



# 2019 Water Quality Report



Water Sustainability through Stewardship, Innovation and People

# About This Report

At Scottsdale Water we strive every day to epitomize our vision of *Water Sustainability through Stewardship Innovation and People*. We are dedicated to supplying you with safe, reliable drinking water at an affordable price with outstanding service. Our commitment to that goal is summarized in this annual report.

Water is a precious resource for our community, especially in our desert environment. In addition to working to ensure your water is safe, we are also dedicated to ensuring a secure and sustainable water supply for today and the future.

Through innovative aquifer recharge programs and effective strategic planning and investment, Scottsdale was the first city in Arizona to meet safe yield – put more water in the aquifer than we take out – and has been doing so every year since 2006, nearly 20 years ahead of the state-mandated deadline to do so. We also work to actively educate and encourage our citizens to use water wisely and conserve whenever possible.

I encourage you to review this report and learn about the work and dedication that goes into providing you safe, reliable and affordable drinking water each and every day.

**Brian K. Biesemeyer, PE** • Scottsdale Water Executive Director



## DEFINITIONS AND ABBREVIATIONS

**Contaminant** – Any physical, chemical, biological or radiological substance or matter in the water.

**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 allowed by the EPA in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

**Maximum Residual Disinfectant Level (MRDL)** – The highest level of a disinfectant (chlorine) allowed in drinking water. There is convincing scientific evidence that addition of a disinfectant is necessary for the 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 of disinfectants to control microbial contamination.

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

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

**Part Per Million (ppm) / Part Per Billion (ppb)** – Equivalent to mg/L and µg/L respectively, describe the levels of detected substances.

**Picocuries Per Liter (pCi/L)** – A measure of the radioactivity in a liter of water.

**Non-detectable (ND)** – The substance was analyzed but not detected.

**Not Applicable (NA)** – A regulatory limit does not exist.

## A NOTE FROM THE EPA

To ensure the water from your tap is safe to drink, the Environmental Protection Agency issues regulations limiting the amount of certain impurities allowed in drinking water and the water treatment process. You can expect all drinking water, including bottled water (which is regulated by the Food and Drug Administration), to contain at least small amounts of some contaminants. It's important to know that the presence or detection of impurities does not necessarily indicate a health risk.

Scottsdale's drinking water sources include rivers, lakes, reservoirs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring materials and can pick up substances from human or animal activity. Possible contaminants may include:

- **Microbial contaminants** including viruses, bacteria and parasites, which may come from sewage treatment plants, septic systems, agricultural or livestock operations and wildlife.
- **Inorganic contaminants** such as minerals, 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.
- **Radiochemical contaminants**, which occur naturally or result from oil and gas production and mining activities.
- **Pesticides and herbicides** that may come from a variety of sources such as agriculture, stormwater runoff and residential uses.
- **Organic chemical contaminants** including synthetic and volatile organic compounds, which are byproducts of industrial processes and petroleum production, and also can come from gas stations, urban stormwater runoff and septic systems.

# Water Supply and Treatment

Prior to the 1980s, Scottsdale was 100 percent reliant on groundwater for our water supply. Today, 90 percent of our total water supply comes from renewable surface water sources and recycled water, helping us ensure a long-term water supply for future generations.

Depending on the time of year, the weather and customer demand, you may receive water from a single source or from a combination of sources.



## SURFACE WATER

Scottsdale's main surface water supply comes from the Colorado River. It is transported through the Central Arizona Project canal to the CAP Water Treatment Plant at the Scottsdale Water Campus.

The CAP Plant, which can treat up to 70 million gallons of water a day, is actually three distinct facilities. CAP I and II use a conventional water treatment process, which includes pretreatment, coagulation/flocculation, sedimentation, filtration and disinfection. Water at CAP III is treated with ultrafiltration membrane technology and disinfection. The CAP Plant uses granular activated carbon to improve taste and odor and treat for disinfection byproducts.

We also receive surface water from the Verde and Salt rivers watersheds, which is transported by the Salt River Project to the Chaparral Water Treatment Plant. The Chaparral WTP uses ultrafiltration membranes and granular activated carbon and has a treatment capacity of 27 million gallons a day.

## SOURCE WATER ASSESSMENT PROGRAM

In 2004, Scottsdale worked with the Arizona Department of Environmental Quality to finalize an assessment on the wells and surface water sources we use to provide you with drinking water. This assessment looked at potential risks to our water sources, which include gas stations, landfills, dry cleaners, agricultural fields and wastewater treatment plants.

