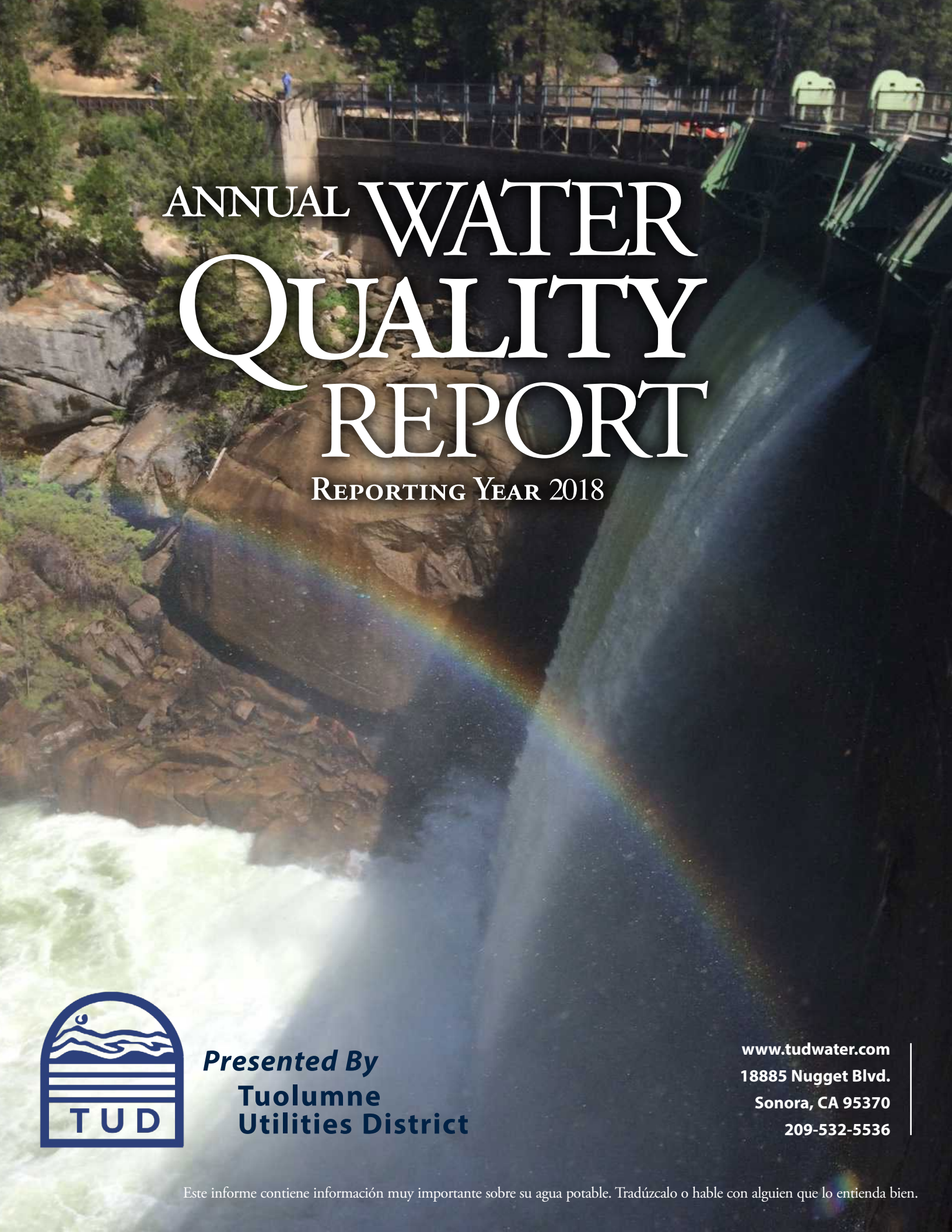


# ANNUAL WATER QUALITY REPORT

Reporting Year 2018

*Presented By*

**Tuolumne Utilities District**


**www.tudwater.com**
**18885 Nugget Blvd.**
**Sonora, CA 95370**
**209-532-5536**


Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

## Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2018. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available should you ever have any questions or concerns about your water.

## Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 do so, you may wish to collect the flushed water and reuse it for another beneficial purpose, such as watering plants.) 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 at (800) 426-4791 or at www.epa.gov/safewater/lead.

## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those 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 http://water.epa.gov/drink/hotline.

