2023 Drinking Water Quality Report

University of California, Davis

State Water System Number: 5710009

UCDAVIS

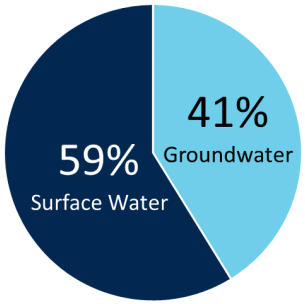
Important Information about Your Drinking Water

The University of California, Davis water utility tests the campus drinking water supply for many constituents as required by State and Federal Regulations. This report summarizes the results of our monitoring for the period of January 1 through December 31, 2023. This information is provided to inform the campus community about the monitoring and quality of the drinking water supply.

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

由於此報告書正包含着有關飲用水的重要信息,因此希望各位跟能夠翻譯或理解報告書內容的人對話

Where Does Our Water Come From?



There are two drinking water sources used for the University's water supply: groundwater and surface water. In 2023, 59% of the campus demands were met by surface water and groundwater made up the remaining 41%.

Groundwater: Six on-campus wells provide the University's groundwater supply. These wells draw water from deep aquifers 800 to 1,400 feet below the ground. The water is not treated, except for disinfection using chlorine. Chlorine levels are typically maintained between 0.50 and 1.0 ppm (parts per million) in the distribution system.

Surface Water: Sacramento River water is treated at the Woodland-Davis Regional Water Treatment Facility using traditional surface water techniques, including flash mixing, clarification, ozonation, granular media filtration, and disinfection. The finished water is injected with chlorine and orthophosphate before it is delivered into the University's transmission line.

Contact Information

To report an urgent water quality concern or leak, contact the Facilities Management Customer Experience Center:

Phone: (530) 752-1655 (24 hours, 7 days a week)
Email: facilities@ucdavis.edu

For questions about this Report, contact Utilities Civil Operations:

- Courtney Doss, Engineering & Compliance Supervisor: (530) 574-7225, cahall@ucdavis.edu
- Nick Carpenter, Water & Gas Operations Superintendent: (530) 979-1546, ncarpenter@ucdavis.edu

Drinking Water Source Assessment Information

Drinking water source assessments are intended to facilitate and provide the basic information necessary for a local community to develop a program to protect the drinking water supply.

Groundwater: A source assessment for the University's groundwater wells was completed in June 2003. The University's groundwater sources are considered most vulnerable to the following activities: animal activities; sewer/septic collection & treatment systems; pesticide/fertilizer use; petroleum/chemical storage & transfer areas; and research laboratories. There have been no contaminants detected in the water supply attributable to these activities; however, the source is still considered vulnerable to activities located near the drinking water sources.

Surface Water: The surface water assessment for the Sacramento River watershed (2020 Update Report) can be found at: https://www.wdcwa.com/operations/water-quality-reports. The report induced the following assessment: "Overall, the Sacramento River continued to provide good quality raw water. The raw water can currently be treated to meet all drinking water standards using conventional water treatment processes." The report also identified eight key source water/watershed contaminant sources: agricultural drainage; livestock; forest activities, river corridor and river recreation; stormwater and urban runoff; industrial national pollutant discharge elimination system permit discharges; wastewater facilities; and watershed spills.

Additional information can be found on the State Water Resources Control Board, Division of Drinking Water website at: http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/DWSAP.shtml.

Required Disclosures for Drinking Water Consumers

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- **Microbial contaminants**, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants**, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- P**esticides 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 byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- **Radioactive contaminants**, that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (U.S. EPA) and the State Water Resources Control Board (State Water Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Water Board regulations 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. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

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 from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control (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 (1-800-426-4791).

Key Terms and Abbreviations

The following are definitions of key terms for the water quality goals and standards noted on the data tables.

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 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 (U.S. EPA).
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.
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.
Secondary Drinking Water Standards (SDWS)	MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.
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.
ND	Not detectable at testing limit.
ppm	parts per million, equivalent to milligrams per liter (mg/L)
ppb	parts per billion, equivalent to or micrograms per liter (µg/L)
pCi/L	picocuries per liter (a measure of radiation)
TON	Threshold Odor Number
µS/cm	Microsiemens per centimeter (a unit expressing the amount of electrical conductivity of a solution)
UCD, University	University of California, Davis
USEPA	United States Environmental Protection Agency
WCDWA	Woodland-Davis Clean Water Agency

What Does Our Water Contain?

The following tables list the drinking water contaminants that were detected during the most recent sampling.

