

# 2008



## WATER QUALITY REPORT

TOWN OF GILBERT, PUBLIC WORKS



### *Confidence is high*

Welcome and thank you for choosing the Town of Gilbert for your residence. We are pleased to report another successful year providing our customers with tap water that meets and/or exceeds the federal and state standards.

The following is the Water Quality Report, also known as the *Consumer Confidence Report (CCR)* for the water quality data in calendar year 2007. The CCR includes summaries of water quality data, water supply and other useful information.

The Safe Drinking Water Act of 1974 and subsequent amendments by the U.S. Environmental Protection Agency (EPA) requires water providers to monitor their treatment processes and systems to ensure a safe drinking water supply. The Town uses guidance from the U.S. EPA, the Arizona Department of Environmental Quality (ADEQ), and the Maricopa County Environmental Health Services (MCEHS) to establish regular monitoring schedules for contaminants such as organic and inorganic chemicals, and microbiological species.

Our drinking water supply is a top priority for the Town of Gilbert. In 2007 our population was approximately 205,000 and our average water use was 41 million gallons per day (MGD). In order to effectively and efficiently meet the increasing demands for drinking water, the Town has completed the expansion of its existing surface water treatment plant to a capacity of 45 MGD. A new water treatment plant, in partnership with the City of Chandler, is under construction near Higley and Ocotillo Roads. This treatment plant is expected to be operational in May of 2009. We are also currently developing four additional groundwater wells and storage reservoir sites in our community.

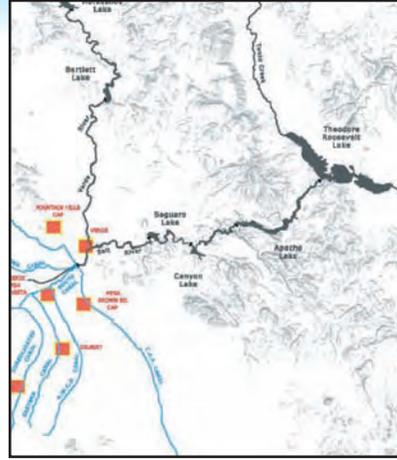
As we constantly plan to meet the needs of today and tomorrow, success is reachable with the cooperation of the customers to help us by conserving water. Together we can do our part to use water wisely and ensure an adequate water supply.



**\*Este informe contiene información muy importante sobre su agua potable. Si desea una copia de este informe en español o tiene alguna pregunta sobre el, por favor llame a 503-6378.**

## Drinking Water Source

Surface water is a primary water source for the Town of Gilbert. Surface water is supplied via the canal system from the Salt River Project (SRP). SRP manages several dams and reservoirs on the Salt and Verde rivers. Water collected from these rivers into reservoirs is released into SRP canals. The Town of Gilbert water treatment plant (WTP) is located on the Eastern Canal. Groundwater, a secondary water source, is pumped from 17 wells located throughout the Town.



## Water Treatment

Water delivered from the WTP is treated using the conventional methods of coagulation, flocculation, sedimentation, and filtration. The WTP can produce as much as 45 million gallons (MGD) of water per day and has a 16 million gallon (MG) reservoir onsite for water storage. Ozonation and chlorination are used as the means of disinfection for drinking water from the WTP, and water is delivered to the community through the distribution system of over 700 miles of pipe line at a pressure of 60-80 pound per square inch (psi). Ground water availability from wells is nearly 36 MGD, not including reservoir storage, and is also delivered to customers using the distribution system with chlorine as the means of disinfection. In total, the Town of Gilbert can produce approximately 81 MGD and has storage capacity of just over 34 MG.

## Source Water Assessment

In 2004, Arizona Department of Environmental Quality completed a Source Water Assessment (SWA) for the 12 groundwater wells (at the time of the assessment) and one WTP used by the Town of Gilbert. The assessment reviewed and evaluated adjacent land uses to the aforementioned locations that may pose a potential risk to water quality served to the community. These risks may include, but are not limited to, gas stations, landfills, dry cleaners, and agriculture fields.

