

# 2006 Annual Water Quality Report

## For Customers of the City of Phoenix-Anthem Water System

A Publication of the City of Phoenix

May 2007

### Drinking water safe throughout 2006

#### About your water system

Throughout 2006, tap water delivered to city of Phoenix customers west of Interstate 17 (I-17) and north of Daisy Mountain Drive, met or surpassed all federal and state drinking water standards. The city of Phoenix supplies you with water purchased from the Arizona American Water Company's Anthem Water Treatment Plant east of I-17. The Arizona American Water Company is required to provide high quality water that meets the federal and state drinking water standards. Once the water reaches the Phoenix- Anthem Water System, the City of Phoenix Water Services Department maintains and assures the high quality water by monitoring the distribution system and informing customers of any water quality issues. Phoenix is also responsible for providing this annual water quality report, which provides information about the water delivered to you.

#### *Where does my water come from?*

Your water comes from several sources. Most of your water comes from Central Arizona Project (CAP) aqueduct, which is treated at the Anthem Water Treatment Plant. The main source of CAP water is from the Colorado River. However, some water from the Agua Fria River is mixed with Colorado River water during storage in Lake Pleasant. During times of high demand, the Arizona American Water Company supplements the CAP supply with water from two groundwater wells and water from the Phoenix Municipal Water System delivered east of I-17. For a broader picture of the Arizona American Water System, please contact the Arizona American Water Company at 800-383-0834, or visit their website at [www.amwater.com](http://www.amwater.com).

#### *What's in my water?*

Arizona American Water Company and the City of Phoenix Water Services Department conduct extensive monitoring to ensure that your water meets all water quality standards. During the past year, the water delivered to your home or business met or surpassed state and federal drinking water standards. Substances detected in the water and the Maximum Contaminant Level (MCL) allowed in the drinking water according to federal and state regulations are shown in the tables throughout this report. Definitions of terms used in this report can be found on the last page of this report. This report lists only the substances that were detected in the water. If you would like to receive a list of all the substances tested for, please contact the Phoenix Water Services Department's Compliance and Regulatory Affairs Office at 602-262-4992. **Please note, the simple presence of a substance or contaminant in drinking water does not necessarily indicate the drinking water poses a health risk.**

*To acquire this publication in Braille, large print or audio tape, contact the City of Phoenix Water Services Department at 602-262-6251, or 602-534-1113/TTY.*

*Este informe contiene información importante sobre su agua potable. Si desea esta publicación impresa en español, braille, letra grande o en casete de audio comuníquese el Departamento Municipal de Phoenix del Servicio del Agua, al 602-262-6251, ó 602-534-1113/TTY.*

## Substances Expected In Drinking Water

To ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water.

The sources of drinking water may 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. It is reasonable to expect drinking water, including bottled water or water that passed through home treatment systems, to contain at least small amounts of some contaminants. However, the presence of contaminants does not necessarily indicate that water poses a health risk.

Contaminants that may be present in source water include the following:

- Microbial contaminants, such as viruses and bacteria, that may be from wastewater treatment plants, septic systems, agricultural livestock operations or wildlife;
- Inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban storm water 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 storm water runoff and residential uses;
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production and can also come from gas stations, urban storm water runoff and septic systems; and
- Radioactive contaminants that can be naturally-occurring or can be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. Environmental Protection Agency's Safe Drinking Water Hotline, 800-426-4791. Information on bottled water can be obtained from the FDA.

### **Special Health Information**

**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 from infections. These people should seek advice from their health care providers about drinking water. The EPA and the Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA Safe Drinking Water Hotline (800-426-4791).**

## 2006 Detected Regulated Substances at Points Where Water Enters Distribution System

Substance (units)	MCLG	MCL	Lowest Level	Highest Level	Typical Source of Substance
Arsenic <sup>1</sup> (ppb)	0	10	4.0	5.0	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production waste
Barium (ppm)	2	2	0.017	0.158	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride <sup>3</sup> (ppm)	4	4	0.27	0.50	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate <sup>2</sup> (ppm)	10	10	0.16	1.26	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits
Selenium (ppb)	50	50	ND	7.0	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Alpha Emitters <sup>3</sup> (pCi/L)	0	15	1.9	2.3	Erosion of natural deposits

**1 - Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.**  
**2 - Nitrate in drinking water at levels greater than 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 activity. If you are caring for an infant, you should ask for advice from your health care provider.**  
**3 - Monitored in 2005**

The Anthem Water Treatment Plant produces water of superior clarity through filtration. Turbidity readings are a measure of water clarity and a good indicator that the treatment process is removing tiny particles, including microorganisms. The standard for turbidity or clarity after treatment can not be greater than 1 Nephelometric Turbidity Units (NTU – a measure of clarity) in at least 95 percent of the measurements taken each month, and must not exceed 5 NTU. The corresponding chart shows that the water you received in 2006 met the requirements.