The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The Division of Drinking Water requires water suppliers to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, are more than one year old.

In addition to the constituents listed in the tables below, our water was analyzed for numerous other substances that were below regulatory levels or not detectable. Additional information is available at the UC Davis Facilities Management website and upon request: https://facilities.ucdavis.edu/utilities-services/water-quality

Important Health Information

While your drinking water meets the federal and state standard for arsenic, it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The U.S. Environmental Protection Agency continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Manganese was detected at levels that exceed the secondary MCL of 50 µg/L. The manganese SMCL was set to protect you from unpleasant aesthetic effects (i.e., color, odor, and taste). The manganese levels are naturally occurring, and are due to leaching of natural deposits.

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. UC Davis Utilities is 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 Safe Drinking Water Hotline or at http://www.epa.gov/lead

Cryptosporidium is a microbial pathogen found in surface water throughout the United States. Cryptosporidium was detected three times in the untreated surface water during 2020. However, the Woodland-Davis Clean Water Agency's Regional Water Treatment Facility is designed to remove and/or deactivate these pathogens to ensure that this pathogen is not present in the finished water.

Primary Drinking Water Standards

Primary drinking water standards are established to protect human health.

Table 1. Constituents Detected with Primary Drinking Water Standards, Source Water Monitoring

Constituent	Year Sampled	Unit	Regulatory Limits		UC Davis Groundwater		WDCWA Surface Water		Major Sources in Drinking Water
			MCL (AL)	PHG (MCLG)	Results Range	Average	Results Range	Average	
Aluminum	2023	ppm	1	0.6	ND		0.058	0.058	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic	2023	ppb	10	0.004	3.6 - 8.0	5.6	ND	ND	Erosion of natural deposits; runoff from orchards, glass and electronics production wastes
Barium	2023	ppm	1	2	ND - 0.07	ND	ND	ND	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Chromium (Total)	2023	ppb	50	(100)	ND - 17	ND	ND	ND	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride	2023	ppm	2	1	0.11 - 0.16	0.13	ND	ND	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as N)	2023	ppm	10	10	ND - 0.75	0.36	0.23	0.23	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Selenium	2023	ppb	50	30	ND - 4	ND	ND	ND	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive)
Radium-226	2018 & 2021	pCi/L	[1]	0.05	ND - 0.32	ND	0.339	0.339	Erosion of natural deposits
Radium-228	2018	pCi/L	[1]	0.019	ND - 0.49	ND	0.71 - 2.14	1.31	Erosion of natural deposits
Surface Water Monitoring									
Total Organic Carbon	2023	ppm	TT	N/A	N/A		0.67 - 1.90	1.1	Various natural and manmade sources
Bromate	2023	ppb	10	0.1	N/A		1.1	1.1	Disinfection Byproducts

[1] MCL for Radium-226 and Radium-228 combined is 5 pCi/L

Table 2. Constituents Detected with Primary Drinking Water Standards, Distribution System Monitoring

Constituent	Year Sampled	Unit	Regulatory Limits		Results Range	Average	Major Sources in Drinking Water
			MCL (MRDL)	PHG (MRDLG)			
Total Trihalomethanes (TTHMs)	2023	ppb	80	N/A	1.1 - 38.0	16.1	Disinfection Byproducts
Haloacetic Acids (HAA5)	2023	ppb	60	N/A	ND - 10.0	4.0	Disinfection Byproducts
Chlorine	2023	ppm	(4)	(4.0)	0.06 - 1.3	0.7	Drinking water disinfectant added for treatment
Total Coliform Bacteria	2023	% Positive	5%	0%	0% - 3.3%[1]	0%	Naturally present in the environment

[1] Two (2) samples out of 685 samples from the distribution system in 2023 were present for total coliform bacteria; however, re-sampinge of the location upstream and downstream of the site, did not detect the bacteria, verifying no potential problems in the water treatment or distribution.

Secondary Drinking Water Standards

There are no PHGs or MCLGs for constituents with secondary drinking water standards because these are not health-based levels, but set on the basis of aesthetics.

