

Tonto Hills from top of Storage Tank



ANNUAL WATER QUALITY REPORT (Consumer Confidence Report) FOR CALENDAR YEAR 2016

Tonto Hills Domestic Water Improvement District
Public Water System ID No. AZ04 - 07076

Report Date
May 12, 2017

TONTO HILLS DOMESTIC WATER IMPROVEMENT DISTRICT

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WATER EMERGENCIES

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ANNUAL WATER QUALITY REPORT (Consumer Confidence Report) FOR CALENDAR YEAR 2016

The mission of the Tonto Hills Domestic Improvement District (THDWID) is to provide reliable potable water to the residents of Tonto Hills at a reasonable cost. We want our valued customers to be informed about their water quality. This Consumer Confidence Report for 2016 contains important information about your drinking water. It includes information on where your water comes from, how it is treated and delivered, and how the water quality meets federal and state standards.

In 2016, our water continued to meet all federal and state drinking water standards.

The volunteer THDWID Board is comprised of your neighbors and, together with its part-time local resident employees, is committed to providing a sustainable supply of safe drinking water. In that effort, the THDWID regularly samples the Tonto Hills water system in accordance with federal and state requirements, maintains the storage and distribution system to minimize leaks and interruption of water service, and plans ahead for potential emergencies as well as ensuring reliable long-term water supplies through conservation, water banking, and acquisition of additional water sources.

Please take a moment to review this report and let us know if you have any questions. If you would like to learn more about public participation or to attend any of our regularly scheduled meetings, please refer to agendas and contact information posted regularly at www.tontohillsdwid.org and on the bulletin board at the community mailboxes for additional opportunities and meeting dates and times. You may also call our office at 480-595-0128.

Bill Victor
Superintendent

Este informe contiene información muy importante sobre el agua usted bebe. Tradúscalo ó hable con alguien que lo entienda bien.

Licensed Operator for Water System

Dean Orem

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TONTO HILLS' DRINKING WATER

The source of Tonto Hills' drinking water is the City of Scottsdale distribution system (public water system [PWS] ID Number AZ04 - 07098). Our water system (PWS ID Number AZ04 - 07076) consists of a water storage tank on the hill above Tonto Hills and an associated network of pipes and valves that distributes water by gravity flow from the storage tank to our residences and to several standpipes throughout the community. The water from Scottsdale enters our distribution system through a water meter located high in the neighboring community of Desert Mountain.

On paper, Tonto Hills receives surface water from the Central Arizona Project (CAP) canal through its Central Arizona Water Conservation District (CAWCD) allocation; this surface water originates from the Colorado River at Lake Havasu. However, through a contract to withdraw our water from the CAP canal, treat it, and deliver it to us, Scottsdale blends our surface water with other water sources used by north Scottsdale. Therefore, the water we receive from Scottsdale is actually a blend of surface water (from rivers, lakes, and reservoirs) and groundwater (from Scottsdale wells).

Additional information about our drinking water source, including the history and operations of the Tonto Hills water system, the Conservation Plan, annual water banking of our unused water allocation, and the water rate structure can be found on our website at www.tontohillsdwid.org.

WATER QUALITY MESSAGE FROM EPA

THE U.S. Environmental Protection Agency (EPA) has developed water quality regulations in conjunction with state and local agencies to ensure your drinking water is safe. All drinking water, including bottled water (which is regulated by the Food and Drug Administration), contains small amounts of some contaminants. It's important to know that the presence (or detection) of these impurities does not necessarily indicate a health risk. 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. Potential water contaminants may 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.

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.

Pesticides and herbicides that may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses.

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

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 from their healthcare providers about drinking water. For more information about contaminants and potential health effects, or to receive a copy of the 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.

DEFINITION OF TERMS USED ON THESE TABLES AND IN THIS REPORT

- **AL (Action Level):** The concentration of a contaminant that, if exceeded, triggers treatment or other requirements.
- **Contaminant:** Any physical, chemical, biological, or radiological substance or matter in water.
- **MCL (Maximum Contaminant Level):** The highest level of a contaminant that is allowed in drinking water.
- **MCLG (Maximum Contaminant Level Goal):** The level of a contaminant in drinking water below which there are no known or expected risks to health.
- **MRDL (Maximum Residual Disinfectant Level):** The level of disinfectant added for water treatment that may not be exceeded at the consumer's tap.
- **MRDLG (Maximum Residual Disinfectant Level Goal):** The level of disinfectant added for treatment at which no known or anticipated adverse effect on human health would occur.
- **N/A (Not Applicable):** Sampling was not completed by regulation or was not required (for Tables 2, 4, and 5, N/A indicates regulatory limits do not exist).
- **ND (Not Detected):** Substance was analyzed, but not detected at the laboratory reporting limit.
- **NTU (Nephelometric Turbidity Units):** A measure of water clarity.
- **pCi/L (Picocuries Per Liter):** A measure of the radioactivity of a substance.

