

Water testing performed in 2009



City of YUMA
"Making Yuma Better!"

PWS ID#: 14024

Billions Served

The City of Yuma Utilities Department is proud to provide the 2009 Annual Water Quality Report. This edition covers all testing completed from January 1 to December 31, 2009. The Main Street Water Treatment Facility and the Agua Viva Water Treatment Facility produced over 8.2 billion gallons of drinking water in 2009 to our customers. The drinking water is continuously monitored for turbidity and chlorine residual; 1,582 samples were collected and 4,038 analyses were performed for 240 parameters. The City of Yuma's Public Water System Identification Number is 14024.

Important Health Information

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, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) 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) 426-4791 or www.epa.gov/safewater/hotline/.



Where Does My Water Come From?

The main source of Yuma's drinking water is surface water from the Colorado River and is delivered to the Treatment Facilities via the canal system.

The Main Street Treatment Facility is a conventional water treatment plant. Surface water is treated with coagulant chemicals to help the sediment to collect and drop to the bottom of the sedimentation basins. The water is sent through slow sand filters, and chlorine is added for disinfection. Treated water is then sent out to the distribution system and storage tanks.

The Agua Viva Water Treatment Facility presently treats ground water and surface water. The ground water is treated for iron and manganese. Water drawn from a well is ground water. In 2009 the expansion of the Agua Viva Water Treatment Facility to produce 24 million gallons per day of surface water was completed. Treated ground water and surface water is blended together and disinfected prior to distribution in the system.

Community Participation

Our Water and Sewer Commission meets on-call at 5:00 p.m. in the Department of Public Works Administrative Conference Room. The public is invited. You can contact the Department of Public Works at (928) 373-4500 for more information regarding meeting dates.

Lead and Drinking Water

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 Yuma Utilities Department 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 www.epa.gov/safewater/lead.

Questions?

If you have any questions about this report or the quality of our drinking water, please contact Betsy Bowman, Laboratory Director, at the Utility Treatment Laboratory, (928) 329-2893.

E-mail address: Betsy.Bowman@yumaaz.gov

City of Yuma Home Page: www.yumaaz.gov

Laboratory Direct Web Page: www.yumaaz.gov/7666.htm

Environmental Protection Agency: (800) 426-4791

Arizona Department of Environmental Quality:
(800) 234-5677

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. 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 these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases radioactive material, and 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, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

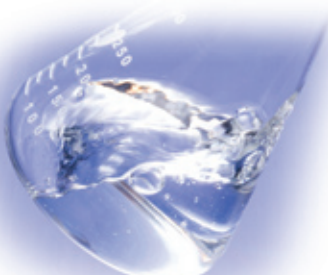
Pesticides and Herbicides, which may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

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 at (800) 426-4791, or visit online at www.epa.gov/safewater/hotline. Information on bottled water can be obtained from the U.S. Food and Drug Administration.

Source Water Assessment



In 2004, the Arizona Department of Environmental Quality completed a source water assessment for the Yuma Main Canal, “A” Main Canal, and ground water wells used by the City of Yuma. 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, agriculture fields, waste water treatment plants, and mining activities. Once ADEQ identified the adjacent land uses, they were ranked as to their potential to affect the water source.

The result of the assessment was adjacent land use with low risk to all source water. The complete assessment is available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, Arizona 85007, between the hours of 8:00 a.m. and 5:00 p.m. Electronic copies are available from ADEQ by emailing dml@azdeq.gov. For more information, call Susanna Hitchcock, Water Quality Assurance Supervisor with the City of Yuma, at (928) 373-4536, or visit the ADEQ’s Source Water Assessment and Protection Unit Web site at www.azdeq.gov/environ/water/dw/swap.html.

