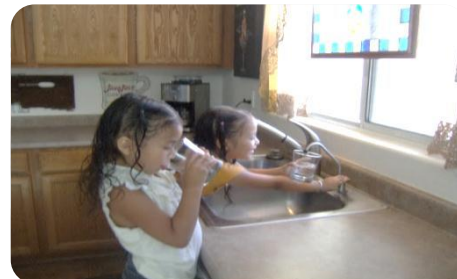
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City of Douglas Department of Public Works

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City of Douglas water sources

The City of Douglas serves approximately 17,758 people. There are presently six deep wells that produce high-quality water for public distribution in the City. Hydrologic studies have indicated that the water resources available to the City are generous, with active recharge from the Mule, Dagoon, and Chiricahua mountain ranges. Water stored in the sand and gravel beds of the Douglas Basin Aquifer is adequate to supply the needs of the City for years to come. The wells are widely separated to minimize the risk of any potential local contamination or naturally occurring quality problems. Each of the wells is individually tested to ensure compliance with all applicable standards and regulations. Not all wells are necessary to provide daily needs, but all are run periodically to keep them in operating condition. Total pumping capacity with all wells running is approximately 4,500 gallons per minute, or 6.5 million gallons per day. Peak usage in the Douglas Community in the summertime is approximately 6 million gallons per day. Each well has its own gas chlorination equipment which doses the water with 1 part per million of chlorine gas to provide total protection from bacteria. The City of Douglas water system continues to work diligently to achieve compliance with all safe drinking water standards and regulations. We continue in our commitment to provide high quality and safe drinking water to all City customers.



Source water assessment

The Arizona Department of Environmental Quality conducted a source water assessment in 2004 for our City water wells. The assessment included the review of adjacent land uses that may pose a potential risk to our water sources. These risks include, but are not limited to, underground storage tanks, gas stations, landfills, dry cleaners, and wastewater treatment plants. Once ADEQ identified the adjacent land uses, they were ranked as to their potential to affect the water source. Due to the extensive regulations and guidelines for water quality testing, drinking water in the United States is among the cleanest and safest in the world. However, the quality varies over time due to changes in the water source from which it is drawn and the treatment it undergoes. Residents can help protect this water source by

practicing good septic system maintenance, taking hazardous household chemicals to hazardous material collection sites, and limiting pesticide and fertilizer use. A complete copy is available for review at ADEQ 1110 W Washington Street, Phoenix, Arizona, 85007 or an electronic copy can be requested from ADEQ at dml@azdeq.gov. For more information visit the ADEQ website at: www.azdeq.gov/enviro/water, or contact the City of Douglas Department of Public Works at 520-417-7329.

General information about drinking water

All drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. Some people may be more vulnerable to contaminants in drinking water than the general population. 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 of infections. These people should seek advice about drinking water from their health care providers. For more information about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and microbiological contaminants, call the EPA Safe Drinking Water Hotline at 1-800-426-4791.

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 that 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 stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

- ✦ **Pesticides and herbicides** that 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 byproducts of industrial processes and petroleum production, and also may come from gas stations, urban stormwater runoff, and septic systems.
- ✦ **Radioactive contaminants**, that can be naturally occurring or be the result of oil and gas production and mining activities.

In order 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. The Food and Drug Administration regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Definitions / Acronyms (for the City's Water System Contaminants Table)

AL - Action Level – the concentration of a contaminant which, if exceeded, triggers treatment or other requirements.

MCL - Maximum Contaminant Level – the “Maximum Allowed” is the highest level of a contaminant that is allowed in drinking water.

MCLG - Maximum Contaminant Level Goal – the “Goal” level of a contaminant in drinking water below which there is no known or expected risk to health.

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.

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.

N/A – Not Applicable – sampling was not completed by regulation or was not required.

ppm - Parts per million or mg/L Milligrams per million – one part per million corresponds to one minute in two years or a single penny in \$10,000.00.

ppb - Parts per billion or ug/L Micrograms per liter – one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

pCi/L - Picocuries per liter – picocuries per liter is a measure of the radioactivity in water.

RAA - Running Annual Average – an average of monitoring results for the previous 12 calendar months.

TT - Treatment Technique – a treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

City of Douglas Water System Detected Contaminants

Contaminant	MCL	MCLG	Units	Range	Source	Total Trihalomethanes (TTHMs) are formed when chlorine combines with naturally occurring organic material in water. Since the level of organic matter in our groundwater is extremely low, these compounds are found at very low concentrations. <u>Haloacetic Acids (HAA5)</u> are a group of chemicals that are formed along with other disinfection byproducts when chlorine or other disinfectants used to control microbial contaminants in drinking water react with naturally occurring organic and inorganic matter in water.
Haloacetic acids(HAA5)	60	n/a	ppb	<0.002 – 0.0038	By-product of drinking water disinfection.	
Total Trihalomethanes (TTHM)	80	n/a	ppb	<0.005 - 0.0251		
Stage 1 Disinfection Byproducts - seven sets of samples were collected in July. This is part of our Stage 1 Reduce monitoring plan. Our RAA was below the MCL.						