- **ppm (Part Per Million):** A measurement of the concentration of a substance that is equivalent to milligrams per liter (mg/L), except at very high concentrations. One ppm (or mg/L) is equivalent to about 1 drop of food coloring in 13 gallons of water.
- **ppb (Part Per Billion):** A measurement of the concentration of a substance that is equivalent to micrograms per liter ($\mu\text{g/L}$), except at very high concentrations. One ppb (or $\mu\text{g/L}$) is equivalent to about 1 drop of water in an Olympic-sized swimming pool. ²
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water to the level possible by an available treatment technique.

2016 COMPLIANCE MONITORING RESULTS

The THDWID is required to conduct monthly and quarterly sampling of the water system and to have the samples analyzed by state-certified laboratories. Chemical and microbiological constituents that are analyzed for the THDWID water system are listed in **Table 1** of this report. Because our water is provided through a consecutive connection from the City of Scottsdale, results of the Scottsdale monitoring programs are provided in **Tables 2 through 5** of this report. In addition, a more complete description of water quality compliance monitoring for the Scottsdale water system is given on their website at <http://www.scottsdaleaz.gov/water/drinking-water>. Water samples analyzed from Scottsdale's water system in 2016 met all federal and state drinking water regulations.

The Tonto Hills water distribution system is sampled from standpipes located at the southern end of Kachina Road and at the cul-de-sac on Turquoise Lane. These standpipes are considered to be the most distant locations from the water storage tank and, therefore, yield water that has had the maximum residence time in our distribution system and the maximum opportunity to pick up potential contaminants. Water from these two standpipes is analyzed for disinfection byproducts on a quarterly basis. On a monthly basis, one sample for analysis of microbiological constituents (total coliform and E. coli) and residual chlorine are collected from the distribution system at one standpipe (location was rotated among different standpipes distributed around the community). In addition, every three years copper and lead are sampled in water obtained from taps at five residences spread across the community; this sampling was conducted in 2016 and is included in this report.

Water samples analyzed from the THDWID distribution system in 2016 met all federal and state drinking water regulations.

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TABLE 1. 2016 Results of Monitoring Program for THDWID Water Distribution System

Microbiological	Violation Y or N	Number of Samples Present	Absent (A) or Present (P)	MCL	MCLG	Sample Month & Day	Likely Source in Drinking Water
Total Coliform Bacteria (System takes ≥ 40 monthly samples) 5% of monthly samples are positive; (System takes ≤ 40 monthly samples) 1 positive monthly sample	N	0	A	0	0	Monthly	Naturally present in the environment
Fecal coliform and E. Coli (TC Rule)	N	0	A	0	0	Monthly	Human and animal fecal waste
Disinfectants	Violation Y or N	Running Annual Average (RAA)	Range of All Samples (Low-High)	MCL	MCLG	Sample Month & Day	Likely Source in Drinking Water
Chlorine (ppm)	N	0.54	0.13 - 0.80	MRDL = 4	MRDLG = 4	Monthly	Water additive used to control microbes
Disinfection By-Products	Violation Y or N	Running Annual Average (RAA)	Range of All Samples (Low-High)	MCL	MCLG	Sample Month & Day	Likely Source in Drinking Water
Haloacetic Acids (HAA5) (ppb)	N	7.6	<2 - 15.6 µg/L	60	N/A	3/8, 3/11, 6/14, 9/12, 12/13	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	N	49.3	36.9 - 76 µg/L	80	N/A	3/11, 6/14, 9/12, 12/13	Byproduct of drinking water disinfection
Lead & Copper	Violation Y or N	90 th Percentile AND No. of Samples Over AL	Range of All Samples (Low-High)	AL	ALG	Sample Month & Year	Likely Source in Drinking Water
Copper (ppm) (2016 result)	N	90 th Percentile = 0.509 ppm; none of 5 homes > AL	<0.01 - 0.922	1.3	1.3	Every 3 years, last sampled 8/2016	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (2016 result)	N	90 th Percentile = 0.00235 ppm; none of 5 homes > AL	<0.001 - 0.0037	15	0	Every 3 years, last sampled 8/2016	Corrosion of household plumbing systems; erosion of natural deposits

