



# 2006 CITY OF TEMPE WATER QUALITY REPORT

**We are proud to report that the water provided by the City of Tempe meets or exceeds established water quality standards.**

*The City of Tempe is pleased to provide our customers with Tempe's annual Consumer Confidence Report for calendar year 2006. This report explains how drinking water provided by the City of Tempe is of the highest quality. Included is a list of results from required water quality tests as well as an explanation of where our water comes from and tips on how to interpret the data.*

*El informe contiene información importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguien que lo entienda bien. Pongase en contacto con el Departamento de Comunicaciones de la Ciudad de Tempe al 480-350-2690.*

## **Overview**

In 2006, the City of Tempe Water Utilities Department distributed 16.4 billion gallons of water to Tempe and Guadalupe customers. In addition to testing that we are required to perform, the results of which are provided in this report, we voluntarily test our water system for hundreds of additional substances and microscopic organisms to make certain our water is safe and of the highest quality. For more information, please contact Tempe's Environmental Services Division at 480-350-2678.

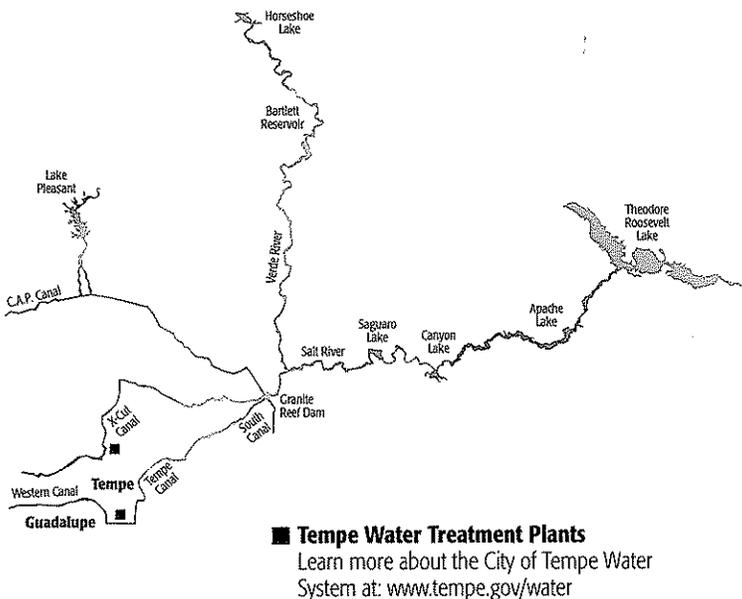
## **Water Sources**

The drinking water in Tempe is produced at two water treatment plants. The Johnny G. Martinez Water Treatment Plant is located at 255 E. Marigold Lane and the South Tempe Water Treatment Plant is located at 6600 S. Price Road. The City of Tempe provides water to its customers from several sources:

**Central Arizona Project water** -- Beginning its journey from Lake Havasu, the CAP system delivers Colorado River water to central Arizona, including the Phoenix and Tucson areas. Tempe used 4,318 acre feet, or approximately 1.4 billion gallons, of Colorado River water delivered by the CAP for municipal use in 2006.

**Salt River Project (SRP) water** -- This water is collected from the Salt and Verde River watersheds, stored in six SRP reservoirs and diverted into SRP canals at the Granite Reef Dam, in Mesa. SRP also relies on groundwater wells to supplement surface water in their canal system. Tempe's allocation of SRP water depends on the amount of runoff from the watershed and the amount of water available in storage in SRP reservoirs, and therefore varies from year to year. Tempe's SRP water use for 2006 was 40,341 acre feet, or approximately 13.1 billion gallons.

**Groundwater** -- Tempe has seven (7) groundwater wells that it uses when needed to supplement its supply of Central Arizona Project water and Salt River Project water. In 2006 Tempe pumped 8,358 acre feet, or approximately 2.7 billion gallons, of groundwater and surface water previously stored in our groundwater aquifers (aquifer storage credits) from these wells.



## Contaminants in Drinking Water

In order to ensure that tap water is safe to drink, the United States Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The 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 contaminants does not necessarily indicate that water poses a health risk. 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 (800-426-4791). Information on bottled water can be obtained from the Food and Drug Administration.

