



2010 City of Tempe Water Quality Report



The water provided by the City of Tempe meets or surpasses all Federal and State water quality standards.

The City of Tempe is pleased to provide our customers with Tempe's annual "Consumer Confidence Report" for calendar year 2010. This report explains the quality of drinking water provided by the City of Tempe. Included is a listing 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.

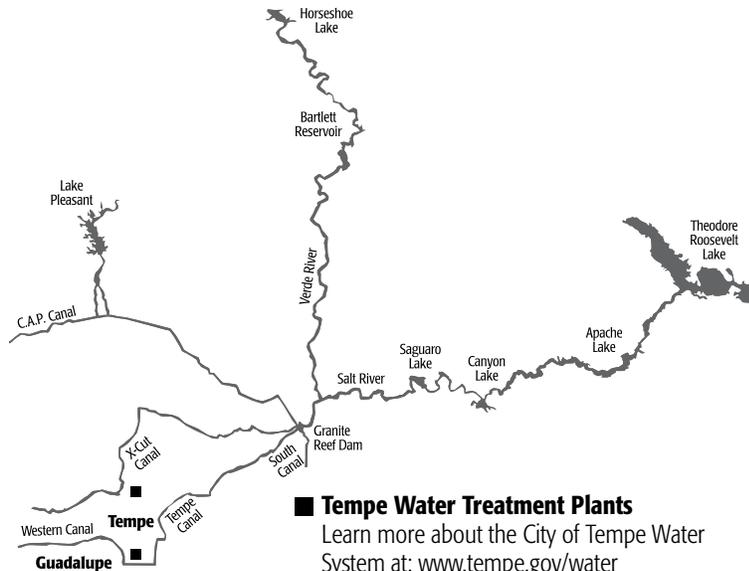
Overview

In 2010, the City of Tempe Water Utilities Division of the Public Works 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, our water system routinely monitors for 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

In 2010, the drinking water in Tempe was produced at two water treatment plants and nine (9) ground water wells. 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 (CAP) water -- Beginning its journey from Lake Havasu, Colorado River water is delivered through the CAP system to central Arizona, including the Phoenix and Tucson areas. Tempe used 2,693 acre-feet, or approximately 0.9 billion gallons, of Colorado River water delivered by CAP for municipal use in 2010.



■ Tempe Water Treatment Plants

Learn more about the City of Tempe Water System at: www.tempe.gov/water

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 the 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 2010 was 42,166 acre-feet, or approximately 13.7 billion gallons.**

Groundwater -- In 2010, Tempe used nine (9) of its groundwater wells to supplement the supplies of Central Arizona Project water and Salt River Project water. Tempe pumped from its wells 5,555 acre-feet, or approximately 1.8 billion gallons, of water which was a combination of groundwater and surface water previously stored underground in our aquifers.

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 tables show regulated substances that were required to be tested and were detected in Tempe drinking water in 2010. The tables contain 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 2010, 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.

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.

Not Applicable (N/A): does not apply.

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.

Running Annual Average (RAA): the average of analytical results for samples taken during the previous four calendar quarters.

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

Variations and Exemptions: State or EPA permission to not meet an MCL or a treatment technique under certain conditions.

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 - 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 City of Tempe is 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 (800-426-4791) or at <http://www.epa.gov/safewater/lead>.

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 healthcare provider.

Total Trihalomethanes (TTHM) - Some people who drink water containing TTHMs in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

Special Information for Immuno-compromised People

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, persons with HIV, AIDS or other immune system disorders, some elderly, and infants can be particularly at risk for infection. These people should seek advice about drinking water from their healthcare 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 through the EPA Safe Drinking Water Hotline (800-426-4791).

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 groundwater and is released from water into the air during household use. For additional information, call Arizona Radiation Regulatory Agency (ARRA) at (602) 255-4845 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-

Substance	Unit	MCL	MCLG	Level Detected / Range	Violation (Yes or No)	Major Sources
Arsenic	ppb	10	0	1.3 – 9.4*	No	Erosion of natural deposits.
Barium	ppm	2	2	0.052 - 0.088*	No	
Chlorine	ppm	4 MRDL	4 MRDLG	0.03 - 1.9	No	Disinfectant added to control microbial contaminants.
Chromium (Total)	ppb	100	100	ND - 12*	No	Erosion of natural deposits.
Fluoride	ppm	4	4	ND - 0.45	No	Erosion of natural deposits; water additive which promotes strong teeth.
Gross Alpha	pCi/L	15	0	7.9	No	Erosion of natural deposits.
Nitrate	ppm	10	10	ND - 6.5	No	Runoff from fertilizer use.
Selenium	ppb	50	50	ND - 1.5*	No	Naturally present in the environment.
Tetrachloroethylene	ppb	5	0	ND - 0.55	No	Discharge from factories and dry cleaners.
Trichloroethylene	ppb	5	0	ND - 1.2	No	Discharge from degreasing sites and other factories.
Total Organic Carbon	ppm	TT	N/A	1.6 - 4.1	No	Naturally present in the environment.
Uranium	ppb	30	0	3.9	No	Erosion of natural deposits.

* Range includes calculated running annual averages.

Substance	Unit	Action Level	90th Percentile Result	# of results above action level	Violation (Yes or No)	Major sources
Copper (2009)	ppm	1.3	0.17	0	No	Corrosion of household plumbing systems.
Lead (2009)	ppb	15	4.5	1	No	Corrosion of household plumbing systems.

