



# 2009 Drinking Water Quality Report

Carlos A. De La Torre, P.E.  
Public Works Director/City Engineer

City of Douglas Department of Public Works

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## City of Douglas water sources

The City of Douglas serves approximately 18,207 people. There are presently seven 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, Dragoon, 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.

## 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.

### City of Douglas

Water & Sewer Utilities 520-417-7334  
Utility Billing 520-417-7331  
24-hour Emergency Services 520-417-7550  
Public Works Department 520-417-7329

### Important Telephone Numbers:

Arizona Department of Environmental Quality (ADEQ)  
U.S. Environmental Protection Agency (EPA) 520-740-8261  
Safe Drinking Water Hotline 1-800-426-4791

*Este folleto contiene información muy importante sobre el agua usted consume. Tradúscalo ó hable con alguien que lo entienda bien.*

## City of Douglas Water System Detected Contaminants

Contaminant	MCL	MCLG	Units	Range	Source
Haloacetic acids(HAA5)	60	n/a	ppb	<0.002	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM)	80	n/a	ppb	0.9	

Stage 1 Disinfection Byproducts - seven sets of samples are collected quarterly. This is part of our Stage 1 monitoring plan. Our RAA was below the MCL.

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. Haloacetic Acids (HAA5) 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.

Stage 2 Disinfection Byproducts	Minimum Level Detected	Highest Level Detected	Source
Haloacetic acids(HAA5)	2	2	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM)	0.5	5.7	

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.

Contaminant	Highest Level Detected	AL	ALG	Sample Month/Year	Source
Copper	90 <sup>th</sup> Percentile= 0.063	1.3	1.3	7/2007	Household plumbing systems corrosion.
Lead	90 <sup>th</sup> Percentile= <0.002	15	15	7/2007	

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 lead 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.

Inorganic Chemicals (IOCs)						*Arsenic was detected at Well No. 7 with an Entry Point Distribution System (EPDS) 003=15 MCL and at Well No. 14 with an EPDS 010=28 MCL during 2009. These wells require arsenic treatment. Public Notices have been published periodically in the Douglas Dispatch, the City of Douglas website ( <a href="http://www.douglasaz.org">www.douglasaz.org</a> ) and is on file at the Public Works Department.
Contaminant	MCL	MCLG	Units	Range Detected	Source	
*Arsenic (Well No. 7)	10	0	ppb	15	Erosion of natural deposits.	While the water delivered by the City of Douglas does not meet the standard for arsenic, it does not represent an immediate health risk and there is no need to use an alternative water supply (bottled water). An Arsenic Evaluation and Treatment Report has been completed 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, we have drilled a new well, Well No. 16, which will be operational by August 2010, and will replace Well No. 7. We are in the planning stage of drilling Well No. 17. No other inorganic contaminants were detected which exceeded the MCL during 2009.
*Arsenic (Well No. 14)	10	0	ppb	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.
Contaminant	MCL	MCLG	Units	Range Detected	Sample Month/Year	Source
Barium	2	2	ppm	.085	3/2007	Naturally occurring mineral.
Chromium	100	6	ppb	8.0	3/2007	Erosion of natural deposits.
Flouride	4.0	N/A	ppm	.073	3/2007	

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 maximum contaminant level (MCL) over many years could experience allergic dermatitis.

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

Substances detected at point where water enters the distribution system.							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.
Contaminant	MCL	MCLG	Units	Minimum Level Detected	Highest Level Detected	Source	
Nitrate	10	10	PPM	.71	1.34	Leaching from septic tanks, sewage, erosion from natural deposits.	

Detected radioactive substances at point where water enters the distribution system.							Adjusted Gross Alpha is a measure of radioactivity due to naturally occurring minerals in groundwater. This excluded the radioactivity contributed by either radon or uranium. Some people who drink water containing <u>radium</u> 226 or 228 in excess of the MCL over many years have an increased risk of getting cancer. Exposure to <u>uranium</u> in drinking water may result in toxic effects to the kidneys. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Contaminant	MCL	MCLG	Units	Minimum Level Detected	Highest Level Detected	Source	
Adjusted Gross Alpha	15	0	pCi/l	1.4	2.0	Erosion of natural deposits.	
Combined Radium	5	0	pCi/l	.5	.5		
Combined Uranium	30	0	pCi/l	1.7	3.6		


Microbiological(s)				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.
Contaminant	No. of Positive Samples Collected in 12 Months	No. of Samples Collected in 12 Months	Source	
Total Coliform Bacteria	0	240	Naturally present in the environment.	

Maximum Residual Disinfection Level (MRDL)				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.
Contaminant	MCL	Annual Average	Source	
Chlorine	MRDL = 4.0	0.3 ppm	Disinfection additive used to control microbes.	

**Requirements Not Met:** Sodium quarterly samples are due every three years and were not collected in 2009. The City performed this sampling on June 2, 2010, for Quarter 2, 2010. ADEQ requires periodic sampling and laboratory analysis of drinking water. If the samples are not taken, the system is automatically in violation. The maximum contaminant levels are set by the EPA to assure that there is no health risk to public health. Laboratories are highly regulated to ensure accurate, precise and reliable results.

In 2009, the Unregulated Contaminant Monitoring Regulation (UCMR 2) supporting the second samples were collected (EPA requirement). Our results were under the MCL reporting requirements. We have met compliance.

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 a high quality and safe drinking water to all City customers.

Definitions	
	<p><u>AL - Action Level</u> – the concentration of a contaminant which, if exceeded, triggers treatment or other requirements.</p> <p><u>MCL - Maximum Contaminant Level</u> – the “Maximum Allowed” is the highest level of a contaminant that is allowed in drinking water.</p> <p><u>MCLG - Maximum Contaminant Level Goal</u> – the “Goal” level of a contaminant in drinking water below which there is no known or expected risk to health.</p> <p><u>MRDLG - Maximum Residual Disinfectant Level Goal</u> – 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.</p> <p><u>MRDL - Maximum Residual Disinfectant Level</u> – 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.</p>
<p><u>N/A – Not Applicable</u> – sampling was not completed by regulation or was not required.</p> <p><u>ppm - Parts per million or mg/L Milligrams per million</u> – one part per million corresponds to one minute in two years or a single penny in \$10,000.00.</p> <p><u>ppb - Parts per billion or µg/L Micrograms per liter</u> – one part per billion corresponds to one minutes in 2,000 years, or a single penny in \$10,000,000.</p> <p><u>pCi/L - Picocuries per liter</u> – picocuries per liter is a measure of the radioactivity in water.</p> <p><u>RAA - Running Annual Average</u> – an average of monitoring results for the previous 12 calendar months.</p> <p><u>TT - Treatment Technique</u> – a treatment technique is a required process intended to reduce the level of a contaminant in drinking water.</p>	