The assessment concluded that most of Scottsdale's groundwater wells have low to medium risk, with the exception of the wells linked to the North Indian Bend Wash Superfund Site. The water produced

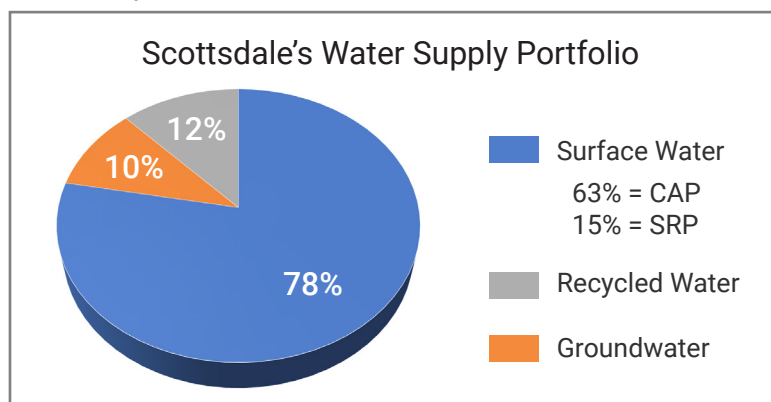
## GROUNDWATER

A small portion of Scottsdale's water supply also comes from aquifers deep below ground. The city has 23 active wells and operates several groundwater treatment facilities, including the Central Groundwater Treatment Facility and the North Groundwater Treatment Facility, which treat groundwater from the North Indian Bend Wash Superfund site. Both facilities were built by private companies that were deemed potentially responsible for contaminating the groundwater with Trichloroethylene. These companies pay operating and maintenance costs of the facilities. The groundwater is treated to levels that exceed federal and state drinking water standards, with regulatory oversight by the EPA, ADEQ and Maricopa County.

## RECYCLED WATER

The Advanced Water Treatment Plant at the Scottsdale Water Campus is one of the largest and most advanced water recycling facilities in the world. The plant treats water from Scottsdale businesses and homes to ultrapure standards that exceed federal drinking water regulations. That water is then used for turf irrigation and to replenish our local aquifers.

Over the past 20 years, the state-of-the-art facility has enabled Scottsdale to recharge over 65 billion gallons of water into our area aquifers, safeguarding the city's long-term water supply while ensuring the exceptional water quality of our local aquifers.



by these wells has a high risk of contamination, but is treated to meet or surpass drinking water standards and monitored closely by the city, ADEQ and the EPA.

All surface water sources are considered high risk due to their exposure to open air. These risks are addressed by the EPA through its increased monitoring requirements for surface water sources. The complete assessment is available at [azdeq.gov/environ/water/dw/swap.html](http://azdeq.gov/environ/water/dw/swap.html) or by calling Scottsdale Water at 480-312-8732.

# Why *choose tap* over bottled water?

## AFFORDABLE



A 25-ounce bottle can be refilled **1,200 times** for just **\$1**.



Your recommended **8 glasses of water** a day cost **80 cents a year** from Scottsdale Water.



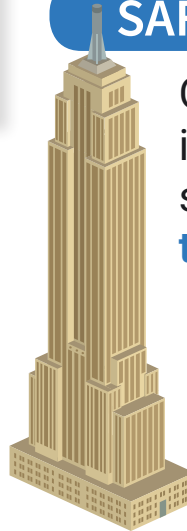
## SUSTAINABLE

On average, **only 1 in 5** plastic water bottles are recycled.



**80%** end up in landfills and waterways.

## SAFE



Our lab is so advanced it can test for some substances **down to the part per quadrillion**.

That's equivalent to one drop of water diluted in an ice cube the size of the Empire State Building!

## WATER HARDNESS

As water makes its way to treatment plants or through aquifers, it picks up naturally occurring minerals that make the water "hard" and can also affect taste and other characteristics. Hardness is not a primary water quality standard and is not considered to be a health concern. Scottsdale is committed to providing you with the cleanest and safest drinking water possible, at an affordable price. We could implement additional treatment processes to address hardness, but this would not be cost effective, especially since the majority of residential water consumption is for outdoor use. There are varying levels of water hardness throughout Scottsdale as shown in the table to the right.

