

2018 Annual Drinking Water Quality Report For

Public Water System Name: City of Tombstone

Public Water System Number: AZ04 02-033

Esta es información importante. Si no la pueden leer, necesitan que alguien se la traduzca.

We are pleased to present to you this year's water quality report. Our constant goal is to provide you with a safe and dependable supply of drinking water.

General Information About Drinking Water

All 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 the water poses a health risk. 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 of infections. These people should seek advice about drinking water from their health care providers. For more information about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and microbiological contaminants call the EPA Safe Drinking Water Hotline at 1-800-426-4791.

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:

- **Microbial contaminants**, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or result from urban stormwater 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 stormwater runoff, and residential uses.
- **Organic chemical contaminants**, including synthetic and

volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and also may come from gas stations, urban stormwater runoff, and septic systems.

- **Radioactive contaminants**, that can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Arizona Department of Environmental Quality prescribes regulations limiting 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 that must provide the same protection for public health.

Our Water Source(s)

The system's sources of water are listed below.

Wells are POE#1 and POE#2

Reservoir is POE#4

If we used purchased water, this report is required to include water quality data for the purchased water with this report.

Source Water Assessments on file with the Arizona Department of Environmental Quality are available for public review. If a Source Water Assessment is available, you may obtain a copy of it by contacting the Arizona Source Water Coordinator at (602) 771-4641.

Potential sources of contamination in our source water area come from:

Spring POE#4

The Source Water Assessment Report provides a screening-level evaluation of potential contamination that **could** occur. It does not mean that the contamination **has or will** occur. We can use this information to evaluate the need to improve our current water treatment capabilities and prepare for future contamination threats. This can help us ensure that quality finished water is delivered to your homes. In addition, the source water assessment results provide a starting point for developing a source water protection plan.

Please contact Jason Long or Nathan Long at 480-982-0301

to learn more about what you can do to help protect your drinking water sources, any questions about the annual drinking water quality report, to learn more about our system, or to attend scheduled public meetings. We want you, our valued customers, to be informed about the services we provide and the quality water we deliver to you every day.

Terms and Abbreviations

To help you understand the terms and abbreviations used in this report, we have provided the following definitions:

- **Parts per million (ppm) or Milligrams per liter (mg/L)** - one part per million corresponds to one minute in two years or a single penny in \$10,000.
- **Parts per billion (ppb) or Micrograms per liter (µg/L)** - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.
- **Parts per trillion (ppt) or Nanograms per liter (nanograms/L)** - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.
- **Parts per quadrillion (ppq) or Picograms per liter (picograms/L)** - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.
- **Picocuries per liter (pCi/L)** - picocuries per liter is a measure of the radioactivity in water.
- **Nephelometric Turbidity Unit (NTU)** - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- **Action Level (AL)** - the concentration of a contaminant

which, if exceeded, triggers treatment or other requirements which a water system must follow.

- **Action Level Goal (ALG)** - The “Goal” is the level of a contaminant in drinking water below which there is no known or expected risk to health. The ALG allows for a margin of safety.
- **Treatment Technique (TT)** - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.
- **Maximum Contaminant Level Goal (MCLG)** - The “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.
- **Maximum Contaminant Level (MCL)** - The “Maximum Allowed” 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.
- **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.
- **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.
- **Running Annual Average (RAA)**: An average of monitoring results for the previous 12 calendar months.

Water Quality Data

We routinely monitor for contaminants in your drinking water according to Federal and State laws. The State of Arizona requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. Some of our data, though representative, may be more than one year old.

These tables show the results of our monitoring for the period of January 1 to December 31, 2008 unless otherwise noted.

Microbiological Contaminants

Contaminant	MCL	MCLG	Unit	Result	Violation (Yes or No)	Sample Date	Likely Source of Contamination
Total Coliform Bacteria for Systems that collect >40 samples per month	No more than 5% of monthly samples can be positive	0	Absent or Present	0	NO	monthly	Naturally present in the environment
Total Coliform Bacteria for Systems that collect <40 samples per month	No more than 1 positive monthly sample	0	Absent or Present	0	NO	monthly	Naturally present in the environment
Fecal coliform and E. Coli	A routine sample & a repeat sample are total coliform positive, & one is also fecal coliform or <i>E. coli</i> positive	0	Absent or Present	0	NO	Monthly	Human and animal fecal waste