## Where Does My Water Come From?

The most important factor in water quality is its source. There are two sources of supply from which Tuolumne Utilities District (District, or TUD) receives its water: surface water that originates from rainfall and runoff from snowpack in the Sierra Nevada Mountains and from groundwater wells. The District comprises 11 water service areas, 11 surface water treatment plants, and 12 active wells.

Our surface water is delivered to TUD starting at the South Fork of the Stanislaus River at Lyons Reservoir via the Tuolumne Main Canal, by agreement with Pacific Gas and Electric Company (PG&E). PG&E owns and operates Pinecrest Lake, Lyons Reservoir, and the Tuolumne Main Canal. Approximately 96% of TUD's annual water needs are met with surface water from Lyons Reservoir and Pinecrest Lake; the other 4% is met with groundwater either as a primary source or a backup source.

To learn more about our watershed on the Internet, go to the U.S. EPA's Surf Your Watershed at www.epa.gov/surf.

## Community Participation

You are invited to attend our regularly scheduled Board meetings, which occur at 2 pm on the 2nd and 4th Tuesdays of the month. The TUD Board Room is located at 18885 Nugget Blvd. in Sonora. If you are unable to attend the Board meetings, they can be viewed live on our Web site and, afterward, in our meeting archives at www.tudwater.com.

## How Is My Water Treated and Purified?

The typical water treatment process includes several steps. These steps are required to ensure that your water is safe, wholesome, and free of contaminants.

**Intake from source water:** The water entering the treatment process is screened to remove large debris.

**Coagulation:** Small particles are brought together to form a large floc, which allows for the majority of sediment to settle out of the water.

**Filtration:** The remaining finer particles are filtered from the water using specially designed filter media.

**Disinfection:** A disinfectant is applied to kill any bacteria that may be present in the water.

**Storage:** The finished water product is stored in sealed tanks, from which it is then delivered to the consumer.

**Quality Monitoring:** Water quality is monitored at the treatment process and throughout the distribution system to ensure that the water is in compliance with federal and state standards at all times.

## Substances That Could Be in Water

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.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (U.S. EPA) and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health. 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 water poses a health risk.

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, that can be naturally occurring or can 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, that are by-products of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems;

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

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

## Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent, according to government estimates).

The Food and Drug Administration is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Furthermore, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to $1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion on the NRDC study results, check out their Web site at https://goo.gl/Jxb6xG.

## QUESTIONS?

For more information about this report, or any questions relating to your drinking water, please call Angel Tarango, Regulatory Compliance, at (209) 532-5536, extension 537.

## Water Conservation Tips

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water-using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

## Information on the Internet

The U.S. EPA (https://goo.gl/TFAMKc) and the Centers for Disease Control and Prevention (https://www.cdc.gov/healthywater/drinking) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation, and public health. Also, the Division of Drinking Water and Environmental Management has a Web site (https://goo.gl/kGepu4) that provides complete and current information on water issues in California, including valuable information about our watershed.

## Additional Monitoring

For the 2018 Reporting Year, each system was tested/monitored for the 1,2,3-TCP contaminant. We are happy to report that, of the 74 samples collected throughout the 11 water systems, ND (nondetect) was the result for all 74 samples.

## Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not themselves pose health concerns, they can affect the taste, clarity, and color of the water. In addition, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen and disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at such times. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use, and avoid using hot water, to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

## Table Talk

Get the most out of the Test Results data table with this simple suggestion. In less than a minute, you will know all there is to know about your water:

> For each substance listed, compare the value in the Amount Detected column against the value in the MCL (or AL, SMCL) column. If the Amount Detected value is smaller, your water meets the health and safety standards set for the substance.

### Other Table Information Worth Noting

Verify that there were no violations of the state and/or federal standards in the Violation column. If there was a violation, you will see a detailed description of the event in this report.

If there is an ND or a less-than symbol (<), that means that the substance was not detected (i.e., below the detectable limits of the testing equipment).

The Range column displays the lowest and highest sample readings. If there is an NA showing, that means only a single sample was taken to test for the substance (assuming there is a reported value in the Amount Detected column).

If there is sufficient evidence to indicate from where the substance originates, it will be listed under Typical Source.