Approximate Hardness Levels

Boundary	Hardness (Grains per Gallon)	Hardness (mg/L or ppm)
South of Indian School Road	18 - 24	313 - 404
Indian School Road to Chaparral Road	17.6 - 18	301-314
North of Chaparral Road	15 - 18	252-307

## Citizen Academy

The Scottsdale Water Citizen Academy provides an inside look at your city's water utility, which happens to be one of the most advanced municipal water systems in the country! The multiweek course explains all facets of Scottsdale Water planning and policies and takes you inside our state-of-the-art facilities and daily operations.

For more information, visit [ScottsdaleAZ.gov](http://ScottsdaleAZ.gov) and search "Water Academy."



# 2018 Compliance Monitoring Results

Scottsdale performs tests for an assortment of contaminants at locations throughout the city. We test samples from 10 entry points to the distribution system that represent the treated source water and at 150 locations throughout the distribution system to ensure the water entering your home or business remains safe and reliable.

We test for over 100 substances, but only the substances detected in the water are listed in this report. The results shown are from testing performed in 2018 unless otherwise noted.

A few substances are discussed in detail below. For more information about other substances or a complete list of all testing, please contact us at 480-312-8732 or visit the EPA's website, [epa.gov/dwstandardsregulations](http://epa.gov/dwstandardsregulations).

**Arsenic** is a naturally occurring mineral commonly found in water due to leaching from rocks and soil. The maximum contaminant level (MCL) for arsenic allowed in drinking water is 10 ppb (parts per billion), based on a running annual average.

While your drinking water meets or surpasses EPA's standard for arsenic, it does contain low levels of arsenic. EPA is continually researching the health effects of low levels of arsenic, which has been known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. In 2018, the highest level of arsenic measured in Scottsdale's drinking water was 8.2 ppb.

**Nitrate** is an inorganic substance that is monitored due to run off from fertilizer use. Nitrate in drinking water at levels greater than 10 ppm (parts per million) is considered a health risk for infants younger than six months of age. (Nitrate levels above 10 ppm in drinking water can cause blue baby syndrome.) Nitrate levels in surface water supplies may rise quickly for short periods of time due to rainfall or agricultural activity. If you are caring for an infant you should seek advice from your health care provider. In 2018, the highest nitrate level detected in Scottsdale's drinking water was 5.3 ppm.

**Turbidity** is a measure of clarity in the water and is reported as Nephelometric Turbidity Units (NTU). Turbidity is caused by a variety of substances including sand, dirt and algae. Water is measured for turbidity to determine the effectiveness of the water treatment process. Scottsdale measures turbidity continuously at its surface water treatment plants.

**Microbiological Testing** is performed monthly at over 150 sites within the distribution system for Total Coliform and E. coli bacteria in order to verify the integrity of the distribution system as well as our water sources.

**Chlorine** is used as a disinfectant to ensure the treated water remains safe at all times. We continually monitor chlorine levels throughout the system to ensure that safe and adequate levels are maintained. Scottsdale's goal is to have a chlorine residual between 0.5 and 1.2 ppm in our drinking water system.

Byproducts of using chlorine as a disinfectant are trihalomethanes and haloacetic acids. These are formed as a result of a chemical reaction between chlorine and naturally occurring organic matter in the water. To minimize the formation of these disinfection byproducts (DBP), granular



activated carbon is used during the water treatment process to reduce levels of organic matter and subsequently reduce DBP levels.

**Lead and copper** are typically found in drinking water because of materials and components found in service lines and home plumbing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Scottsdale is committed to 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 [epa.gov/safewater/lead](http://epa.gov/safewater/lead).

The most recent testing for lead and copper was performed in 2017. Lead and copper levels reported in the table are from water faucets inside 52 Scottsdale homes that were built before the lead ban. Results from all homes were below the action levels for lead and copper.

All residents participating in the lead and copper program are notified of their home's results. If the lead concentration in a home's water exceeds 15 ppb, the home is retested and the homeowner is contacted for follow-up guidance on ways to lessen the risk of exposure to lead from drinking water.

To further protect our customer's from lead in drinking water, Scottsdale uses caution when changing to a new water source or changing an existing treatment process. Additional monitoring is performed to ensure the water is not corrosive to home plumbing.

## Additional Monitoring

**Cryptosporidium** is a pathogen found in surface water throughout the United States and can be spread through other methods besides drinking water. Ingestion may cause a gastrointestinal illness. During periodic monitoring conducted in 2017, *Cryptosporidium* was not detected in our source waters. If present, this organism is removed during treatment through the use of multimedia filtration.