Turbidity

	TT Requirement	Level Found	Violation (Yes or No)	Sample Date	Likely Source of Contamination
Turbidity	Maximum <u>5.0</u> NTU for any single measurement	Highest single measurement: 1.02	NO	Daily	Soil Runoff
	In any month, at least 95% of samples must be less than <u>5.0</u> NTU	Lowest monthly percentage of samples meeting TT standard for our technology: 0.07	NO	Daily	

Radionuclides

Contaminant	MCL	MCLG	Units	Level Detected & Range	Violation (Yes or No)	Sample Date	Likely Source of Contamination
Beta/photon emitters	Trigger level=15	0	pCi/l		NO	2018	Decay of natural and man-made deposits
Alpha emitters	15	0	pCi/l		No	2018	Erosion of natural deposits
Combined radium	5	0	pCi/l		No	2018	Erosion of natural deposits
Uranium	30	0	ppb		No	2018	Erosion of natural deposits

Lead and Copper

Contaminant	AL	ALG	Units	90 th Percentile	Number of Sites over AL	Violation (Yes or No)	Sample Date/Year	Likely Source of Contamination
Copper	1.1		ppm	0.11	10	NO	09/2018	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead	0.10		ppb	1	10	NO	09/2018	Corrosion of household plumbing systems, erosion of natural deposits

Disinfectants

	MRDL	MRDLG	Units	Level Detected & Range	Violation (Yes or No)	Sample Date/Year	Source
Chloramines	4	4	ppm			RAA	Water additive used to control microbes
Chlorine	4	4	ppm	0.74	NO	RAA	Water additive used to control microbes
Chloride dioxide	800	800	ppb				Water additive used to control microbes

Disinfection Byproducts

Contaminant	MCL	MCLG	Units	Average	Range	Highest RAA	Violation (Yes or No)	Sample Date/Year	Likely Source of Contamination
Haloacetic Acids (HAA)	0.050	N/A	Mg/L			0.004	NO	quarterly	By-product of drinking water disinfection
Total Trihalomethanes (TTHM)	0.050	N/A	Mg/L			0.005	NO	quarterly	By-product of drinking water disinfection
Bromates	1.0	0.08	Mg/L			0.04	NO	quarterly	By-product of drinking water disinfection
Chlorite	1	0.8	Mg/L			0.00050	NO	quarterly	By-product of drinking water disinfection

Total Organic Carbon

Contaminant	Compliance Factor (measurements should not be lower than this factor)	Lowest Running Annual Average (compliance factor)	Running Annual Average Range for the Year (compliance factor)	Violation (Yes or No)	Sample Date/Year	Likely Source of Contamination
Total Organic Carbon (TOC)	1.0					Naturally present in the environment

Inorganic Contaminants

Contaminant	MCL	MCLG	Units	Level Detected/ Range	Violation (Yes or No)	Sample Date	Likely Source of Contamination
Antimony	6	6	ppb	0.001	NO	8/2016	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic	10	0	ppb	.012	NO	8/2016	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Asbestos	7	7	MFL	N/A		8/2016	Decay of asbestos cement water mains; erosion of natural deposits
Barium	2	2	ppm	0.39	NO	8/2016	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium	4	4	ppb	0.001	NO	8/2016	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Cadmium	5	5	ppb	0.0005	NO	8/2016	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium	100	100	ppb	0.001	NO	8/2016	Discharge from steel and pulp mills; erosion of natural deposits
Cyanide	0.15	0.20	Mg/L	0.025	NO	8/2016	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride	4	4	ppm	2.1	NO	8/2016	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Mercury (inorganic)	2	2	ppb	0.00021	NO	8/2016	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Nitrate (as Nitrogen)	10	10	ppm	8.2	NO	8/2016	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (as Nitrogen)	1	1	ppm	N/A		8/2016	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium	50	50	ppb	0.0057	NO	8/2016	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Thallium	2	0.5	ppb	0.001	NO	8/2016	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