## Testing for Cryptosporidium

Monitoring of our Surface Water Treatment Plants indicated the presence of Cryptosporidium cysts in some source waters before the Filtration/Treatment process, which removes 99.99% of the Microbial Pathogen. Cryptosporidium cysts can be 4-6 micrometers in diameter, roughly the size of half the thickness of a piece of plastic wrap "cling wrap". Although some Cryptosporidium cysts were detected, the detection level is far below the amount that our Water Treatment Plants are capable of treating/removing. Listed below is the Cryptosporidium cyst detection level per system, before Filtration/Treatment has occurred:

**Columbia, 17 samples:** min 0 cysts, max 3.26 cysts, avg 0.213 cycts detected for each sample.

**Ponderosa, 19 samples:** min 0 cysts, max 0.74 cysts; avg 0.057 cysts detected for each sample.

**Scenic View, 19 samples:** 0 cysts detected for each sample.

**Sonora, 9 samples:** 0 cycts detected for each sample.

**Upper Basin Monte Grande, 20 samples:** min 0 cycts, max 1.58 cycts, avg 0.14 cysts detected for each sample.

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100 percent removal. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people, infants, small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctors regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

## To The Last Drop

The National Oceanic and Atmospheric Administration (NOAA) defines drought as a deficiency in precipitation over an extended period of time, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. Drought strikes in virtually all climate zones, from very wet to very dry.

There are primarily three types of drought: Meteorological Drought refers to the lack of precipitation, or the degree of dryness and the duration of the dry period; Agricultural Drought refers to the agricultural impact of drought, focusing on precipitation shortages, soil water deficits, and reduced groundwater or reservoir levels needed for irrigation; and Hydrological Drought pertains to drought that usually occurs following periods of extended precipitation shortfalls that can impact water supply (i.e., stream flow, reservoir and lake levels, groundwater).

Drought is a temporary aberration from normal climatic conditions, thus it can vary significantly from one region to another. Although drought occurs normally, human factors, such as water demand, can exacerbate the duration and impact that drought has on a region. By following simple water conservation measures, you can help significantly reduce the lasting effects of extended drought.

## Count on Us

Delivering high-quality drinking water to our customers involves far more than just pushing water through pipes. Water treatment is a complex, time-consuming process. Because tap water is highly regulated by state and federal laws, water treatment plant and system operators must be licensed and are required to commit to long-term, on-the-job training before becoming fully qualified. Our licensed water professionals have a basic understanding of a wide range of subjects, including mathematics, biology, chemistry, and physics. Some of the tasks they complete on a regular basis include:

- Operating and maintaining equipment to purify and clarify water;
- Monitoring and inspecting machinery, meters, gauges, and operating conditions;
- Conducting tests and inspections on water and evaluating the results;
- Maintaining optimal water chemistry;
- Applying data to formulas that determine treatment requirements, flow levels, and concentration levels;
- Documenting and reporting test results and system operations to regulatory agencies; and
- Serving our community through customer support, education, and outreach.

So the next time you turn on your faucet, think of the skilled professionals who stand behind each drop.

## Fixtures with Green Stains

A green or blue-green stain on kitchen or bathroom fixtures is caused by tiny amounts of copper that dissolve in your home's copper plumbing system when the water sits unused overnight. Copper staining may be the result of a leaky faucet or a faulty toilet flush valve, so be sure your plumbing is in good working order.

Copper stains may also be caused by overly hot tap water. Generally speaking, you should maintain your water temperature at a maximum of 120 degrees Fahrenheit. You should consult the owner's manual for your heater or check with your plumber to determine your current heat setting. Lowering your water temperature will reduce the staining problem and save you money on your energy bill.

Also keep in mind that a tap that is used often throughout the day usually will not produce copper stains, so if you flush the tap for a minute or so before using the water for cooking or drinking, copper levels will be reduced.

## FOG (Fats, Oils, and Grease)

You may not be aware of it, but every time you pour fat, oil, or grease (FOG) down your sink (e.g., bacon grease), you are contributing to a costly problem in the sewer collection system. FOG coats the inner walls of the plumbing in your house as well as the walls of underground piping throughout the community. Over time, these greasy materials build up and form blockages in pipes, which can lead to wastewater backing up into parks, yards, streets, and storm drains. These backups allow FOG to contaminate local waters, including drinking water. Exposure to untreated wastewater is a public health hazard. FOG discharged into septic systems and drain fields can also cause malfunctions, resulting in more frequent tank pump-outs and other expenses.

Communities spend billions of dollars every year to unplug or replace grease-blocked pipes, repair pump stations, and clean up costly and illegal wastewater spills. Here are some tips that you and your family can follow to help maintain a well-run system now and in the future:

**NEVER:**

- Pour fats, oil, or grease down the house or storm drains.
- Dispose of food scraps by flushing them.
- Use the toilet as a waste basket.

