



Quality. Service. Value.®

WATER QUALITY REPORT 2021

REDWOOD VALLEY DISTRICT
Armstrong Valley System

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

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WELCOME

Since 1926, California Water Service (Cal Water) has been committed to providing a reliable supply of safe, clean water to our customers and communities. With the coronavirus pandemic, access to high-quality water became particularly top of mind. Throughout the pandemic and beyond, our commitment to our customers has remained as strong as ever.

In this system in 2021, we conducted 311 tests on 46 water samples for 86 constituents. We are pleased to confirm that we met every primary and secondary federal and state water quality standard last year.

Our promise to provide quality, service, and value means more than just treatment and testing. It means having expert professionals available to assist with routine services in a safe and efficient manner. It means having personnel available to handle emergencies 24 hours per day. It means maintaining and upgrading the infrastructure needed to transport water through a network of pumps, tanks, and pipes to your tap. It also means that, even with costs increasing across the country, we do everything we can to operate as efficiently as possible to keep your water affordable.

I encourage you to review this annual water quality report, also called your Consumer Confidence Report, as it details any constituents detected in your water supply in 2021 and shows how your water compares to federal and state standards. It also provides information on current water quality issues and steps we are taking to protect your health and safety.

If you have any questions, we are here to assist you. You can reach us by phone or email at our local Customer Center, or online at www.calwater.com. You can also get water service news on our web site, and via our Facebook, Twitter, and Instagram pages. If you're an account holder, you can find updates in your monthly bill and should keep your contact information up to date by visiting ccu.calwater.com to ensure you receive important emergency and other information.

Sincerely,
Tavis Beynon, District Manager, Redwood Valley District

[Redwood Valley District | 14028 Armstrong Woods Road, Guerneville, CA 95446 | (800) 220-4299]



ACTION ITEMS

There were no significant issues in your water system in 2021, and we have no recommended action items for our customers in this area.

YOUR WATER SYSTEM



YOUR WATER

Cal Water's Redwood Valley District provides high-quality water utility services to customers in portions of Guerneville, Dillon Beach, Duncans Mills, Lucerne, and Santa Rosa. Our Armstrong Valley system customers receive groundwater produced by two wells.

Our company-wide water quality assurance program includes vigilant monitoring throughout our systems and testing at our state-of-the-art laboratory. Additionally, we proactively maintain and upgrade our facilities to ensure a reliable, high-quality supply.

CHLORINATION

Chlorination is the addition of chlorine to drinking water systems. It is the most common type of drinking water disinfection, killing bacteria, viruses, and other microorganisms that cause disease or immediate illness. Chlorine is effective and continues to keep water safe as it travels through pipelines to the consumer's tap.

WATER RESOURCE SUSTAINABILITY

Cal Water helps our customers conserve water by offering programs and incentives to reduce indoor and outdoor water use, develop more efficient habits, and educate the next generation about the importance of managing water resources sustainably. We also continue to invest diligently in our infrastructure to reduce the amount of water lost to pipeline leaks and in 2021 completed an updated assessment of the impacts of climate change on water supply and demand. As we experience a worsening drought this year, it's important that we make saving water every day a way of life. Using water wisely will ensure that we have enough water in dry years and for generations to come.

Visit www.calwater.com/conservation for details.

If you have any questions, suggestions, or concerns, please contact our local Customer Center, either by phone at **(800) 220-4299** or through the Contact Us link at www.calwater.com.

THE WATER QUALITY LAB

Water professionals collect samples from throughout the water system for testing at our newly upgraded, state-of-the-art water quality laboratory, which is certified each year through the stringent Environmental Laboratory Accreditation Program (ELAP).

Scientists, chemists, and microbiologists test the water for 326 constituents with equipment so sensitive it can detect levels as low as one part per trillion. In order to maintain the ELAP certification, all of our scientists must pass blind-study proficiency tests for every water quality test performed. Water quality test results are entered into our Laboratory Information Management System (LIMS), a sophisticated software program that enables us to react quickly to changes in water quality and analyze water quality trends in order to plan effectively for future needs.