## 2006 Turbidity Monitoring after Treatment at the Anthem Water Treatment Plant

Substance	Treatment Technique Applies instead of MCL	MCLG	Highest Measurement	Lowest Monthly Percentage	Typical Source
Turbidity	No value can exceed 5 NTU and at least 95% of monthly measurements must be less than or equal to 1 NTU	N/A	0.270 NTU	100 % of monthly measurements met treatment technique	Soil runoff

## Lead and Copper Standards Met

Lead and copper usually enter our drinking water from corrosion of household plumbing, including pipes and fixtures that contain these metals, such as copper piping, lead solder or brass fixtures. The EPA requires water suppliers to perform periodic tests for lead and copper in the tap water from inside consumers' homes. Test results show levels in household tap water met the Action Level required by federal drinking water standards for lead and copper.

<b>Lead And Copper Sampling from Water Taps in 2006</b>					
<b>Substance</b>	<b>Action Level (AL) Applies instead of MCL</b>	<b>MCLG</b>	<b>90 percent of taps were less than or equal to this value</b>	<b>Number of Sites above the AL</b>	<b>Typical Source</b>
Lead	90% of taps tested must not exceed 15 ppb	0 ppb	4.0 ppb	Zero (0) out of 63 taps	Corrosion of Household plumbing
Copper	90% of taps tested must not exceed 1.3 ppm	1.3 ppm	0.924 ppm	Zero (0) out of 63 taps	Corrosion of Household plumbing

## Unregulated Contaminant Monitoring

In 2006, Arizona American Water monitored for perchlorate, which is an unregulated substance. Unregulated substances are those for which U.S. Environmental Protection Agency (EPA) has not established drinking water standards. One of the purposes of monitoring for these substances is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. The Arizona American Water Company tested the water leaving the Anthem Water Treatment Plant and did not detect perchlorate. The State of Arizona has established a recommended health-based guidance level at 14 ppb.

Perchlorate is a primary component of solid rocket fuel and is used in the munitions and pyrotechnics industries. In the body, perchlorate interferes with iodide uptake into the thyroid gland. Such an effect decreases production of thyroid hormones, which are needed for prenatal and postnatal growth and development, as well as for normal body metabolism.

## Monitoring Conducted by City of Phoenix within the Phoenix-Anthem Water System

Your drinking water is safely disinfected with chlorine to prevent widespread outbreaks of serious diseases and comply with EPA standards. Federal law requires a minimum chlorine disinfectant level of 0.2 parts per million (ppm) in the water leaving a water treatment plant. There also is a Maximum Residual Disinfectant Level (MRDL) of 4.0 ppm allowed in the water in the distribution system as it travels to your tap. The city of Phoenix monitors the Phoenix Anthem water distribution system for both chlorine disinfectant levels and for total coliform bacteria which can indicate the presence of disease causing organisms.

While it is essential to disinfect the water, the use of disinfectants can create disinfection by-products (DBPs). To determine formation of DBPs, the city of Phoenix monitors the Phoenix-Anthem Water System for Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAAs) which are DBPs that may cause long-term health effects at certain concentrations. A running annual average of all samples collected in the system is calculated to determine compliance with the Maximum Contaminant Level (MCL). Based on those sampling criterion, the running annual average for the Phoenix-Anthem Water System was less than the MCL.

<b>2006 Disinfectant and Disinfection By-Product Monitoring in the Distribution System</b>							
Substance	Units	MCL	MCLG	Lowest Level	Highest level	Highest Running Annual Average	Major Source in Drinking Water
Chlorine	ppm	MRDL = 4.0 Running Annual Average	MRDLG = 4.0	0.4	1.2	0.8	Water additive used to control microbes
Total Trihalomethanes (TTHM)	ppb	80 Running Annual Average	NA	4	59	57	By-product of drinking water disinfection
Haloacetic Acids (HAA)	ppb	60 Running Annual Average	NA	Not Detected	14	15	By-product of drinking water disinfection

<b>2006 Microbiological Monitoring in the Distribution System</b>				
Substance	MCL	MCLG	Number of positive samples collected in any month	Typical Source
Total Coliform Bacteria	1 positive routine sample and 1 positive verification sample	0	0	Naturally present in the environment

### Source Water Assessment for Drinking Water Sources

In 2004 the Arizona Department of Environmental Quality completed a source water assessment for the two wells and one surface water intake used by Arizona American Water Company-Anthem. The assessment reviewed the adjacent land uses that may pose a potential risk to the 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, they were ranked as to their potential to affect the water sources. The results of the assessment were that the two wells had no adjacent land uses in the vicinity of the wells, and that the surface water intake had one adjacent land use that posed a high risk to the source.