The result of the SWA led to 10 sources receiving a low risk susceptibility to water rating and three identified as high risk. Those sites receiving a high risk designation are located in proximity to a gas station, agriculture field, and an industrial park. None of the 12 locations, have detected contamination; however the Town continues to vigilantly monitor water quality. Residents can help protect source water by taking hazardous household chemicals to hazardous material collection sites and by limiting the amount of pesticide and fertilizer use in the home.

The SWA is available for public review in the Town Clerks Office or by visiting ADEQ's SWA Unit website at [www.azdeq.gov/environ/water/dw/swap.html](http://www.azdeq.gov/environ/water/dw/swap.html) for an electronic copy.

## Drinking Water—Possible Contamination Sources

Drinking water, including bottled water, may contain small amounts of contaminants. In order to ensure that tap water is safe to drink, the U.S. EPA and the State of Arizona regulate the amount of contaminants in the water as drinking water. 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 EPA Safe Drinking Water Hotline at 800-426-4791. Information on bottled water can be obtained from the U.S. Food and Drug Administration (FDA).

Turbidity is a measure of the cloudiness of the water. It is measured because it is a good indicator of water quality, and high levels of turbidity can hinder the effectiveness of the disinfection process. Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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. The U.S. EPA and the 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 at 800-426-4971.

As water travels over the surface of the land or through the ground it dissolves naturally occurring minerals and can pick up substances from animal or human activity. Contaminants that may be present in source water include:

- **Inorganic contaminants** include salts and metals that can be naturally occurring in the makeup of soil and runoff from erosion. In addition, nitrate is found in fertilizer and animal waste products.
- **Microbial contaminants** include viruses or bacteria that may come from agricultural livestock operations or wildlife.
- **Organic chemical contaminants** include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production that may come from places such as gas stations.
- **Disinfection byproducts, precursors, turbidity, and biological species** are naturally occurring in the makeup of soil, runoff from erosion, and are byproducts of human and animal wastes. These analytes and species are tested in the WTP filtration process, in the distribution system, and at source water points of entry into the distribution system to ensure the effectiveness of water treatment and proper disinfection.
- **Pesticide and herbicide contaminants** may come from agriculture, urban stormwater runoff, and residential use.
- **Radioactive contaminants** may be naturally occurring or can be the result of oil/gas production and mining activities

## 2007 Drinking Water Monitoring Data

The Water Quality staff takes thousands of samples every year from source and finished (treated) waters covering over 100 chemicals and compounds. Water quality monitoring or testing is divided into two standards: primary and secondary. Primary standards are set with maximum limits to protect public health from contaminants in water that may be immediately harmful to humans or affect their health if consumed over long periods of time. Primary standards exist for source waters and for waters found in the distribution system.

**Primary Source Water Standards** include the parameters of inorganic (non-carbon containing) chemicals or analytes, organic (carbon containing) chemicals including pesticides and herbicides, and radiochemical species. These parameters are monitored at the point of entry to the distribution system.

## Definitions and abbreviations to the data table

- **Inorganic analytes** are naturally occurring in the composition of soil and runoff from erosion. In addition, nitrate is found in fertilizer and animal waste products.
- **Organic analytes** are byproducts of industrial processes and petroleum production.
- **Radiochemical species** are naturally occurring in the composition of soil and runoff from erosion.
- **Disinfection byproducts**, precursors, turbidity, and biological species are naturally occurring in the composition of soil, runoff from erosion, and are byproducts of human/animal waste. These analytes and species are tested in the WTP filtration process, in the distribution system, and at source water points of entry into the distribution system to ensure the effectiveness of water treatment and proper disinfection.