CROSS-CONNECTION CONTROL

To ensure that the high-quality water we deliver is not compromised in the distribution system, Cal Water has a robust cross-connection control program in place. Cross-connection control is critical to ensuring that activities on customers' properties do not affect the public water supply. Our cross-connection control specialists ensure that all of the existing backflow prevention assemblies are tested annually, assess all connections, and enforce and manage the installation of new commercial and residential assemblies.

Backflow can occur when certain pressure conditions exist either in our distribution system or within the customer's plumbing, so our customers are our first line of defense. A minor home improvement project—without the proper protections—can create a potentially hazardous situation, so careful adherence to plumbing codes and standards will ensure the community's water supply remains safe. Please be sure to utilize the advice or services of a qualified plumbing professional.

Many water-use activities involve substances that, if allowed to enter the distribution system, would be aesthetically displeasing or could even present health concerns. Some common cross-connections are:

- Garden hoses connected to a hose bib without a simple hose-type vacuum breaker (available at a home improvement store)

- Improperly installed toilet tank fill valves that do not have the required air gap between the valve or refill tube
- Landscape irrigation systems that do not have the proper backflow prevention assembly installed on the supply line

The list of materials that could potentially contaminate the water system is vast. According to the United States Environmental Protection Agency (EPA), a wide variety of substances have contaminated drinking water systems throughout the country as a result of poor cross-connection control. Examples include:

- Antifreeze from a heating system
- Lawn chemicals from a garden hose or sprinkler head
- Blue water from a toilet tank
- Carbonated water from a soda dispenser

Customers must ensure that all plumbing is in conformance with local plumbing codes. Additionally, state law requires certain types of facilities to install and maintain backflow prevention assemblies at the water meter. Cal Water's cross-connection control staff will determine whether you need to install a backflow prevention assembly based on water uses at your location.

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DWSAPP



By the end of 2002, Cal Water had submitted to the Division of Drinking Water (DDW) a Drinking Water Source Assessment and Protection Program (DWSAPP) report for each water source in the water system. The DWSAPP report identifies possible sources of contamination to aid in prioritizing cleanup and pollution prevention efforts. All reports are available for viewing or copying at our Customer Center.

The water sources in the Armstrong Valley system are considered most vulnerable to wastewater.

We encourage customers to join us in our efforts to prevent water pollution and protect our most precious natural resource.

FLUORIDE

State law requires Cal Water to add fluoride to drinking water if public funding is available to pay for it, and it is a practice endorsed by the American Medical Association and the American Dental Association to prevent tooth decay. In this area, Cal Water does not add fluoride to the water supply. Show the table in this report to your dentist to see if he or she recommends giving your children fluoride supplements.



More information about fluoridation, oral health, and related issues can be found on the **DDW web site**.

For general information on water fluoridation, visit us online at **www.calwater.com**.

WATER HARDNESS

Hardness is a measure of the magnesium, calcium, and carbonate minerals in the water. Water is considered soft if its hardness is less than 75 parts per million (ppm), moderately hard at 75 to 150 ppm, hard between 150 and 300 ppm, and very hard at 300 ppm or higher.

Hard water is generally not a health concern, but it can have an impact on how well soap lathers and is significant for some industrial and manufacturing processes. Hard water may also lead to mineral buildup in pipes or water heaters.

Some people with hard water opt to buy a water softener for aesthetic reasons; however, some water softeners add salt to the water, which can cause problems at wastewater treatment plants. Additionally, people on low-sodium diets should be aware that some water softeners increase the sodium content of the water.

For more information on water hardness, visit **www.calwater.com/video/hardness**.

The current water quality table for your service area shows an average hardness of 104 ppm.

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POSSIBLE CONTAMINANTS

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants.

The presence of contaminants does not necessarily indicate that water poses a health risk.

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

The sources of drinking water (both tap and bottled) 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 human activity.

CONTAMINANTS THAT MAY BE PRESENT IN SOURCE WATER INCLUDE:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

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

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

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.