Synthetic Organic Contaminants, Including Pesticides and Herbicides

Contaminant	MCL	MCLG	Units	Level Detected/ Range	Violation (Yes or No)	Sample Date	Likely Source of Contamination
2,4-D	70	70	ppb	0.00010	NO	8/2016	Runoff from herbicide used on row crops
2,4,5-TP (Silvex)	50	50	ppb	0.00020	NO	8/2016	Residue of banned herbicide
Acrylamide	TT	0	N/A			8/2016	Added to water during sewage/wastewater treatment
Alachlor	2	0	ppb	0.00010	NO	8/2016	Runoff from herbicide used on row crops
Atrazine	3	3	ppb	0.000050	NO	8/2016	Runoff from herbicide used on row crops
Benzo (a) pyrene (PAH)	200	0	ppt	0.000020	NO	8/2016	Leaching from linings of water storage tanks and distribution lines
Carbofuran	40	40	ppb	0.00050	NO	8/2016	Leaching of soil fumigant used on rice and alfalfa
Chlordane	2	0	ppb	0.00010	NO	8/2016	Residue of banned termiticide
Dalapon	200	200	ppb	0.0010	NO	8/2016	Runoff from herbicide used on rights of way
Di (2-ethylhexyl) adipate	400	400	ppb	0.00060	NO	8/2016	Discharge from chemical factories
Di (2-ethylhexyl) phthalate	6	0	ppb	0.00060	NO	8/2016	Discharge from rubber and chemical factories
Dibromochloropropane	200	0	ppt	0.000010	NO	8/2016	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards
Dinoseb	7	7	ppb	0.00020	NO	8/2016	Runoff from herbicide used on soybeans and vegetables
Diquat	20	20	ppb	0.00040	NO	8/2016	Runoff from herbicide use
Dioxin [2,3,7,8-TCDD]	30	0	ppq	5e-009	NO	8/2016	Emissions from waste incineration and other combustion; discharge from chemical factories
Endothal	100	100	ppb	0.0090	NO	8/2016	Runoff from herbicide use
Endrin	2	2	ppb	0.000010	NO	8/2016	Residue of banned insecticide

Contaminant	MCL	MCLG	Units	Level Detected/ Range	Violation (Yes or No)	Sample Date	Likely Source of Contamination
Epichlorohydrin	TT	0	N/A			8/2016	Discharge from industrial chemical factories; an impurity of some water treatment chemicals
Ethylene dibromide	50	0	ppt	0.000010	NO	8/2016	Discharge from petroleum refineries
Glyphosate	700	700	ppb			8/2016	Runoff from herbicide use
Heptachlor	400	0	ppt	0.000010	NO	8/2016	Residue of banned temiticide
Heptachlor epoxide	200	0	ppt	0.000010	NO	8/2016	Breakdown of heptachlor
Hexachlorobenzene	1	0	ppb	0.000050	NO	8/2016	Discharge from metal refineries and agricultural chemical factories
Hexachlorocyclo pentadiene	50	50	ppb	0.000050	NO	8/2016	Discharge from chemical factories
Lindane	200	200	ppt	0.000010	NO	8/2016	Runoff/leaching from insecticide used on cattle, lumber, gardens
Methoxychlor	40	40	ppb	0.000050	NO	8/2016	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
Oxamyl [Vydate]	200	200	ppb	0.00050	NO	8/2016	Runoff/leaching from insecticide used on apples, potatoes and tomatoes
PCBs [Polychlorinated biphenyls]	500	0	ppt			8/2016	Runoff from landfills; discharge of waste chemicals
Pentachlorophenol	1	0	ppb	0.000040	NO	8/2016	Discharge from wood preserving factories
Picloram	500	500	ppb	0.00010	NO	8/2016	Herbicide runoff
Simazine	4	4	ppb	0.000050	NO	8/2016	Herbicide runoff
Toxaphene	3	0	ppb	0.00050	NO	8/2016	Runoff/leaching from insecticide used on cotton and cattle

Volatile Organic Contaminants

Contaminant	MCL	MCLG	Units	Level Detected/ Range	Violation (Yes or No)	Sample Date	Likely Source of Contamination
Benzene	5	0	ppb	0.00050	NO	10/2018	Discharge from factories; leaching from gas storage tanks and landfills
Carbon tetrachloride	5	0	ppb	0.00050	NO	10/2018	Discharge from chemical plants and other industrial activities
Chlorobenzene	100	100	ppb	0.00050	NO	10/2018	Discharge from chemical and agricultural chemical factories
o-Dichlorobenzene	600	600	ppb	0.00050	NO	10/2018	Discharge from industrial chemical factories
p-Dichlorobenzene	75	75	ppb	0.00050	NO	10/2018	Discharge from industrial chemical factories
1,2-Dichloroethane	5	0	ppb	0.00050	NO	10/2018	Discharge from industrial chemical factories
1,1-Dichloroethylene	7	7	ppb	0.00050	NO	10/2018	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene	70	70	ppb	0.00050	NO	10/2018	Discharge from industrial chemical factories
trans-1,2-Dichloroethylene	100	100	ppb	0.00050	NO	10/2018	Discharge from industrial chemical factories
Dichloromethane	5	0	ppb	0.00050	NO	10/2018	Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane	5	0	ppb	0.00050	NO	10/2018	Discharge from industrial chemical factories
Ethylbenzene	700	700	ppb	0.00050	NO	10/2018	Discharge from petroleum refineries
Styrene	100	100	ppb	0.00050	NO	10/2018	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene	5	0	ppb	0.00050	NO	10/2018	Discharge from factories and dry cleaners
1,2,4-Trichlorobenzene	70	70	ppb	0.00050	NO	10/2018	Discharge from textile-finishing factories
1,1,1-Trichloroethane	200	200	ppb	0.00050	NO	10/2018	Discharge from metal degreasing sites and other factories
1,1,2-Trichloroethane	5	3	ppb	0.00050	NO	10/2018	Discharge from industrial chemical factories
Trichloroethylene	5	0	ppb	0.00050	NO	10/2018	Discharge from metal degreasing sites and other factories
Toluene	1	1	ppm	0.00050	NO	10/2018	Discharge from petroleum factories
Vinyl Chloride	2	0	ppb	0.00030	NO	10/2018	Leaching from PVC piping; discharge from chemical factories
Xylenes	10	10	ppm	0.0010	NO	10/2018	Discharge from petroleum factories; discharge from chemical factories