Stage 2 Disinfection Byproducts	Minimum Level Detected	Highest Level Detected	Source	In addition six sets of samples were collected per quarter in preparation for Stage 2 monitoring compliance which will take effect in 2013. This table summarizes the individual sample results for Stage 2 monitoring.
Haloacetic acids(HAA5)	2	2	By-product of drinking water disinfection.	
Total Trihalomethanes (TTHM)	0.5	5.7		

Contaminant	Highest Level Detected	AL	ALG	Sample Month/Year	Source	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer kidney or liver damage. Infants and young children are more vulnerable to <u>lead</u> in drinking water than the general population. It is possible that lead levels at your home may be higher than others in your community as a result of materials used in your plumbing. If you are concerned about elevated lead levels, you may wish to have your water tested. Flush your tap for 30 seconds to 2 minutes before using tap water.
Copper	90 th Percentile= 0.07	1.3	1.3	6/2010	Household plumbing systems corrosion.	
Lead	90 th Percentile= <0.001	15	15	6/2010		

Inorganic Chemicals (IOCs)					
Contaminant	MCL	MCLG	Units	Range Detected	Source
**Arsenic (Well No. 7)	RAA 10	0	ppb	0.016-0.030 19	Erosion of natural deposits
**Arsenic (Well No. 14)	RAA 10	0	ppb	0.015-0.028 28	

In January 2006, to protect consumers served by public water systems from the health risks of long-term (chronic) arsenic exposure, the EPA lowered the arsenic MCL from 50 ppb to 10 ppb. The EPA balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. They continue 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.

**Arsenic was detected at Well No. 7 with an Entry Point Distribution System (EPDS) 003=19 MCL and at Well No. 14 with an EPDS 010=28 MCL during 2010. No other inorganic contaminants were detected which exceeded the MCL during 2010. Public Notices have been published periodically in the Douglas Dispatch, the City of Douglas website (www.douglasaz.org) and is on file at the Public Works Department. While these wells do not meet the standard for arsenic, it did not represent an immediate health risk and there was no need to use an alternative water supply (bottled water).

An Arsenic Evaluation and Treatment Report was done in an effort to assist the City in developing strategies that would enable the City to achieve full compliance with the new standards. As a result, the City drilled Well No. 16 which became fully operational in 2010. Well No. 7 and Well No. 14 have been shut down. In an effort to continue to deliver water of the highest quality the City drilled a new well, Well No. 17, in January, 2011. We expect Well No. 17 to be fully operational in the summer of 2012.

Contaminant	MCL	MCLG	Units	Range Detected	Source
Barium	2	2	ppm	0.003 – 0.13	Naturally occurring mineral.
Chromium	100	6	ppb	0.005 – 0.009	Erosion of natural deposits.
Flouride	4.0	N/A	ppm	0.035 – 2.80	
Selenium	50	50	ppm	0.002 – 0.003	
Sodium	NA		ppm	66 - 371	

Some people who drink water containing barium well in excess of the maximum contaminant level (MCL) for many years could experience an increase in their blood pressure.

Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.

Some people who use water containing fluoride well in excess of the MCL for many years could get bone disease (including pain and tenderness of the bone(s); children may get mottled teeth).

Some people who drink water containing selenium well in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with circulation.

High doses of sodium have been linked to high blood pressure which is associated with an increased risk of heart disease, stroke, and congestive heart failure. Effects from overdoses include nausea, vomiting, stomach ulcers and inflammation, dehydration of organs, convulsions, confusion, and coma.

Substances detected at point where water enters the distribution system.					
Contaminant	MCL	MCLG	Units	Range	Source
Nitrate	10	10	PPM	.74 – 1.50	Leaching from septic tanks, sewage, and erosion from natural deposits.

Nitrate in drinking water at levels above 10 ppm is a potential health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. 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 for advice from your health care provider.

Detected radioactive substances at point where water enters the distribution system.					
Contaminant	MCL	MCLG	Units	Range	Source
Adjusted Gross Alpha	15	0	pCi/l	3.5 – 5.6	Erosion of natural deposits.

Adjusted Gross Alpha is a measure of radioactivity due to naturally occurring minerals in groundwater. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

Microbiological(s)			
Contaminant	No. of Positive Samples Collected in 12 Months	No. of Samples Collected in 12 Months	Source
Total Coliform Bacteria	1	244	Naturally present in the environment.