# Results for Regulated Contaminants

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	System Average	Highest Running Annual Average <sup>1</sup>	Likely Source in Drinking Water
Arsenic	ppb	10	0	1.6	8.2	4.3	8.2	Leaching of natural deposits
Barium	ppb	2,000	2,000	11	127	65	127	Leaching of natural deposits
Chromium	ppb	100	100	ND	42.4	6.5	42.4	Leaching of natural deposits
Ethylbenzene	ppb	700	700	ND	0.55	0.03	0.2	Discharge from petroleum refineries
Fluoride	ppm	4	4	ND	0.5	0.34	0.5	Leaching of natural deposits
Nickel	ppb	N/A	N/A	ND	6.2	1.3	6.2	Leaching of natural deposits
Nitrate	ppm	10	10	ND	6.4	1.6	N/A	Leaching of natural deposits and septic systems; runoff from fertilizer use
Selenium	ppb	50	50	ND	2.7	1.4	2.7	Leaching of natural deposits; discharge from petroleum refineries and mining
Alpha Emitters <sup>2</sup>	pCi/L	15	0	ND	2.3	1.3	N/A	Leaching of natural deposits
Uranium	ppb	30	0	1.4	9.5	3.3	N/A	Leaching of natural deposits
Radium, Combined <sup>2</sup>	pCi/L	5	0	ND	ND	ND	N/A	Leaching of natural deposits
Total Organic Carbon	ppm	TT	N/A	1.9	2.7	2.4	N/A	Naturally present in the environment
Total Xylenes	ppb	10,000	10,000	ND	3	0.158	1	Discharge from petroleum factories, discharge from chemical factories

Substance	Unit	MCL	TT Requirement	Highest Measurement	Treatment Technique Comparison	Likely Source in Drinking Water
Turbidity	NTU	1	95% less than 0.3 NTU	0.15	100% less than 0.3 NTU	Soil runoff

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
Total Coliform	%	5 (monthly)	0	0	0	0	Naturally present in the environment
Chlorine	ppm	4 (MRDL)	4 (MRDLG)	0.21	1.39	0.89	Water additive used to control microbial growth
Total Trihalomethanes (TTHMs)	ppb	80	N/A	18.7	69.1	56.7 <sup>3</sup>	Byproduct of water disinfection
Haloacetic Acids	ppb	60	N/A	3.1	14.8	12.6 <sup>3</sup>	Byproduct of water disinfection

Substance	Unit	AL	MCLG	90 <sup>th</sup> Percentile Value	# of Homes Greater than AL	Levels in Treated Water	Likely Source in Drinking Water
Lead <sup>4</sup>	ppb	15	0	1.8 <sup>2</sup>	0 of 52	ND - 2.9	Corrosion of household plumbing
Copper <sup>4</sup>	ppb	1,300	N/A	147 <sup>2</sup>	0 of 52	ND - 11.7	Corrosion of household plumbing

1. Highest average at a single sample location
2. 2017 sampling data
3. Reported value is the highest locational running annual average (LRAA) calculated on a quarterly basis.
4. Lead and Copper Standard: 90% of homes tested must have lead and copper levels below the alert level (AL).

## Attention Immuno-Compromised Citizens:

If you are a person with a compromised immune system (i.e. undergoing chemotherapy, have had an organ transplant or have HIV/AIDS or other immune system disorders) you may be particularly at risk of infections and more vulnerable to contaminants in drinking water. Some elderly persons and

infants may also have increased risk. You are encouraged to seek advice about drinking water from your health care provider. More information including ways to lessen the risk of infection from microbial contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

# Results for Unregulated Contaminants

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected
Alkalinity	ppm	NA	NA	114	248
Aluminum	ppm	NA	NA	ND	0.13
Calcium	ppm	NA	NA	18	89
Chloride	ppm	NA	NA	29	290
Iron	ppm	NA	NA	ND	1.57
Magnesium	ppm	NA	NA	15	51
Manganese	ppm	NA	NA	ND	0.01
pH	Std. Unit	NA	NA	7.4	8.2
Sodium	ppm	NA	NA	40	161
Sulfate	ppm	NA	NA	15	247
Temperature	°C	NA	NA	13	34
	°F	NA	NA	55	93
Total Dissolved Solids	ppm	NA	NA	266	860
Zinc	ppm	NA	NA	ND	0.02



## RESULTS FOR UNREGULATED CONTAMINANT MONITORING RULE

In an ongoing effort to improve the safety of drinking water, the Unregulated Contaminant Monitoring Rule (UCMR), part of the Safe Drinking Water Act, requires the EPA and water systems to assess the occurrence of unregulated contaminants in drinking water across the country. A new list of contaminants is issued about every five years and can contain up to 30 contaminants. The EPA uses this occurrence data along with health effects studies to determine if additional regulations are needed to protect public health.