Unregulated Contaminants

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

Contaminant	MCL	MCLG	Units	Level Detected/ Range	Violation (Yes or No)	Sample Date	Likely Source of Contamination
	N/A	N/A			N/A		
	N/A	N/A			N/A		

Contaminant	MCL	MCLG	Units	Level Detected/ Range	Violation (Yes or No)	Sample Date	Likely Source of Contamination
	N/A	N/A			N/A		

Secondary Contaminants

Secondary standards are non-enforceable guidelines for contaminants that may cause cosmetic effects or aesthetic effects in drinking water. EPA recommends these standards but does not require water systems to comply.

Contaminant	Secondary Standard	MCLG	Units	Level Detected/ Range	Violation (Yes or No)	Sample Date	Likely Source
Aluminum	0.05 to 0.2	N/A	ppm		N/A		
Color	15	N/A	color units		N/A		
Corrosivity	noncorrosive	N/A	N/A		N/A		
Foaming Agents	0.5	N/A	ppm		N/A		
Iron	0.3	N/A	ppm		N/A		
Manganese	0.05	N/A	ppm		N/A		
Odor	3	N/A	threshold odor number		N/A		
pH	6.5 – 8.5	N/A	ppm		N/A		
Silver	0.10	N/A	ppm		N/A		
Sodium	N/A	N/A	ppm		N/A		
Sulfate	250	N/A	ppm		N/A		
Total Dissolved Solids	500	N/A	ppm		N/A		
Zinc	5	N/A	ppm		N/A		

Health Effects Information About the Above Tables

Nitrate in drinking water at levels above 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 or agricultural activity. If you are caring for an infant, and detected nitrate levels are above 5 ppm, you should ask advice from your health care provider.

If **arsenic** is less than the MCL, your drinking water meets EPA's standards. 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.

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. Flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the EPA *Safe Drinking Water Hotline* at 1-800-426-4791.

Violations

The following violations were received by our water system or were ongoing in the calendar year 2018

Type/Description	Compliance Period
07/2018 LT2 sample results came back positive. Action Taken was resampled and samples were normal	07/2018
Missed Monitoring for Arsenic	10/2018
Missed Monitoring for DBP. Samples were taken during next quarter	11/2018

An explanation of the violation(s) in the above table, the steps taken to resolve the violation(s) and any required health effects information are required to be included with this report. (attach copy of Public Notice if available)

TIER 3 PUBLIC NOTIFICATION IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Monitoring Requirements Not Met for [System]

Our water system violated drinking water standards over the past year. Even though these were not emergencies, as our customers, you have a right to know what happened and what we did to correct these situations.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During [compliance period] we [did not monitor or test' or 'did not complete all monitoring or testing'] for [contaminant(s)] and therefore cannot be sure of the quality of our drinking water during that time.

What should I do?

There is nothing you need to do at this time.

The table below lists the contaminant(s) we did not properly test for during the last year, how often we are supposed to sample for [this contaminant/these contaminants] and how many samples we are supposed to take, how many samples we took, when samples should have been taken, and the date on which follow-up samples were (or will be) taken.

Contaminant	Required sampling frequency	Number of samples taken	When samples should have been taken	When samples were taken

What is being done?

[Describe corrective action.]

For more information, please contact [name of contact] at [phone number] or [mailing address].

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by [City of Tombstone]. State Water System ID#: 02-033.

Date distributed: 07/02/2019.