Primary Standards										
	Analyte	Units	Highest Value	Range	A.L.	MCL	MCLG	MRDL	MRDLG	T.T.
Inorganic analytes	Arsenic	ppm	0.01	0.0021-0.010	-----	0.01 a	NA	-----	-----	-----
	Barium	ppm	0.076	0.0038-0.076	-----	2	2	-----	-----	-----
	Chromium	ppm	0.021	0.0013-0.021	-----	0.1	0.1	-----	-----	-----
	Copper	ppm	0.016	<0.0010-0.016	NA	-----	NA	-----	-----	-----
	Fluoride	ppm	1.7	0.51-1.7	-----	4	4	-----	-----	-----
	Nitrate as N	ppm	8	0.68-8.0	-----	10	10	-----	-----	-----
	Lead	ppm	0.002	<0.0010-0.0022	NA	-----	NA	-----	-----	-----
Selenium	ppm	0.014	<0.0020-0.014	-----	0.05	-----	-----	-----	-----	
Organic analytes	Bromodichloromethane	ppm	0.042	<0.00050-0.042	-----	NA	NA	-----	-----	-----
	Bromoform	ppm	0.016	<0.00050-0.016	-----	NA	NA	-----	-----	-----
	Chloroform	ppm	0.041	0.00085-0.041	-----	NA	NA	-----	-----	-----
	Dibromochloromethane	ppm	0.037	<0.00050-0.037	-----	NA	NA	-----	-----	-----
	Gross Alpha	pCi/L	14.4 ± 1.9	5.4±0.4-14.4±1.9	-----	15	0	-----	-----	-----
Radiochemical species	Radium 226	pCi/L	1.2±0.1	<0.2-1.2±0.1	-----	5	0	-----	-----	-----
	Radium 228	pCi/L	<0.4	<0.3-<0.4	-----	5	0	-----	-----	-----
	Uranium	ppb	14.7±1.7	<1.4-14.7±1.7	-----	30	0	-----	-----	-----
				<1.4-14.7±1.8						
MCL	Chlorine Residual	ppm			-----	-----	-----	4	0.2	-----

**Stage 2 DBPR:** The U.S. Environmental Protection Agency (EPA) published Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) on January 4, 2006. The Stage 2 DBPR builds on existing regulations by requiring water systems to meet disinfection byproduct (DBP) maximum contaminant levels (MCLs) at each monitoring site in the distribution to better protect public health. The Stage 2 DBPR includes a provision requiring all community water systems (CWS) to conduct an Initial Distribution System Evaluation (IDSE). The Town of Gilbert used System Specific Study (SSS) option based on a hydraulic model to comply with IDSE requirements. The Town of Gilbert conducted a one round of sampling in October, 2007 which historically is a month of highest TTHM/HAA5. The model results are used in conjunction with the Stage 1 DBPR data to select the best locations for Stage 2 DBPR compliance monitoring.



**Primary Distribution Standards** include the parameters of disinfection by-product chemicals, chlorine residual levels, turbidity, and microbial species. These parameters are monitored within the distribution system.

## Lead and Copper Monitoring

In 2007, the Town of Gilbert did triennial monitoring for lead and copper. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect houses and buildings to water mains (service lines). EPA requires water suppliers to sample for lead and copper from the cold water taps inside homes. We tested 52 households and are pleased to meet federal drinking water standards for lead and copper. To reduce exposure to lead in drinking water, let the water run from the tap for about 15-30 seconds. Do not cook with or drink, water from the hot ware tap. Infants and children typically are more vulnerable to lead than the general population.



Distribution System--Primary Standard Monitoring Results										
Analyte	Units	Highest Value Detected		Range	MCL	MCLG	MRDL	MRDLG	T.T.	
Disinfection and Byproducts	Chlorine Residual	ppm	2.20		0.20 - 2.20	----	----	4	0.2	----
			Highest Value Detected		% of samples ≤ 0.3 NTU	MCL	MCLG	MRDL	MRDLG	T.T.
	Turbidity	NTU	0.56			----	NA	----	----	≤ 0.3 <sup>d</sup>
			Lowest Value Detected	Highest Value Detected	Highest Running Annual Avg	MCL	MCLG	MRDL	MRDLG	T.T.
	Bromate	ppm	Nd	Nd	Nd	0.01 <sup>e</sup>	0	----	----	----
	Total Organic Carbon Removal Ratio	NA	----	----	1.22 (running annual average)	----	NA	----	----	≥ 1 <sup>f</sup>
	Haloacetic Acids	ppm	Nd	0.06	ND-0.06	0.06 <sup>e</sup>	0	----	----	----
Total Trihalomethanes	ppm	Nd	0.12	ND-0.012	0.08 <sup>e</sup>	0	----	----	----	
d The turbidity of the filtered water shall be ≤ 0.3 NTU in 95% of all measurements taken each month, and shall not exceed 1 NTU.										
e MCL is based on the running annual average value calculated quarterly.										
f The treatment technique calls for removal of total organic carbon the raw water source to the finished water source to have a ratio of greater than or equal to 1 on the running annual average.										
Microbial			# of Tests Taken	Highest monthly % of positive samples	MCL	MCLG	MRDL	MRDLG	T.T.	
	Coliforms, Total	NA	1596	0.8	< 5% <sup>g</sup>	0	----	----	----	
	Coliforms, Fecal	NA	1596	0	0	0	----	----	----	
g No more than 5% of the monthly samples may be total Coliform positive. Duplicate testing of positive samples resulted in negative results.										