Coliform Bacteria are commonly found in the environment and in the digestive tract of animals. While rarely harmful, coliform bacteria in drinking water are indicators that the water may also contain harmful microorganisms. Microbes in these wastes can cause shorter effects, such as diarrhea, cramps, nausea, headaches, and other symptoms. People with severely compromised immune systems, infants, and some elderly may be at increased risk. Water does not need to be boiled and an alternate water supply (e.g., bottled water) is not needed.

One positive sample was collected this year. As a result, 4 re-samples were collected, 1 at the original location, 1 upstream, 1 downstream and 1 at another location nearby. Also, due to the New Ground Water Rule (GWR) which became effective December 1, 2009, a sample was collected at each EDPS and processed for one of three fecal indicators: E coli, enterococci, or coliphage. All sample results were negative.

Maximum Residual Disinfection Level (MRDL)			
Contaminant	MCL	Annual Average	Source
Chlorine	MRDL = 4.0	0.4 ppm	Disinfection additive used to control microbes.

Chlorine Residual Disinfection is maintained throughout the distribution system. Chlorine is added to the drinking water supply at well sites, reservoirs and other facilities to prevent microbiological contamination and meet drinking water standards.



Simple Steps to Save Water

Saving water around the home is simple and smart. The average household spends as much as \$500 per year on its water and sewer bill but could save about \$170 per year by retrofitting with water efficient fixtures and incorporating water saving practices.

Let WaterSense show you how to save water—and your wallet. How much money you save will depend on the cost of water where you live, but it makes sense that using less water lowers your utility bill. More importantly, using less water preserves this limited resource for generations to come.

Inside the Home

Get Flush With Savings

- Consider installing a WaterSense labeled toilet, which uses 20 percent less water while offering equal or superior performance. Compared to older, inefficient models, WaterSense labeled toilets could save a family of four more than \$90 annually on its water utility bill, and \$2,000 over the lifetime of the toilets.
- Check for toilet leaks by adding food coloring to the tank. If the toilet is leaking, color will appear in the bowl within 15 minutes. (Make sure to flush as soon as the test is done, since food coloring can stain the tank.)

Accessorize Your Faucet

- Installing a WaterSense labeled aerator is one of the most cost-effective ways to save water. Also consider replacing the entire faucet with a WaterSense labeled model. Either way, you can increase the faucet's efficiency by 30 percent without sacrificing performance.
- Repair dripping faucets and showerheads. A drip rate of one drip per second can waste more than 3,000 gallons per year.

Clean Up With Savings

- A full bathtub can require up to 70 gallons of water, while taking a 5-minute shower uses only 10 to 25 gallons.
- Turning off the tap while you brush your teeth can save 8 gallons per day.

Lighten Your Loads

- Wash only full loads of dishes and clothes or lower the water settings for smaller loads.
- Replace your old washing machine with a high-efficiency, ENERGY STAR® labeled model, which uses up to 50 percent less water and electricity.

Outside the Home

Water When Needed

- Water your lawn or garden during the cool morning hours, as opposed to midday, to reduce evaporation.
- Look for sprinklers that produce droplets, not mist, or use soaker hoses or trickle irrigation for trees and shrubs.
- Set sprinklers to water lawns and gardens only. Check that you're not watering the street or sidewalk.
- Try not to overwater your landscaping. Learn plants' water needs and water different types appropriately.

Grow Green Grass

- Don't over-fertilize. You will increase the lawn's need for water.
- Raise your lawn mower blade to at least 3 inches. Taller grass promotes deeper roots, shades the root system, and holds soil moisture better than a closely cropped lawn.

Garden With Care

- Plant climate-appropriate species. Try plants that are native to where you live, which don't require as much water, and group plants together by water requirements.
- Use mulch around trees and plants to help reduce evaporation and control water-stealing weeds.

Helpline: (866) WTR-SENS (987-7367) Contact Us at Office of Water WaterSense, U.S. Environmental Protection Agency, Office of Wastewater Management (4204M), 1200 Pennsylvania Avenue, N.W. Washington, D.C. 20460

(WaterSense is a U.S. Environmental Protection Agency program designed to encourage water efficiency in the United States through the use of a special label on consumer products. It was launched in June, 2006.)

City of Douglas		Important Telephone Numbers:	
Water & Sewer Utilities	520-417-7334	Arizona Department of Environmental Quality (ADEQ)	602-771-4641
Utility Billing	520-417-7331	U.S. Environmental Protection Agency (EPA)	520-740-8261
24-hour Emergency Services	520-417-7550	Safe Drinking Water Hotline	1-800-426-4791
Public Works Department	520-417-7329		

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