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 the following:

- (A) Microbial contaminants, such as viruses and bacteria that may be from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife.
- (B) Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- (C) Pesticides and herbicides that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- (D) Organic chemical contaminants, including synthetic and volatile organics that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff and septic systems.
- (E) Radioactive contaminants that can be naturally-occurring or can be the result of oil and gas production and mining activities.

## Tempe Drinking Water Quality

The following table shows regulated substances that were required to be tested and were detected in Tempe drinking water in 2006. The table contains the name of each substance, the highest level allowed by regulation, the ideal goals for public health, the amount detected, and the usual sources of such contamination. Certain contaminants are required to be monitored less than one time per year because concentrations of these contaminants are not expected to vary significantly from year to year. For those contaminants that were not required to be tested in 2006, this report includes data from the most recent required testing done within the last five years.

Definitions and Acronyms:

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

**Colony Forming Units (CFU):** A measure of microbial quantity.

**Maximum Contaminant Level (MCL):** 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.

**Maximum Contaminant Level Goal (MCLG):** 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.

**Maximum Residual Disinfectant Level (MRDL):** 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.

**Maximum Residual Disinfectant Level Goal (MRDLG):** 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.

**Non-Detect (ND) :** Not detected in sample.

**Parts per billion (ppb)** or micrograms per liter (ug/l).

**Parts per million (ppm)** or milligrams per liter (mg/l).

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

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

### Additional Health Information

**Arsenic** - While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. 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.

**Lead** - Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and to flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

**Nitrate** - Nitrate in drinking water at levels above 10 ppm is a health risk for infants 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 for advice from your health care provider.

Substance	Unit	MCL	MCLG	Range	Major Sources
Arsenic	ppb	10	0	3.5 – 3.7	Erosion of natural deposits.
Barium	ppm	2	2	0.068 – 0.075	
Chlorine	ppm	4.0 MRDL	4 MRDLG	0.56 – 1.38	Disinfectant added to control microbial contaminants.
Dalapon	ppm	0.2	0.2	<0.001-0.001	Runoff from herbicide use.
Fluoride	ppm	4	4	0.15 – 0.98	Erosion of natural deposits; Water additive which promotes strong teeth.
Gross Alpha (Data from CY 2005)	pCi/L	15	0	0.1 – 6.0	Erosion of natural deposits.
Gross Beta (Data from CY 2005)	pCi/L	50*	0	ND – 7.7	Decay of natural and man-made deposits.
Nitrate	ppm	10	10	<0.50 - 5.9	Runoff from fertilizer use.
Radium 226/228 (Data from CY 2005)	pCi/L	5	0	<0.3 – 1.2	Erosion of natural deposits.
Total Organic Carbon	ppm	TT	-	1.9 – 4.5	Naturally present in the environment.
Uranium (Data from CY 2005)	ppb	30	0	0.3 – 10.1	Erosion of natural deposits.

\*EPA considers 50pCi/L the level of concern for beta particles.

Substance	Unit	Action Level	90th Percentile Result	# of results above action level	Major sources
Copper (Data from CY 2003) (90th percentile)	ppm	1.3	0.460	1	Corrosion of household plumbing systems.
Lead (Data from CY 2003) (90th percentile)	ppb	15	15	4	Corrosion of household plumbing systems.

50 Households tested for lead and copper.

Substance	Unit	MCL	High	Lowest monthly % meeting limit	Major sources
Turbidity	NTU (Nephelometric Turbidity Units)	TT = 1; and not less than 95% <0.3 NTU	0.19	100	Soil runoff into canals.

Turbidity is a measure of the cloudiness of the water. Turbidity is monitored because it is a good indicator of water quality. High turbidity can reduce the effectiveness of disinfectants.

Substance	Unit	MCL	High	Major sources
Total Coliform Bacteria	Monthly % of positive samples	5	3.8%	Naturally present in the environment.
Fecal Coliform	CFU	ND	ND	Naturally present in the environment.

Substance	Unit	MCL	Average	Range	Major sources
Total Trihalomethanes (THM)	ppb	Annual average of 80	72.3	1.2 -115.2	By-products of drinking water chlorination.
Total Haloacetic acids (HAA)	ppb	Annual average of 60	29.8	0 - 61.4	

## Unregulated Contaminants

**Radon** - The U.S. Environmental Protection Agency (EPA) is preparing a regulation which will specify a Maximum Contaminant Level for Radon. Radon is a radioactive gas that occurs naturally in ground water and is released from water into the air during household use. For additional information, call Arizona Radiation Regulatory Agency (ARRA) at 602-255-2845 extension 244 or contact EPA's Radon Hotline 800-767-7236.