Results of 2007 LEAD and COPPER Monitoring			
Contaminant (units)	Maximum Contaminant Level	MCLG	Results
Lead (ppb)	Action level =15 ppb	0 mg/L	
	90th percentile		< 3 ppb
	Number of sites exceeding action level		1
Copper (ppm)	Action level = 1.3 mg/L	1.3 mg/L	
	90th percentile		0.29 ppm
	Number of sites exceeding action level		0

**Secondary Standards** govern aesthetic quality of water such as taste, mineral content, and color but have no regulatory limits.

Disinfection byproducts	Analyte	Units	Highest Qtrly Avg	Detection Range	MCL	MCLG	MRDL	MRDLG	T.T.	
	Bromate	ppm	NA	NA	----	0.01	0	----	----	----
	Haloacetic Acids	ppm	0.06	<0.0010-0.060	----	0.06	0	----	----	----
	Total Organic Carbon	NA	1.22%		----	----	NA	----	----	> 1 c
	Total Trihalomethanes	ppm	0.12	<0.0020-0.120	----	0.08	0	----	----	----
			# of Tests Taken	Highest monthly % of positive samples						
	Coliforms, Total	NA	1596	0.8	----	< 5% <sup>d</sup>	0	----	----	----
	Coliforms, Fecal	NA	1596	0	----	0	0	----	----	----
			Highest Value	% of samples below 0.5 NTU						
	Turbidity	NTU	0.212	100	----	----	NA	----	----	< 0.3

- c The treatment technique calls for removal of total organic carbon the raw water source to the finished water source to have a ratio of < 1.
- d No more than 5% of the monthly samples may be total Coliform positive. Duplicate testing of positive samples resulted in negative results.
- e The turbidity of filtered water should be < 0.3 NTU in 95% of all measurements taken each month, and shall not exceed 5 NTU at any given time.



Secondary Standards				
Analyte	Units	Highest Value	Range	
Alkalinity, total	ppm	170	38-170	
Chloride	ppm	400	110-400	
Hardness as CaCO <sub>3</sub>	gr/gal	17.5	2.5-17.5	
Iron	ppm	0.15	<0.050-0.15	
Langlier Index	NA	-2.21	-2.21-0.27	
pH	s.u.	8.5	6.17-8.5	
Sodium	ppm	370	100-370	
Sulfate	ppm	110	13-110	
Total Dissolved Solids	ppm	1000	240-1000	
Temperature	o C	32.9	17.1-32.9	

The standard measure for hardness as calcium carbonate (CaCO<sub>3</sub>) is either gr/gal (grains per gallon) or ppm. 1 gr/gal of hardness of is equivalent to 17.1 ppm of hardness. The standard measure for pH is s.u., standard units.