Table 3. Constituents Detected with Secondary Drinking Water Standards,

Constituent	Year Sampled	Unit	SMCL	UC Davis Groundwater		WDCWA Surface Water		Major Sources in Drinking Water
				Results Range	Average	Results Range	Average	
Chloride	2023	ppm	500	14 - 23	20	5.8	5.8	Runoff/leaching from natural deposits; seawater influence
Color	2023	units	15	5 - 5	5	ND	ND	Naturally-occurring organic materials
Iron	2023	ppb	300	ND - 63	ND	ND	ND	Leaching from natural deposits; industrial wastes
Manganese*	**2023**	**ppb**	**50**	**ND - 55**	**ND**	**ND**	**ND**	**Leaching from natural deposits**
Odor	2023	Units	3	ND - 2.5	ND	1.3	1.3	Naturally-occurring organic materials
Specific Conductance	2023	µS/cm	1,600	510 - 570	546	190	190	Substances that form ions when in water; seawater influence
Sulfate (as SO4)	2023	ppm	500	28 - 37	33	20	20	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids	2023	ppm	1,000	310 - 330	320	95 - 170	127	Runoff/leaching from natural deposits
Turbidity	2023	Units	5	ND - 0.36	0.16	0.34	0.34	Soil runoff

Lead and Copper Rule

Lead and copper samples are collected from taps throughout the campus.

Table 4. Lead and Copper Rule Sampling Results

Constituent	Year Sampled	Unit	Regulatory Limits		No. of Samples Collected	90th Percentile Level Result	No. of Sites Exceeding Action Level	Major Sources in Drinking Water
			Action Level	PHG				
Lead	2023	ppm	0.015	0.0002	61	ND	1	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper	2023	ppm	1.3	0.3	61	0.15	0	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

Constituents with No Drinking Water Standards

These constituents may be of interest to customers; however, they have no regulatory thresholds.

Table 5. Selected Constituents Detected with No Drinking Water Standards

Constituent	Year Sampled	Unit	UC Davis Groundwater		WDCWA Surface Water	
			Results Range	Average	Results Range	Average
Alkalinity, Bicarbonate (as CaCO3)	2023	ppm	240 - 270	250	74	74
Calcium	2023	ppm	15 - 19	17	9.7 - 18.0	13.0
Hardness, Total (as CaCO3)	2023	ppm	77 - 150	119.4	62	62
Hexavalent Chromium[1]	2017	ppb	4 - 13	8.08	0.09	0.09
Magnesium	2023	ppm	9.1 - 24	18.62	6.5	6.5
Potassium	2023	ppm	ND - 2.5	2.2	ND	ND
Sodium	2023	ppm	68 - 95	76	13	13

[1] In 2023, there was no MCL for hexavalent chromium. The State Water Resources Control Board adopted a 10 ppb MCL in 2024; UC Davis is required to have water system compliance with the new MCL by 2027.

Unregulated Contaminant Monitoring Rule 4 & 5

As part of the Safe Drinking Water Act Amendments of 1996, the U.S. Environmental Protection Agency (EPA) is required to create a list every five years of up to 30 unregulated contaminants to be monitored in public water supplies. This list is derived from the Candidate Contaminant List (CCL) and represents compounds for which the EPA may consider as candidates for regulation.

UCMR4 specifies monitoring for 10 cyanotoxins plus 20 additional contaminants.

Table 6. Constituents Detected Under UCMR4

Constituent	Year Sampled	Unit	UC Davis Groundwater	
			Results Range	Average
Manganese[1]	2018	ppb	ND - 48	9.45
Bromochloroacetic acid	2018	ppb	ND - 3.2	1.39
Bromodichloroacetic acid	2018	ppb	ND - 2.1	0.81
Chlorodibromoacetic acid	2018	ppb	ND - 1.2	0.42
Dibromoacetic acid	2018	ppb	ND - 2	0.74
Dichloroacetic acid	2018	ppb	ND - 5.2	1.77
Monobromoacetic acid	2018	ppb	ND - 0.51	0.11
Monochloroacetic acid	2018	ppb	ND - 1.6	0.18
Trichloroacetic acid	2018	ppb	ND - 3.4	1.06

[1] Although manganese is regulated under the California Code of Regulations, UCMR4 required testing of this constituent at a lower detection level.

UCMR5 specifies monitoring for 29 per- and polyfluoroalkyl substances (PFAS, also known as “forever chemicals” and perfluorinated compounds) and lithium. The University performed part of the sampling requirements for the Unregulated Contaminant Monitoring Rule 5 (UCMR5) in 2023 and will complete sampling in 2024. None of the 29 PFAS were detected during the UCMR5 monitoring event.

Table 7. Constituents Detected Under UCMR5

Constituent	Year Sampled	Unit	UC Davis Groundwater		WDCWA Surface Water	
			Results Range	Average	Results Range	Average
Lithium	2023	ppb	ND - 30.0	22.6	ND	ND