TABLE 2. 2016 Results of Monitoring Program for Scottsdale Water Distribution System

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
Total Coliform Bacteria (System takes ≥ 40 monthly samples) 5% of monthly samples are positive; (System takes ≤ 40 monthly samples) 1 positive monthly sample	%	5 (monthly)	0	0	1	0	Naturally present in the environment
Chlorine	ppm	MRDL = 4	MRDLG = 4	0.16	1.41	0.9	Water additive used to control microbial growth
Total Trihalomethanes (TTHMs)	ppb	80	N/A	17.1	71.6	62.7 ^a	Byproduct of drinking water disinfection
Haloacetic Acids (HAA5)	ppb	60	N/A	2.4	15.6	14.7 ^a	Byproduct of drinking water disinfection

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Substance	Unit	AL	MCLG	90 th Percentile Value	No. of Homes Greater than AL	Levels in Treated Water	Likely Source in Drinking Water
Copper ^{b,c}	ppb	1300	N/A	120	0 out of 68	ND to 8.4	Corrosion of household plumbing systems
Lead ^{b,c}	ppb	15	0	1.6	0 out of 68	ND to 1.6	Corrosion of household plumbing systems

- ^a Reported value is the highest locational running annual average (LRAA) calculated on a quarterly basis.
- ^b Lead and Copper Standard: 90% of homes tested must have lead and copper levels below the action/alert level (AL).
- ^c Values reported include testing results from 2014-2015 (most recent testing performed).

TABLE 3. 2016 Results of Monitoring Program for Scottsdale Treated Source Water

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
Arsenic ^a	ppb	10	0	ND	7.2	5.2	Leaching of natural deposits
Barium ^a	ppb	2,000	2,000	9.7	136	59	Leaching of natural deposits
Chromium ^a	ppb	100	100	ND	39	6.6	Leaching of natural deposits
Fluoride ^a	ppm	4	4	0.2	0.7	0.4	Leaching of natural deposits
Nickel ^a	ppb	N/A	N/A	ND	2.7	ND	Leaching of natural deposits
Nitrate	ppm	10	10	ND	7.0	4.8 ^b	Leaching of natural deposits and septic systems; Runoff from fertilizer use
Selenium ^a	ppb	50	50	ND	2.7	1.3	Leaching of natural deposits; Discharge from petroleum refineries and mining
Alpha Emitters ^a	pCi/L	15	0	ND	2.7	0.8	Leaching of natural deposits
Uranium ^a	ppb	30	0	ND	5.2	2.5	Leaching of natural deposits
Radium (Combined) ^a	pCi/L	5	0	ND	0.7	ND	Leaching of natural deposits
Total Organic Carbon	ppm	TT	N/A	1.2	1.8	1.5	Naturally present in the environment
Substance	Unit	MCL	TT Requirement	Highest Measure	Treatment Technique Comparison		Likely Source in Drinking Water
Turbidity	NTU	1	95% less than 0.3 NTU	0.24	100% less than 0.3 NTU		Soil runoff

- ^a Values reported include testing results from 2014-2015 (most recent testing performed).
- ^b Reported value is the highest locational running annual average (LRAA) calculated on a quarterly basis.

SCOTTSDALE MONITORING RESULTS FOR UNREGULATED CONTAMINANTS

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 Scottsdale distribution system and some contaminants are also measured at points within the distribution system, where the water is consumed. **Table 4** summarizes results of the most recent testing conducted in 2015, as well as older results where sampling was conducted previously.

TABLE 4. 2015 Results for Unregulated Contaminant Monitoring Rule (UCMR3) for Scottsdale

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 ^a)	Byproduct of drinking water disinfection
Chromium (Hexavalent)	ppb	N/A	N/A	4.8	5.2	5.2 (4.8 ^a)	Leaching of natural deposits
Molybdenum (Total)	ppb	N/A	N/A	1.9	3.0	3.0 (1.9 ^a)	Leaching of natural deposits
Strontium (Total)	ppb	N/A	N/A	1,100	1,300	1,300 (1,100 ^a)	Leaching of natural deposits
Vanadium (Total)	ppb	N/A	N/A	9.0	9.9	9.0 (9.9 ^a)	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

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

TABLE 5. 2016 Results for Unregulated Substances for Scottsdale Treated Source Water