**ALWAYS:**

- Scrape and collect fat, oil, and grease into a waste container such as an empty coffee can, and dispose of it with your garbage.
- Place food scraps in waste containers or garbage bags for disposal with solid wastes.
- Place a wastebasket in each bathroom for solid wastes like disposable diapers, creams and lotions, and personal hygiene products including nonbiodegradable wipes.

## Tip Top Tap

The most common signs that your faucet or sink is affecting the quality of your drinking water are discolored water, sink or faucet stains, a buildup of particles, unusual odors or tastes, and a reduced flow of water. The solutions to these problems may be in your hands.

### Kitchen Sink and Drain

Hand washing, soap scum buildup, and the handling of raw meats and vegetables can contaminate your sink. Clogged drains can lead to unclean sinks and backed-up water in which bacteria (e.g., pink and black slime growth) can grow and contaminate the sink area and faucet, causing a rotten egg odor. Disinfect and clean the sink and drain area regularly. Also, flush regularly with hot water.

### Faucets, Screens, and Aerators

Chemicals and bacteria can splash and accumulate on the faucet screen and aerator, which are located on the tip of faucets and can collect particles like sediment and minerals resulting in a decreased flow from the faucet. Clean and disinfect the aerators or screens on a regular basis.

Check with your plumber if you find particles in the faucet screen as they could be pieces of plastic from the hot water heater dip tube. Faucet gaskets can break down and cause black, oily slime. If you find this slime, replace the faucet gasket with a higher-quality product. White scaling or hard deposits on faucets and shower heads may be caused by hard water or water with high levels of calcium carbonate. Clean these fixtures with vinegar or use water softening to reduce the calcium carbonate levels for the hot water system.

### Water Filtration and Treatment Devices

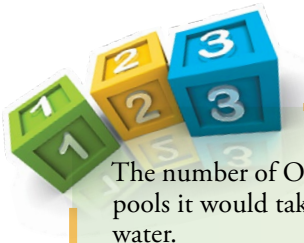
A smell of rotten eggs can be a sign of bacteria on the filters or in the treatment system. The system can also become clogged over time so regular filter replacement is important. (Remember to replace your refrigerator filter!)

## Protecting Your Water

Bacteria are a natural and important part of our world. There are around 40 trillion bacteria living in each of us; without them, we would not be able to live healthy lives. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern, however, because it indicates that the water may be contaminated with other organisms that can cause disease.

In 2016, the U.S. EPA passed a regulation called the Revised Total Coliform Rule, which requires additional steps that water systems must take in order to ensure the integrity of the drinking water distribution system by monitoring for the presence of bacteria like total coliform and E. coli. The rule requires more stringent standards than the previous regulation, and it requires water systems that may be vulnerable to contamination to have in place procedures that will minimize the incidence of contamination. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment of their system and correct any problems quickly. The U.S. EPA anticipates greater public health protection under this regulation due to its more preventive approach to identifying and fixing problems that may affect public health.

Though we have been fortunate to have the highest-quality drinking water, our goal is to eliminate all potential pathways of contamination into our distribution system, and this requirement helps us to accomplish that goal.




## BY THE NUMBERS

The number of Olympic-sized swimming pools it would take to fill up all of Earth's water. **800 TRILLION**

**1 CENT** The average cost for about 5 gallons of water supplied to a home in the U.S.

The amount of Earth's water that is salty or otherwise undrinkable, or locked away and unavailable in ice caps and glaciers. **99%**

**50 GALLONS** The average daily number of gallons of total home water use for each person in the U.S.

The amount of Earth's surface that's covered by water. **71%**

**330 MILLION** The amount of water on Earth in cubic miles.

The amount of Earth's water that is available for all of humanity's needs. **1%**

**75%** The amount of the human brain that contains water.

## Arsenic Regulation

Arsenic contamination of drinking water sources may result from either natural or human activities. Volcanic activity, erosion of rocks and minerals, and forest fires are natural sources that can release arsenic into the environment. Although about 90 percent of the arsenic used by industry is for wood preservative purposes, it is also used in paints, drugs, dyes, soaps, metals, and semiconductors. Agricultural applications, mining, and smelting also contribute to arsenic releases. Arsenic is usually found in the environment combined with other elements such as oxygen, chlorine, and sulfur (inorganic arsenic); or combined with carbon and hydrogen (organic arsenic). Organic forms are usually less harmful than inorganic forms.