Investment in Our Water Future

The City of Yuma’s Agua Viva Water Treatment Facility (WTF) is a key component of the City’s long-term plan for water supply reliability, increased treatment capacity, and improved water quality. Construction of the 24 million gallon per day (gpd) Agua Viva WTF was completed in August 2009. The Agua Viva Water Treatment Facility employs advanced technologies, such as chlorine dioxide pre-oxidation and membrane filtration, which were selected to lower formation of disinfection by-products in the distribution system, as well as dissolved air flotation thickening for recovery of used water.

The Agua Viva WTF represents more than increased water production capacity for the City of Yuma. The strategic location of the facility in the high-growth East Mesa area of the City, with the Gila Gravity Main Canal as the water supply, improves water supply reliability and water quality for the City’s customers. The City’s Main Street WTF, which is located in downtown Yuma, has historically produced a majority of the City’s drinking water. The Agua Viva WTF will serve as a second major source of treatment capacity and will provide water supply redundancy because it will receive raw water from a different canal system than the Main Street WTF. Portions of the water supply infrastructure around Yuma, including canals and siphons, are nearly 100 years old. With aged supply infrastructure in this seismically active area, it is important for the City to maintain multiple raw water supply options.

In addition, by locating the Agua Viva WTF in the high-growth East Mesa area, the City decreases the burden on its existing water system, which traditionally produced water at the Main Street WTF and pumped it across the City to meet demands in the East Mesa area. Average water age in the distribution system will be reduced with the operation of the Agua Viva WTF. In addition to reducing water age, the Agua Viva WTF will also improve water quality for consumers through the multi-faceted approach to disinfection by-product control. The potential to form disinfection by-products is reduced through the use of chlorine dioxide pre-oxidation, enhanced coagulation, and membrane filtration.



Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any contaminants. The table below shows only those contaminants that were detected in the water.

The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES ¹									
				Main Street Treatment Facility		Agua Viva Treatment Facility			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Arsenic (ppb)	2009	10	0	2	NA	3	NA	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2009	2	2	0.12	NA	0.085	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium (ppb)	2009	100	100	NA	NA	2.5	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride (ppm)	2009	4	4	0.34	NA	0.45	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Turbidity ² (NTU)	2009	TT	NA	1.050	0.021–1.050	0.120	0.012–0.120	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2009	TT	NA	100	NA	100	NA	No	Soil runoff
Distribution System									
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE		
Chlorine (ppm)	2009	[4]	[4]	1.10	0.00–1.10	No	Water additive used to control microbes		
HAAs [Haloacetic Acids] (ppb)	2009	60	NA	8.0	1.8–20	No	By-product of drinking water disinfection		
TTHMs [Total Trihalomethanes] ³ (ppb)	2009	80	NA	38	13–91	No	By-product of drinking water chlorination		
Total Coliform Bacteria (% positive samples)	2009	5% of monthly samples are positive	0	0.08	NA	No	Naturally present in the environment		

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH% TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2009	1.3	1.3	0.065	0/52	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2009	15	0	0.75	0/52	No	Corrosion of household plumbing systems; Erosion of natural deposits

IDSE SAMPLING RESULTS³

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	RANGE LOW-HIGH	TYPICAL SOURCE
HAA s [Haloacetic Acids] (ppm)	2008	0.002–0.014	By-product of drinking water disinfection
TTHM s [Total Trihalomethanes] (ppm)	2008	0.010–0.097	By-product of drinking water disinfection

¹ The City of Yuma was granted a waiver from the Enhanced Coagulation and Enhanced Softening rules on July 2, 2002, by the Arizona Department of Environmental Quality. The waiver was based on two years of research performed on City of Yuma water. The data confirmed that the Colorado River water at Yuma is not amenable to the requirements of the rule. The waiver remains in effect as long as the running annual average for Total Trihalomethanes (TTHM) remains below 0.064 mg/L and Haloacetic Acids (HAA5) remains below 0.048 mg/L.

² Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

³ We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

Definitions

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

MCL (Maximum Contaminant Level): 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 (Maximum Contaminant Level Goal): 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 (Maximum Residual Disinfectant Level): 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 (Maximum Residual Disinfectant Level Goal): 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.

NA: Not applicable.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

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