Monitoring is performed at every location where source water enters the distribution system and some contaminants are also measured at points within the distribution system, where the water is consumed. The table below shows results of the most recent testing conducted in 2015.

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
Chlorate	ppb	N/A	N/A	180	250	180 (250 <sup>1</sup> )	Byproduct of drinking water disinfection
Chromium, Hexavalent	ppb	N/A	N/A	4.8	5.2	5.2 (4.8 <sup>1</sup> )	Leaching of natural deposits
Molybdenum, Total	ppb	N/A	N/A	1.9	3	3 (1.9 <sup>1</sup> )	Leaching of natural deposits
Strontium, Total	ppb	N/A	N/A	1,100	1,300	1,300 (1,100 <sup>1</sup> )	Leaching of natural deposits
Vanadium, Total	ppb	N/A	N/A	9	9.9	9 (9.9 <sup>1</sup> )	Leaching of natural deposits
1,4-Dioxane	ppb	N/A	N/A	0.27	0.27	0.27	Used primarily as a solvent, or solvent stabilizer

1. The first value listed is the average concentration in the source water; the second value listed is the average in the distribution system.

## ADDITIONAL WATER INFORMATION RESOURCES

U.S. EPA's Safe Drinking Water Hotline  
800-426-4791, [epa.gov/safewater](http://epa.gov/safewater)

Arizona Department of Environmental Quality  
602-771-2300, [azdeq.gov/environ/water/dw](http://azdeq.gov/environ/water/dw)

Maricopa County Environmental Services Department  
602-506-6666, [maricopa.gov/EnvSvc/WaterWaste](http://maricopa.gov/EnvSvc/WaterWaste)

Water-related topics may be discussed at City Council meetings or other public forums and we welcome your attendance. Meeting notices and City Council agendas are posted on the city's website at [ScottsdaleAZ.gov](http://ScottsdaleAZ.gov), search "Council Agendas."

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 480-312-8711.

# Outreach and Education

## Water Efficiency Workshops

Scottsdale Water offers free workshops designed to help you learn how to use water more efficiently in your home and yard. Topics include water-wise gardening, irrigation maintenance and troubleshooting, finding and fixing leaks and desert plants and pruning. Online registration is required for all workshops.

## Rebates

Scottsdale Water has great rebates for anyone who wants to make smart changes to their property. The rebates cover installation of certain WaterSense fixtures and the removal of water softeners, water-intensive turf and pools and spas. Rebates are available for single-family, multifamily, HOA and commercial properties.

## Outreach Partnerships



Identify water-efficient toilets, faucets and other plumbing fixtures by looking for the WaterSense label. [EPA.gov/watersense](http://EPA.gov/watersense)



Scottsdale is one of 20 Arizona water partners in a water awareness campaign to promote easy tips for saving water. [WaterUseItWisely.com](http://WaterUseItWisely.com)



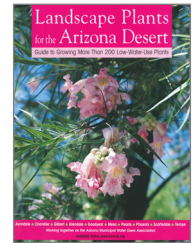
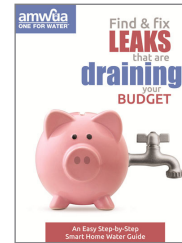
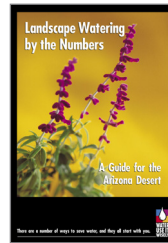
Tap Into Quality is an educational campaign aimed at increasing awareness about the safety, convenience and affordability of the region's tap water. [TapIntoQuality.com](http://TapIntoQuality.com)



Scottsdale works with STORM to educate the public on ways to protect the quality of stormwater runoff and protect our waterways. [AZStorm.org](http://AZStorm.org)

## Free Publications

Scottsdale Water offers a range of free publications to help you conserve water in and around your home. To view the publications online or request a printed copy, visit us at [ScottsdaleAZ.gov/Water](http://ScottsdaleAZ.gov/Water) or call 480-312-5650.



## Choose Tap! Water Trailer

Scottsdale's *Choose Tap!* Water Trailer, which serves up chilled water at major city events, helps educate the public about the financial, environmental and health benefits of choosing tap over bottled water.



[ScottsdaleAZ.gov/Water](http://ScottsdaleAZ.gov/Water)

480-312-5650

Water Quality: 480-312-8732