Low levels of arsenic are naturally present in water: about 2 parts arsenic per billion parts of water (ppb). Thus, you normally take in small amounts of arsenic in the water you drink. Some areas of the country have unusually high natural levels of arsenic in rock, which can lead to unusually high levels of arsenic in water.

In January 2001, the U.S. EPA lowered the arsenic Maximum Contaminant Level (MCL) from 50 to 10 ppb in response to new and compelling research linking high arsenic levels in drinking water with certain forms of cancer. All water utilities were required to implement this new MCL in January 2006.

Removing arsenic from drinking water is a costly procedure but well worth the expenditure considering the health benefits. For a more complete discussion, visit the U.S. EPA's arsenic Web site at https://goo.gl/3etbFL.

## Source Water Assessment

An assessment of the drinking water sources for all TUD water systems was completed in 2013. The vulnerability summary for each system is included. A copy of the complete assessment of each system may be viewed at the Department of Health Services Water Field Operations Branch, Merced District Office, 265 W Bullard Ave Suite 101, Fresno, California 93704.

### Vulnerability Summary

| VULNERABILITY | APPLE VALLEY | PEACEFUL PINES | PHOENIX LAKE | SONORA | PONDEROSA | TUOLUMNE | UPPER BASIN | COLUMBIA | CEDAR RIDGE | SCENIC VIEW |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sewer Collection** | X | | | X | | X | X | X | | |
| **Septic System Low Density** | | | | X | | X | | X | | |
| **Septic System High Density** | | X | X | X | X | | X | | X | X |
| **Grazing** | X | | | | | | X | | | |
| **Other Animal Operations** | X | | | | | | X | | | |
| **Lumber Processing/ Manufacturing** | X | | | X | | | | | | |
| **Wood/Pulp/Mills** | | | | | | | | X | | |
| **Recreational/Surface water source** | | | | X | X | X | X | X | X | X |
| **Historic waste dumps/ landfills** | | | | X | | | X | | | |
| **Auto/Machine Shop** | | | | X | | | | | | |
| **Car Washing** | | | | X | | | | | | |
| **Dry Cleaners** | | | | X | | | | | | |
| **Highways/Transportation Corridor** | | | | X | | | | | | |

## Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. Also, the water we deliver must meet specific health standards. Here, we show only those substances that were detected in our water. (A complete list of all our analytical results is available upon request.) Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The state recommends monitoring for certain substances less often 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**

| | | | | Apple Valley | | Cedar Ridge | | Columbia/Big Hill | | Peaceful Pines | | Phoenix Lake | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | MCL [MRDL] | PHG (MCLG) [MRDLG] | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | VIOLATION | TYPICAL SOURCE |
| **Aluminum** (ppm) | 2018 | 1 | 0.6 | ND | NA | ND | NA | ND | NA | ND | NA | ND | NA | No | Erosion of natural deposits; residue from some surface water treatment processes |
| **Arsenic** (ppb) | 2018 | 10 | 0.004 | ND | NA | ND | NA | ND | NA | ND | NA | ND | NA | No | Erosion of natural deposits; runoff from orchards; glass and electronics production wastes |
| **Chlorine** (ppm) | 2018 | [4.0 (as Cl2)] | [4 (as Cl2)] | 0.89 | 0.44–1.2 | 1.5 | 1.3–1.7 | 1.69 | 1.5–1.9 | 0.94 | 0.43–1.31 | 0.97 | 0.54–1.17 | No | Drinking water disinfectant added for treatment |
| **Control of DBP precursors [TOC]** (ppm) | 2018 | TT | NA | NA | NA | 1.16 | 0.7–1.7 | NA | NA | NA | NA | NA | NA | No | Various natural and man-made sources |
| **Fluoride** (ppm) | 2018 | 2.0 | 1 | ND | NA | 0.05 | ND–0.10 | ND | NA | 0.22 | NA | 0.14 | NA | No | Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories |
| **Gross Alpha Particle Activity** (pCi/L) | 2015 | 15 | (0) | ND | NA | ND | NA | ND | NA | ND | NA | 3.58 | NA | No | Erosion of natural deposits |
| **Haloacetic Acids** (ppb) | 2018 | 60 | NA | 2.0 | NA | 34 | 27–47 | 45.37 | 27–58 | 2.0[4] | NA[4] | 10 | NA | No | By-product of drinking water disinfection |
| **Nitrate [as nitrate]** (ppm) | 2018 | 45 | 45 | ND | NA | ND | NA | ND | NA | ND | NA | ND | NA | No | Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits |
| **TTHMs [Total Trihalomethanes]** (ppb) | 2018 | 80 | NA | 4.2 | NA | 37.7 | 31–46 | 50.25 | 34–64 | 5.2[4] | NA[4] | 34 | NA | No | By-product of drinking water disinfection |