ADEQ also conducted a source water assessment for the city of Phoenix drinking water wells and the surface water intakes used by the Phoenix water treatment plants. The same surface water intake identified in the Arizona American Water System –Anthem was also identified in the Phoenix source water assessment report.

The sources are currently protected by well construction and system operations and management. Residents can help protect sources by taking hazardous household chemicals to hazardous material collection days, and limiting pesticide and fertilizer use.

The complete reports are available for review at ADEQ, 1110 W. Washington St., Phoenix, Arizona, 85007; or by requesting an electronic copy from ADEQ at [dml@azdeq.gov](mailto:dml@azdeq.gov). For more information visit the ADEQ website at: [www.azdeq.gov/environ/water/dw/swap.html](http://www.azdeq.gov/environ/water/dw/swap.html), or contact Nina Miller, Environmental Compliance Manager at Arizona American Water Company, 623-445-2406 or the Phoenix Water Services Department Compliance and Regulatory Affairs Office at 602-262-4992.

### ***How can I learn more?***

Customers with questions about the water you receive from Arizona American Water may call the Phoenix Water Services Department Compliance and Regulatory Affairs Office at 602-262-4992 during normal business hours (Monday through Friday, except holidays, from 8:00 a.m. to 5:00 p.m.) or write to: Water Quality Questions, City of Phoenix Water Services Department, 200 W. Washington St., 9th Floor, Phoenix, AZ 85003-1611. Citizens who wish to address the Phoenix City Council about water issues or other non-agenda items may do so at the Citizen Request Sessions at City Council Formal Meetings, which are held in the City Council Chambers, 200 W. Jefferson St. For Information about specific meeting times and agenda items, please contact the City of Phoenix City Clerk Department at 602-262-6811, or visit [www.phoenix.gov](http://www.phoenix.gov) and click “Public Meetings.”

For alternate formats, contact Customer Services at 602-262-6251/Voice, or 602-534-1113/TTY, or 602-534-1192/FAX.

#### **Internet sites that provide information about drinking water**

- **Arizona Department of Health Services – [www.azdhs.gov](http://www.azdhs.gov)**
- **Maricopa County Environmental Services Department – [www.maricopa.gov/envsvc](http://www.maricopa.gov/envsvc)**
- **U.S. Environmental Protection Agency – [www.epa.gov/ogwdw](http://www.epa.gov/ogwdw)**
- **Centers for Disease Control – [www.cdc.gov](http://www.cdc.gov)**
- **Arizona Department of Environmental Quality – [www.azdeq.gov](http://www.azdeq.gov)**
- **Tap Into Quality – [www.tapintoquality.com](http://www.tapintoquality.com)**

## DEFINITIONS OF TERMS

The following are definitions of terms used to describe types of limits for substances that may be found in drinking water.

**Action Level (AL)** – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**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 Contaminant Level (MCL)** – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available treatment technology.

**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 required for control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal (MRDLG)** – The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use disinfectants to control microbial contamination.

**Part per million/part per billion** – One part per million (1 ppm) or milligram per liter (1 mg/L) is equal to one drop of bubble bath in a whole bathtub full of water (about 50 gallons). One part per billion (1 ppb) or microgram per liter (1 µg/L) is equal to one drop of bubble bath in 1,000 bathtubs full of water (about 50,000 gallons).

**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.



**THINK**  
about  
**WATER**  
*Every Time  
You Use It*



**City of Phoenix  
Water Services Department**

**Water Conservation Tips**

For 100 ideas to help you save water,  
check out the website:  
[www.wateruseitwisely.com](http://www.wateruseitwisely.com)

Or for additional information on water conservation or to  
order free literature, check out:  
[www.phoenix.gov/WATER/conserv.html](http://www.phoenix.gov/WATER/conserv.html)  
or call 602-256-3370