**Cryptosporidium** - Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Based on source water monitoring for Cryptosporidium at Tempe's two water treatment plants between October 2003 and October 2006, Tempe's source water has been determined to be low risk under EPA's regulations for cryptosporidium.

## Special Information for Immuno-compromised People

Some people may be more vulnerable to contaminants in drinking water than is the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, persons with HIV, AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Center for Disease Control (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 (800-426-4791).

## Public Notification for Failure to Monitor

The City of Tempe is required to monitor Tempe drinking water for specific contaminants on a regular basis. The City is required to analyze for total organic carbon (TOC) in source water and treated water monthly, and for nitrate once every 3 months, at Tempe's surface water treatment plants. Results of regular monitoring for nitrate are an indicator of whether or not our drinking water meets the health standard of 10 mg/L. TOC is one indicator of the potential for formation of disinfection by-products after water leaves the City's drinking water plants. TOC does not pose a health risk by itself. The Johnny G. Martinez Water Treatment Plant was used to treat and deliver drinking water for the City of Tempe between January 1 and January 9, 2007. Tempe failed to collect and analyze samples for TOC and nitrate during this 9 day period. Therefore, we cannot be sure of what levels of TOC and nitrate were present in our drinking water during that time.

The City is required to provide our customers with notification that we did not monitor for TOC and nitrate as described above. There is nothing you need to do at this time. Although the absence of TOC and nitrate monitoring creates some level of uncertainty with regard to their concentrations in our drinking water during this time, the City has never detected TOC or nitrate in its drinking water above safe drinking water standards in previous monitoring periods. Please see the health information on nitrate above. For more information, please contact the City of Tempe Environmental Services Division at (480) 350-2678, or P.O. Box 5002, Tempe, Arizona, 85280.

## Source Water Assessment Summary

Based on the information currently available on the hydrogeologic settings and the adjacent land uses that are in the specified proximity of the drinking water source(s) of this public water system, the Arizona Department of Environmental Quality has given a high risk designation for the degree to which this public water system drinking water source(s) are protected. A designation of high risk indicates there may be additional source water protection measures which can be implemented on the local level. This does not imply that the source water is contaminated nor does it mean that contamination is imminent. Rather, it simply states that land use activities or hydrogeologic conditions exist that make the source water susceptible to possible future contamination. For more information, please contact the Arizona Department of Environmental Quality at (602) 771-4641.

*If other people, such as tenants, residents, patients, students, or employees, receive water from you, it is important that you provide this notice to them by posting it in a conspicuous location or by direct hand or mail delivery.*

Consult our Web site at [www.tempe.gov/waterquality/ccr.htm](http://www.tempe.gov/waterquality/ccr.htm) and, for further information, see U.S. Environmental Protection Agency (EPA) water information at [www.epa.gov/safewater](http://www.epa.gov/safewater). For answers to questions about your water, call Tempe's Environmental Services Division at (480)350-2678.

Substance of Interest	Unit	Average Value	Range of Values
Alkalinity	ppm	179	120 - 320
Aluminum	ppm	0.1806	ND - 0.76
Bromide	ppm	0.098	ND - 0.25
Boron	ppm	0.17	ND - 0.28
Calcium	ppm	73	52 - 100
Chloride	ppm	237	150-330
Hardness	ppm	306	200 - 430
Hardness	grains /gallon	17.8	11.6 - 25
Iron	ppm	0.03	ND - 0.19
Manganese	ppb	<20	ND
Magnesium	ppm	30	16 - 42
Nickel	ppb	<10	ND
Potassium	ppm	6.2	5.4 - 8.4
pH	pH units	7.9	7.5 - 8.4
Radon (data from CY 2005)	pCi/L	242	ND-640
Silica	ppm	19.1	6.7 - 31
Sodium	ppm	162.5	110-220
Sulfate	ppm	85	62-120
Total Dissolved Solids	ppm	551	380 - 660
Zinc	ppb	<20	0 - 38



[www.tapintoquality.com](http://www.tapintoquality.com)