## REGULATED SUBSTANCES

| | | | | Ponderosa | | Scenic View | | Sonora | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | MCL [MRDL] | PHG (MCLG) [MRDLG] | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | VIOLATION | TYPICAL SOURCE |
| **Aluminum** (ppm) | 2018 | 1 | 0.6 | ND | NA | ND | NA | ND | NA | No | Erosion of natural deposits; residue from some surface water treatment processes |
| **Arsenic** (ppb) | 2018 | 10 | 0.004 | ND | NA | ND | NA | ND | NA | No | Erosion of natural deposits; runoff from orchards; glass and electronics production wastes |
| **Chlorine** (ppm) | 2018 | [4.0 (as Cl2)] | [4 (as Cl2)] | 1.51 | 1.4–1.7 | 1.54 | 1.3–1.7 | 1.77 | 1.6–2.1 | No | Drinking water disinfectant added for treatment |
| **Control of DBP precursors [TOC]** (ppm) | 2018 | TT | NA | 1.25 | 0.7–1.7 | 1.13 | 0.8–1.5 | 1.38 | 1.0–2.1 | No | Various natural and man-made sources |
| **Fluoride** (ppm) | 2018 | 2.0 | 1 | ND | NA | ND | NA | ND | NA | No | Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories |
| **Gross Alpha Particle Activity** (pCi/L) | 2015 | 15 | (0) | ND | NA | 8.45[1] | ND–16.9[1] | ND[2] | NA[2] | No | Erosion of natural deposits |
| **Haloacetic Acids** (ppb) | 2018 | 60 | NA | 29.1 | 4.4–56 | 27 | 20–30 | 41.99 | 4.9–63 | No | By-product of drinking water disinfection |
| **Nitrate [as nitrate]** (ppm) | 2018 | 45 | 45 | ND | NA | ND | NA | ND | NA | No | Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits |
| **TTHMs [Total Trihalomethanes]** (ppb) | 2018 | 80 | NA | 39 | 28–51 | 45.75 | 40–56 | 50.62 | 38–67 | No | By-product of drinking water disinfection |

## REGULATED SUBSTANCES

| | | | | Tuolumne | | Upper Basin | | Wards Ferry | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | MCL [MRDL] | PHG (MCLG) [MRDLG] | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | VIOLATION | TYPICAL SOURCE |
| **Aluminum** (ppm) | 2018 | 1 | 0.6 | ND | NA | ND | NA | ND | NA | No | Erosion of natural deposits; residue from some surface water treatment processes |
| **Arsenic** (ppb) | 2018 | 10 | 0.004 | ND | NA | ND | NA | ND | NA | No | Erosion of natural deposits; runoff from orchards; glass and electronics production wastes |
| **Chlorine** (ppm) | 2018 | [4.0 (as Cl2)] | [4 (as Cl2)] | 1.55 | 1.4–1.6 | 1.67 | 1.6–1.73 | 0.49 | 0.28–0.78 | No | Drinking water disinfectant added for treatment |
| **Control of DBP precursors [TOC]** (ppm) | 2018 | TT | NA | 1.32 | 0.9–1.7 | 1.19 | 0.9–1.7 | NA | NA | No | Various natural and man-made sources |
| **Fluoride** (ppm) | 2018 | 2.0 | 1 | ND | NA | ND | NA | ND | NA | No | Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories |
| **Gross Alpha Particle Activity** (pCi/L) | 2015 | 15 | (0) | ND[2] | NA[2] | ND | NA | ND[3] | NA[3] | No | Erosion of natural deposits |
| **Haloacetic Acids** (ppb) | 2018 | 60 | NA | 29.5 | 0–52 | 36.6 | 23–49 | 2.0[4] | NA[4] | No | By-product of drinking water disinfection |
| **Nitrate [as nitrate]** (ppm) | 2018 | 45 | 45 | ND | NA | ND | NA | 3.0 | NA | No | Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits |
| **TTHMs [Total Trihalomethanes]** (ppb) | 2018 | 80 | NA | 45.25 | 34–54 | 36.75 | 26–60 | 1.6[4] | NA[4] | No | By-product of drinking water disinfection |