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

In order to ensure that tap water is safe to drink, the EPA and DDW prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people, such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, and those with HIV/AIDS or other immune system disorders; some elderly people; and infants can be particularly at risk from infections. These people should seek advice from their health care providers about drinking water. EPA and Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline.

As the issue of lead in water continues to be top of mind for many Americans, Cal Water wants to assure you about the quality of your water. We are compliant with health and safety codes mandating use of lead-free materials in water system replacements, repairs, and new installations. We have no known lead service lines in our systems. We test and treat (if necessary) water sources to ensure that the water delivered to customer meters meets all water quality standards and is not corrosive toward plumbing materials.

The water we deliver to your home meets lead standards. However, 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 (for example, lead solder used to join copper plumbing, and brass and other lead-containing fixtures).

Cal Water is responsible for providing high-quality drinking water to our customers' meters, 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 by a certified lab. More information about lead in drinking water can be found on the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

In your system, results from our lead monitoring program, conducted in accordance with the Lead and Copper Rule, were below the action level for the presence of lead.

Testing for Lead in Schools

The State of California required that all public schools built before 2010 test for lead in their drinking water by July 1, 2019. We are committed to supporting our school districts' efforts to protect students and ensure that the drinking water at their school sites are below lead limits. We worked with all school districts in our service area that serve kindergarten through 12th grade to develop sampling plans, test samples, and conduct follow-up monitoring, if needed, for corrective actions.

For more information, please see our [Testing for Lead in Schools](#) web page. For specific information regarding local school data, see the [state web portal](#).

Lead and Copper Rule

The Lead and Copper Rule requires us to test water inside a representative number of homes that have plumbing most likely to contain lead and/or lead solder to determine the presence of lead and copper or any action level exceedance. An action level is the concentration of a contaminant which, when exceeded,

triggers corrective actions before it becomes a health concern. If action levels are exceeded, either at a customer's home or system-wide, we work with the customer to investigate the issue and/or implement corrosion control treatment to reduce lead levels.

Lead Service Line Inventory (LSLI)

Protecting our customers' health and safety is our highest priority. As part of this commitment, we have been working to identify and replace any old customer water service lines and fittings that may contain lead. California Senate Bill (SB) 1398 required all water utilities in California to develop an inventory of all distribution service line materials, and submit a list of known service lines to the state by 2018. A list of unknown service lines that may contain lead, along with a plan for replacement, was due to the state by July 1, 2020. Known lines must be replaced as soon as possible.

More information regarding LSLI and specific data for each water system can be found on [the state web site](#).

PFOA AND PFOS

PFOA and PFOS are manmade compounds used prevalently in firefighting foams and to make carpets, clothing, fabrics for furniture, paper packaging for food, cookware, and other items resistant to water, grease, fire, or stains. They are also used in a number of industrial processes. They are part of a larger group of chemicals referred to as per- and poly-fluoroalkyl substances (PFAS).

In early 2020, DDW announced lower response levels for PFOA and PFOS (10 ppt for PFOA, and 40 ppt for PFOS) from the previous level of 70 ppt combined. The notification levels (5.1 ppt for PFOA, and 6.5 ppt for PFOS) were not changed.

Knowing that these are constituents of emerging concern, Cal water had already identified and tested water sources that would be more likely to have these compounds present by 2019. With the updated response levels, we voluntarily conducted additional testing for these constituents in all of our water systems.

Studies indicate that long-term exposure to PFOA and PFOS over certain levels could have adverse health effects, including developmental effects to fetuses during pregnancy or infants; cancer; or impacts on liver, immunity, thyroid, and other functions. Potential health impacts related to PFAS compounds are still being studied, and research is still evolving on this issue.

Although there is no Maximum Contaminant Level (MCL) set for these substances, we have proactively monitored sources and will continue to do so. Even though it is not required by the state, we believe it is the right thing to do. When an MCL is established by DDW for these compounds, we will continue to ensure our water sources are in compliance with any set standard.