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected
Alkalinity	ppm	N/A	N/A	116	252
Aluminum	ppm	N/A	N/A	ND	0.07
Calcium	ppm	N/A	N/A	21	124
Chloride	ppm	N/A	N/A	32	403
Iron	ppm	N/A	N/A	ND	0.34
Magnesium	ppm	N/A	N/A	13	57
Manganese	ppm	N/A	N/A	ND	0.06
pH	Standard Unit	N/A	N/A	7.0	8.4
Sodium	ppm	N/A	N/A	31	237
Sulfate	ppm	N/A	N/A	11	250
Temperature	°C	N/A	N/A	14	35
	°F	N/A	N/A	57	95
Total Dissolved Solids	ppm	N/A	N/A	272	938
Zinc	ppm	N/A	N/A	ND	0.013

Note: Values reported include testing results from 2014-2015 (most recent testing performed).

ADDITIONAL WATER QUALITY INFORMATION

The following is additional information on substances in drinking water. Of the substances discussed, only lead, copper, chlorine, and the disinfection byproducts trihalomethanes (TTHMs) and haloacetic acids (HAA5) are required to be monitored in the THDWID water system. However, all of these substances are monitored in the Scottsdale water system.

Lead and Copper. Lead and copper are typically found in drinking water due to materials and components associated with water service lines and home plumbing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Scottsdale and Tonto Hills Domestic Water Improvement District are 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 EPA Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

The most recent testing for lead and copper was conducted for THDWID from taps at 5 Tonto Hills homes in 2016 (**Table 1**) and for Scottsdale from taps at 68 homes (**Table 2**). Results from all homes in both systems were below the action levels for lead and copper.

Chlorine. Chlorine is used as a disinfectant to ensure the treated water remains safe at all times. Scottsdale and the THDWID regularly monitor chlorine levels in their respective water systems to ensure that safe and adequate levels are maintained. Scottsdale's chlorine residual ranged from 0.16 to 1.41 ppm in its drinking water system; the average was 0.9 ppm (**Table 2**). THDWID's chlorine residual in 2016 ranged from 0.13 to 0.80 ppm; the average was 0.54 ppm (**Table 1**).

Disinfection Byproducts. Byproducts of using chlorine as a disinfectant are trihalomethanes (TTHMs) and haloacetic acids (HAA5). These substances are formed as a result of a chemical reaction between chlorine and naturally occurring organic matter in the water and pipelines. To minimize the formation of these disinfection byproducts, Scottsdale uses granular activated carbon (GAC) during the water treatment process to reduce levels of organic matter and subsequently reduce disinfection byproduct levels. Some individuals who drink water containing excess amounts of disinfection byproducts over many years may experience problems with their liver, kidneys, or central nervous systems and increase their risk of cancer. In the THDWID water system, all concentrations of TTHMs and HAA5 detected in 2016 were below the drinking water MCL (**Table 1**).

Nitrate. Nitrate is an inorganic substance that is monitored due to run off from fertilizer use. Nitrate in drinking water at levels above 10 ppm is a health risk for infants 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 due to 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 healthcare provider. In 2016, the highest nitrate level detected in Scottsdale’s drinking water was 7.0 ppm (**Table 3**), which is less than the MCL set by the EPA.

Arsenic. Arsenic is a naturally occurring mineral commonly found in water due to leaching from rocks and soil. The MCL for arsenic allowed in drinking water is 10 ppb, based on a running annual average. Arsenic 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. If arsenic is less than or equal to the MCL, your drinking water meets EPA’s standards. EPA’s arsenic standard balances the current understanding of possible health effects against the cost of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic. While Scottsdale’s drinking water meets or surpasses EPA’s standard for arsenic, it does contain low levels of arsenic. In 2016, the highest level of arsenic measured in Scottsdale’s drinking water was 7.2 ppb (**Table 3**), which is less than the MCL set by the EPA.

Cryptosporidium. 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 voluntary, periodic monitoring conducted in 2015, Cryptosporidium was not detected in Scottsdale’s source waters. If present, this organism is removed during treatment through the use of multimedia filtration.

Perchlorate. Used as a component of rocket fuel munitions and in the fireworks industry. The EPA does not currently require monitoring of perchlorate in drinking water, but has set an interim health advisory level of 15 ppb. Arizona’s guidance level is 14 ppb. Scottsdale has elected to monitor its CAP water for perchlorate. In 2014, the highest level of perchlorate detected in Scottsdale source water was 1.2 ppb.