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

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AL | PHG (MCLG) | Apple Valley AMOUNT DETECTED (90TH %ILE) | Apple Valley SITES ABOVE AL/ TOTAL SITES | Cedar Ridge AMOUNT DETECTED (90TH %ILE) | Cedar Ridge SITES ABOVE AL/ TOTAL SITES | Columbia/Big Hill AMOUNT DETECTED (90TH %ILE) | Columbia/Big Hill SITES ABOVE AL/ TOTAL SITES | Peaceful Pines AMOUNT DETECTED (90TH %ILE) | Peaceful Pines SITES ABOVE AL/ TOTAL SITES | VIOLATION | TYPICAL SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Copper** (ppm) | 2017 | 1.3 | 0.3 | 0.19 | 0/5 | 0.096 | 0/10 | 0.081 | 0/20 | ND | 0/5 | No | Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives |
| **Lead** (ppb) | 2017 | 15 | 0.2 | 0.029 | 0/5 | ND | 0/10 | ND | 0/20 | ND | 0/5 | No | Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits |

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

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AL | PHG (MCLG) | Phoenix Lake AMOUNT DETECTED (90TH %ILE) | Phoenix Lake SITES ABOVE AL/ TOTAL SITES | Ponderosa AMOUNT DETECTED (90TH %ILE) | Ponderosa SITES ABOVE AL/ TOTAL SITES | Scenic View AMOUNT DETECTED (90TH %ILE) | Scenic View SITES ABOVE AL/ TOTAL SITES | Sonora AMOUNT DETECTED (90TH %ILE) | Sonora SITES ABOVE AL/ TOTAL SITES | VIOLATION | TYPICAL SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Copper** (ppm) | 2017 | 1.3 | 0.3 | 0.34 | 0/5 | 0.086[5] | 0/10[5] | 0.15[5] | 0/10[5] | 0.14[1] | 0/30[1] | No | Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives |
| **Lead** (ppb) | 2017 | 15 | 0.2 | ND | 0/5 | 0.0096[5] | 0/10[5] | ND[5] | 0/10[5] | ND[1] | 0/30[1] | No | Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits |

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

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AL | PHG (MCLG) | Tuolumne AMOUNT DETECTED (90TH %ILE) | Tuolumne SITES ABOVE AL/ TOTAL SITES | Upper Basin AMOUNT DETECTED (90TH %ILE) | Upper Basin SITES ABOVE AL/ TOTAL SITES | Wards Ferry AMOUNT DETECTED (90TH %ILE) | Wards Ferry SITES ABOVE AL/ TOTAL SITES | VIOLATION | TYPICAL SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Copper** (ppm) | 2017 | 1.3 | 0.3 | 0.14[5] | 0/10[5] | 0.12 | 0/20 | 0.76[5] | 0/5[5] | No | Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives |
| **Lead** (ppb) | 2017 | 15 | 0.2 | ND[5] | 0/10[5] | ND | 0/20 | ND[5] | 0/5[5] | No | Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits |

## SECONDARY SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | SMCL | PHG (MCLG) | Apple Valley AMOUNT DETECTED | Apple Valley RANGE LOW-HIGH | Cedar Ridge AMOUNT DETECTED | Cedar Ridge RANGE LOW-HIGH | Columbia/Big Hill AMOUNT DETECTED | Columbia/Big Hill RANGE LOW-HIGH | Peaceful Pines AMOUNT DETECTED | Peaceful Pines RANGE LOW-HIGH | EXCEEDANCE | TYPICAL SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Iron** (ppb) | 2018 | 300 | NS | ND | NA | 320 | ND–640 | ND | NA | ND | NA | Yes | Leaching from natural deposits; industrial wastes |
| **Manganese** (ppb) | 2018 | 50 | NS | ND | NA | 39 | ND–78 | ND | NA | ND | NA | No | Leaching from natural deposits |
| **Sulfate** (ppm) | 2018 | 500 | NS | 9.9 | NA | 1.9 | <1.0–2.9 | <1.0 | NA | 3.5 | NA | No | Runoff/leaching from natural deposits; industrial wastes |
| **Turbidity** (NTU) | 2018 | 5 | NS | 0.19 | NA | 0.29 | 0.03–0.29 | 0.17 | 0.03–0.17 | 0.16 | NA | No | Soil runoff |
| **Zinc** (ppm) | 2018 | 5.0 | NS | 0.077 | NA | ND | NA | ND | NA | 0.079 | NA | No | Runoff/leaching from natural deposits; industrial wastes |