While we are doing our part to treat the water and meet the standards the public health experts have set, it's important that our population as a whole focuses on being good stewards of the environment and takes steps to prevent impacting the water supply.

Additionally, Cal Water has filed a lawsuit against a group of companies that manufactured and sold firefighting foam products that released the PFOA and PFOS into the environment, to ensure the responsible parties bear the costs of treating for these chemicals, not our customers. We are also encouraging the EPA to establish a consistent, science-based standard as quickly as feasible, and strongly support state legislation prohibiting the sale and use of certain products that contain PFAS and requiring the certification of accurate testing methods for PFAS.

More information on PFOA and PFOS is available on the [DDW web site](#).

KEY DEFINITIONS

IN COMPLIANCE: Does not exceed any applicable MCL, SMCL, or action level, as determined by DDW. For some compounds, compliance is determined by averaging the results for one source over a one-year period.

LEVEL 1 ASSESSMENT: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

LEVEL 2 ASSESSMENT: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

MAXIMUM CONTAMINANT LEVEL (MCL): 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.

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 are set by the U.S. Environmental Protection Agency.

MAXIMUM RESIDUAL DISINFECTANT LEVEL (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MAXIMUM RESIDUAL DISINFECTANT LEVEL GOAL (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NOTIFICATION LEVEL (NL) AND RESPONSE LEVEL (RL): Health-based advisory levels for unregulated contaminants in drinking water. They are used by DDW to provide guidance to drinking water systems.

PRIMARY DRINKING WATER STANDARDS (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

PUBLIC HEALTH GOAL (PHG): 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 Environmental Protection Agency.

REGULATORY ACTION LEVEL (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

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

VARIANCES AND EXEMPTIONS: Permissions from the State Water Resources Control Board (State Board) to exceed an MCL or not comply with a treatment technique under certain conditions.

STANDARD ABBREVIATIONS

AL	Action level	Max	Maximum
Min	Minimum	N/A	Not applicable
NL	Notification level	NTU	Nephelometric turbidity unit
ND	Constituent not detected		
pCi/L	Picocuries per liter (a measure of radiation)		
ppb	Parts per billion or micrograms per liter (µg/L)		
ppm	Parts per million or milligrams per liter (mg/L)		
ppq	Parts per quadrillion or picogram per liter (pg/L)		
ppt	Parts per trillion or nanograms per liter (ng/L)		
µS/cm	Microsiemens/centimeter		

Cal Water tests your water for a large number of both regulated and unregulated contaminants. This table lists only those contaminants that were detected.

In the table, water quality test results are divided into three major sections: “Primary Drinking Water Standards,” “Secondary Drinking Water Standards,” and “Unregulated Compounds.” Primary standards protect public health by limiting the levels of certain constituents in drinking water. Secondary standards are set for substances that don’t impact health but could affect the water’s taste, odor, or appearance. Some unregulated substances (hardness and sodium, for example) are included for your information. The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

SUBSTANCE SOURCES

AS	Internal corrosion of AC water mains
DI	Byproduct of drinking water disinfection
DS	Drinking water disinfectant added for treatment
EN	Naturally present in the environment
ER	Erosion of natural deposits
FE	Human and animal waste
FL	Water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
FR	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage
IC	Internal corrosion of household plumbing systems
IM	Discharge from industrial manufacturers
IO	Substances that form ions when in water
IW	Industrial waste
RU	Runoff/leaching from natural deposits
SO	Soil runoff
SW	Seawater influence
WD	Leaching from wood preservatives
UR	Unregulated constituents with no source listed and that do not have standardized “source of substance” language

Our testing equipment is so sensitive, it can detect constituents as small as 1 part per trillion. That is equivalent to 1 inch over 15 million miles