50 Households tested for lead and copper.

Substance	Unit	MCL	High	Lowest monthly % meeting limit	Violation (Yes or No)	Major Sources
Turbidity	NTU (Nephelometric Turbidity Units)	TT = 1; and not less than 95% ≤ 0.3 NTU	0.25	100%	No	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	MCLG	Result	Violation (Yes or No)	Major Sources
Total Coliform Bacteria	Absent or Present	No more than 5% of monthly samples can be positive	0	3.9% highest monthly % present	No	Naturally present in the environment.
Fecal Coliform and E. coli	Absent or Present	0	0	present in 1 sample*	No	Human and animal fecal waste.

* Resampling did not confirm the presence of E. coli.

Substance	Unit	MCL	Highest Running Annual Average	Range (single sample)	Violation (Yes or No)	Major Sources
Total Trihalomethanes (TTHM)	ppb	Running Annual Average of 80	62	1.7 - 110	No	By-products of drinking water chlorination.
Total Haloacetic acids (HAA)	ppb	Running Annual Average of 60	24	9.0 - 41	No	

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.

Source Water Assessment Summary

Based on the information currently available on the hydrogeologic settings and the adjacent land uses 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.

Public Notification of Failure to Monitor at the Required Frequency

The City of Tempe is required to monitor Tempe drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. Tempe is required to monitor for Total Coliform in the distribution system 120 times per month. During the month of May 2010, Tempe collected only 114 samples for Total Coliform. While the absence of monitoring creates some level of uncertainty about Total Coliform, the missing 6 samples would not have impacted compliance with the public health MCL considering all 114 samples collected in May were Total Coliform negative. Tempe reinforced measures to ensure that the required number of samples are collected every month. The City has since been conducting monitoring for contaminants at the required frequency. For more information, please contact the City of Tempe Environmental Services Division at (480) 350-2678 or P.O. Box 5002, Tempe, Arizona, 85280.

Hexavalent Chromium

In recent months, the compound Hexavalent Chromium, Chromium 6 or Cr-VI has gained much attention.

Chromium is a metallic element that is found naturally in the environment in rocks, soil, plants, and animals. Chromium is also used in steel making, metal plating, leather tanning, paints, dyes and wood preservatives. The most common forms of chromium in the environment are the metal form chromium: trivalent (chromium-III) which is an essential nutrient for the body; and hexavalent (chromium-VI) which is generally produced by industrial processes. Hexavalent Chromium is known to cause lung cancer in humans when inhaled, but the effects to humans from ingesting Hexavalent Chromium are uncertain.

The EPA is in the process of conducting an evaluation to identify and address any potential health threats from long-term exposure for Hexavalent Chromium in drinking water. The evaluation, expected to be completed in late 2011, seeks to determine whether Hexavalent Chromium presents health concerns at the level it is detected. The EPA will use the information from the evaluation to determine if additional regulations or a change to the current regulations are necessary. Currently, the EPA has a maximum contaminant level (MCL) for Total Chromium of 100 parts per billion (ppb), which includes all forms of chromium, but does not have a separate MCL for Hexavalent Chromium. Tempe has never exceeded the maximum contaminant level (MCL) for Total Chromium at any of its sources.

Although there is no separate regulation for Hexavalent Chromium, Tempe has been conducting quarterly informational monitoring of all its sources since 2008. During that time, all but one sample has had results less than 10 ppb.

In January 2011, the EPA released optional monitoring protocol for public water systems to gather occurrence information for Hexavalent Chromium. Following EPA's protocol, Tempe conducted monitoring in February 2011 using more sensitive methodology to be able to detect down to 0.05 ppb at all of its drinking water sources and in its distribution system. The results ranged from non-detect (<0.05ppb) to 7.2 ppb. Since February, 2011, Tempe has taken steps to be able to analyze Hexavalent Chromium at the lower detection levels in its own state-certified water quality laboratory. Tempe will continue its proactive monitoring protocol and keep abreast with emerging public health information for Hexavalent Chromium.

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.

Citizens are invited to address the Tempe City Council about water quality issues during regularly scheduled Council meetings. The Council meetings are usually every other Thursday at 7:30 p.m. The schedule and agendas may be found online at <http://www.tempe.gov/clerk/> or by calling 480-350-8007. For more information, visit Tempe's web site at www.tempe.gov/waterquality/ccr.htm or visit www.tapintoquality.com. See information provided by the U.S. Environmental Protection Agency (EPA) at <http://water.epa.gov/drink/>. For answers to questions about your water, call Tempe's Environmental Services Division at (480) 350-2678.

Substances of Frequent Interest	Unit	Average Value	Range of Values
Alkalinity	ppm	136	120 - 380
Aluminum	ppm	0.1	ND - 0.12
Bromide	ppm	<0.05	ND - 0.24
Boron	ppm	0.1	0.06 - 0.58
Calcium	ppm	40.8	37 - 95
Chloride	ppm	144	100 - 330
Hardness	ppm	168	150 - 400
Hardness	grains /gallon	9.8	8.8 - 23.4
Iron	ppm	<0.05	ND - 1.3
Magnesium	ppm	16.2	14 - 39
Manganese	ppm	<0.001	ND - .041
Nickel	ppb	<5.0	ND
pH	pH units	7.7	7.4 - 8.0
Potassium	ppm	5.2	4.8 - 8.9
Radon (2008)	pCi/L	346	ND - 688
Silica	ppm	10.1	9.2 - 32
Silver	ppm	<0.002	ND
Sodium	ppm	97	69 - 290
Sulfate	ppm	55	41 - 130
Total Dissolved Solids	ppm	474	330 - 1000
Zinc	ppm	<0.02	ND



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