## SECONDARY SUBSTANCES

| | | | | Phoenix Lake | | Ponderosa | | Scenic View | | Sonora | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | SMCL | PHG (MCLG) | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | EXCEEDANCE | TYPICAL SOURCE |
| **Iron** (ppb) | 2018 | 300 | NS | ND | NA | ND | NA | ND | NA | ND | NA | Yes | Leaching from natural deposits; industrial wastes |
| **Manganese** (ppb) | 2018 | 50 | NS | ND | NA | ND | NA | 22 | NA | ND | NA | No | Leaching from natural deposits |
| **Sulfate** (ppm) | 2018 | 500 | NS | 2.7 | NA | <1.0 | NA | <1.0 | NA | <1.0 | NA | No | Runoff/leaching from natural deposits; industrial wastes |
| **Turbidity** (NTU) | 2018 | 5 | NS | 0.14 | NA | 0.15 | 0.04–0.15 | 0.1 | 0.04–0.10 | 0.26 | 0.04–0.26 | No | Soil runoff |
| **Zinc** (ppm) | 2018 | 5.0 | NS | ND | NA | ND | NA | ND | NA | ND | NA | No | Runoff/leaching from natural deposits; industrial wastes |

## SECONDARY SUBSTANCES

| | | | | Tuolumne | | Upper Basin | | Wards Ferry | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | SMCL | PHG (MCLG) | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | EXCEEDANCE | TYPICAL SOURCE |
| **Iron** (ppb) | 2018 | 300 | NS | ND | NA | ND | NA | ND | NA | Yes | Leaching from natural deposits; industrial wastes |
| **Manganese** (ppb) | 2018 | 50 | NS | ND | NA | ND | NA | ND | NA | No | Leaching from natural deposits |
| **Sulfate** (ppm) | 2018 | 500 | NS | <1.0 | NA | <1.0 | <1.0–<1.0 | 4.0 | NA | No | Runoff/leaching from natural deposits; industrial wastes |
| **Turbidity** (NTU) | 2018 | 5 | NS | 0.24 | 0.03–0.24 | 0.3 | 0.03–0.3 | 0.10 | NA | No | Soil runoff |
| **Zinc** (ppm) | 2018 | 5.0 | NS | ND | NA | ND | NA | ND | NA | No | Runoff/leaching from natural deposits; industrial wastes |

## UNREGULATED AND OTHER SUBSTANCES

| | | Apple Valley | | Cedar Ridge | | Columbia/Big Hill | | Peaceful Pines | | Phoenix Lake | | Ponderosa | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | TYPICAL SOURCE |
| **Hardness, Total [as CaCO3]** (ppm) | 2018 | 200 | NA | 39 | 11–67 | 12 | 12–12 | 81.0 | NA | 280 | NA | 13 | NA | NA |
| **Sodium** (ppm) | 2018 | 14 | NA | 5.65 | 4.4–6.9 | NA | NA | 17 | NA | 21 | NA | 4.7 | NA | NA |

## UNREGULATED AND OTHER SUBSTANCES

| | | Scenic View | | Sonora | | Tuolumne | | Upper Basin | | Wards Ferry | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | TYPICAL SOURCE |
| **Hardness, Total [as CaCO3]** (ppm) | 2018 | 15 | NA | 19 | NA | 13 | NA | 11.7 | 11–13 | 160 | NA | NA |
| **Sodium** (ppm) | 2018 | 8.9 | NA | 5.3 | NA | 6.7 | NA | 5.2 | 4.1–5.8 | 12 | NA | NA |

[1] Sampled in 2016.
[2] Sampled in 2014.
[3] Sampled in 2010.
[4] Sampled in 2017.
[5] Sampled in 2018.
[6] Unregulated contaminant monitoring helps the U.S. EPA and the State Water Resources Control Board to determine where certain contaminants occur and whether the contaminants need to be regulated.

## Definitions

**90th %ile:** The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

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

**MCL (Maximum Contaminant Level):** The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs (SMCLs) are set to protect the odor, taste, and appearance of drinking water.

**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 are set by the U.S. EPA.

**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

**ND (Not detected):** Indicates that the substance was not found by laboratory analysis.

**NS:** No standard

**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.

**pCi/L (picocuries per liter):** A measure of radioactivity.

**PDWS (Primary Drinking Water Standard):** MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

**PHG (Public Health Goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California EPA.

**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.