Primary Drinking Water Standards

Microbiological	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Distribution System-Wide		Source
						Highest Monthly		
Total coliform ¹	2021	Positive Samples	1	(0)	Yes	1		EN
Fecal coliform and E. coli	2021	Positive Samples	1 ²	(0)	Yes	1		FE
Inorganic Chemicals	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater		Source
						Range	Average	
Asbestos	2015–2017	MFL	7	7 (7)	Yes	ND-0.98	0.49	AS, ER
Fluoride	2014–2020	ppm	2	1 (4.0)	Yes	0.11–0.14	0.13	ER, FL
Lead and Copper	Year Tested	Unit	AL	PHG (MCLG)	In Compliance	Distribution System-Wide		Source
						90 th Percentile	Samples > AL	
Copper ³	2021	ppm	1.3	0.3	Yes	1.4	2 of 5	IC, ER, WD
Lead	2021	ppb	15	0.2	Yes	5.0	0 of 5	IC, IM, ER
Schools that requested lead sampling in 2021: 0								
Disinfection Byproducts	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Distribution System-Wide		Source
						Results	Highest Annual Average	
Total trihalomethane (TTHM)	2021	ppb	80	N/A	Yes	2.8	2.8	DI
Total haloacetic acids (THAA)	2021	ppb	60	N/A	Yes	ND	ND	DI

¹ This report reflects changes in drinking water regulatory requirements during 2021. These revisions add the requirements of the federal Revised Total Coliform Rule, effective since April 1, 2016, to the existing state Total Coliform Rule. The revised rule maintains the purpose to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbials (i.e., total coliform and E. coli bacteria). The EPA anticipates greater public health protection as the rule requires water systems that are vulnerable to microbial contamination to identify and fix problems. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment to determine if any sanitary defects exist. If found, these must be corrected by the water system. The state Revised Total Coliform Rule became effective July 1, 2021.

² This means This means a routine sample and a repeat sample are total coliform-positive, and one of these is also E. coli-positive.

³ In the Armstrong system, the 90th percentile copper level was 1.4 ppm, which exceeds the action level of 1.3 ppm. This means that 10% of the samples collected contained copper in excess of 1.4 ppm. Copper is an essential nutrient, but some people who drink water in excess of the action level over a relatively short amount of time may experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years may suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.

Disinfectants	Year Tested	Unit	MRDL	MRDLG	In Compliance	Distribution System-Wide		Source
						Range	Average	
Free chlorine	2021	ppm	4	4	Yes	1.3–2.7	2.0	DS

Secondary Drinking Water Standards

Chemical	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater		Source
						Range	Average	
Chloride	2014–2020	ppm	500	N/A	Yes	95–110	103	RL, SW
Specific conductance	2014–2020	US	1600	N/A	Yes	230–250	240	SW, IO
Iron	2014–2020	ppb	300	N/A	Yes	ND-130	ND	RL, IW
Sulfate	2014–2020	ppm	500	N/A	Yes	9.2–18	14	RL, IW
Total dissolved solids	2014–2020	ppm	1000	N/A	Yes	130–160	145	RL
Turbidity (groundwater)	2014–2020	NTU	5	N/A	Yes	0.22–0.53	0.38	SO

Unregulated Compounds

Chemical	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater		Source
						Range	Average	
Alkalinity (total)	2014–2020	ppm	N/A	N/A	N/A	4.8–5.7	5.3	UR
Calcium	2014–2020	ppm	N/A	N/A	N/A	20–22	21	UR
Hardness (total)	2014–2020	ppm	N/A	N/A	N/A	97–110	104	UR
Magnesium	2014–2020	ppm	N/A	N/A	N/A	12–13	13	UR
Sodium	2014–2020	ppm	N/A	N/A	N/A	9.1–9.7	9.4	UR
pH	2021	STD U	N/A	N/A	N/A	6.5–7.4	6.8	UR

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Thanks for taking the time
to learn more about
your water quality!

Even more information awaits you at www.calwater.com.

Visit our web site to get information about your account, water-use history,
water rates, and water system.

You will also find water-saving tips and news about
water conservation programs and rebates available in your area.



Quality. Service. Value.®



THANK YOU.

- ▶ Conservation resources
- ▶ Lead in water
- ▶ Water treatment and disinfection
- ▶ Protecting the water supply