## Definitions and abbreviations to the data tables

- A.L.** - An action level is the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a community water system shall follow.
- MCL** - The maximum contaminant level is 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.
- MCLG** - The maximum contaminant level goal is 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.
- MRDL** - The maximum residual disinfection level is 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.
- MRDLG** - The maximum residual disinfectant level goal is the level of disinfection in drinking water 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 contamination.
- Nd** - Non-detection of monitored contaminants is reported for contaminants whose values are below the reporting limits/detection of laboratory methodology. The Nd notation does not mean that the concentration is zero.
- mrem/yr** - A measure of radiation absorbed by the body given as millirems per year.
- pCi/L** - The standard measure of radioactivity found in drinking water is given as picoCuries per liter.
- ppb** - Parts per billion is a measure of concentration that is equivalent to micrograms per liter. An analogy for 1 ppb is one red grain of rice in a billion white grains of rice.
- ppm** - Parts per million is a measure of concentration that is equivalent to milligrams per liter. An analogy for 1 ppm is one red grain of rice in a million white grains of rice.
- T.T.** - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

## Drinking Water and Your Health

Gilbert has long been an agricultural community and remains so today, although the numbers of farms are lower. Due to the agricultural and dairy business in Gilbert we sometimes see nitrate levels that are above 5 parts per million; however none of the water delivered to residences ever exceeds the Maximum Containment Level of 10 ppm. While nitrate levels did not exceed the MCL in 2007, it is important to note that nitrates in drinking water at levels over 10 ppm is a health risk for infants (less than six months of age) and can cause Blue Baby Syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity and the Town monitors regularly to ensure that the MCL is not exceeded. If you are caring for an infant you should ask advice from your health care provider regarding tap water in our community.

The arsenic standard of 10 parts per billion became effective on January 23, 2006 (prior to which it was set at 50 ppb). While your drinking water meets current EPA standards for arsenic, it does in fact contain low levels of arsenic. Arsenic is a naturally occurring element in the soils and geologic formations found in Arizona. 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. EPA continues to research the health effects of arsenic levels and their relevance to health. The Town has already added treatment technology to any source location indicating levels above the MCL of 10 ppb, and will also add treatment technology to future locations should it be necessary to ensure health and compliance to the standard.

## Information on Water Conservation

Gilbert has adequate water supplies, but none to waste. Much of the water we use to drink, bathe, wash cars, water our lawns and swim in comes from rain and snowmelt that collects in lakes and reservoirs north of the Valley.

Periods of drought are common in desert communities and may last from three to thirty years. This requires Gilbert residents to take action. Incorporating conservation into our daily lifestyle is not a choice, it is our responsibility.

Together we can do our part to use water wisely and ensure an adequate water supply for today and future generations. Water conservation not only will help you save precious water resources it will also help you save money.

Often small, inexpensive replacements or modifications of equipment indoors can mean big long term savings, in water, money and time. Several inexpensive water-saving devices can be easily installed in your home. These include faucet aerators; flow regulators for shower heads; displacement devices for toilets to reduce water consumption and hot water recirculation systems.

It may surprise you to learn that up to 70 percent of household water is used outdoors. Studies have found that homeowners use two to five times more water than is really needed in their landscapes. Most landscape watering can be cut in half with no visible effects on the plants. Even if you have installed low water use plants, it is up to you to continually monitor the amount of water they receive.

For more information on how you can conserve water use in and around the home or for an in-home water audit, please contact Gilbert's Water Conservation Department.

## For Additional Information and Resource

For more information on water quality for the Town of Gilbert please feel free to contact any of the following references. Water related information and topic may also be discussed at Town Council meeting, and information on meeting agendas and discussion opportunities are available at [www.ci.gilbert.az.us](http://www.ci.gilbert.az.us).

### ◆ Town Departments

- Questions on water quality, 503-6387
- Public Works, 503-6400
- Water Conservation, 503-6098
- Utilities Department, 503-6800

### ◆ Tap Into Quality, [www.tapintoquality.com](http://www.tapintoquality.com)

### ◆ USEPA, [www.epa.gov/ogwdw](http://www.epa.gov/ogwdw)

- Safe Drinking Water Hotline, 800/426-4791

### ◆ Maricopa County Environmental Health Services, [www.maricopa.gov/envsvc](http://www.maricopa.gov/envsvc)

### ◆ Arizona Department of Environmental Quality, [www.azdeq.gov](http://www.azdeq.gov)

