2019 Annual Water Quality Report

(Consumer Confidence Report)

PWS #5710001

Important Information about Your Water Quality

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

此份有关你的食水报告,内有重要资料和讯息,请找他人为你翻译及解释清楚。

Dear Davis Water Customer,

The City of Davis is pleased to provide the 2019 Water Quality Report to you! Last year, as in years past, your tap water met all State and Federal drinking water standards. We are proud to report that our system did not exceed any maximum contaminant levels for water quality in 2019.

The City collected more than 1,500 water samples throughout the year and tested for over 150 contaminants, in which only those described in this report were detected. Additionally, numerous tests are conducted on the surface water at the Woodland-Davis Regional Water Treatment Facility prior to finished water being delivered to Davis. Last year, the city delivered 3.26 billion gallons of drinking water. The water meter upgrade project was completed in 2019, in which the previous water meters were exchanged for meters with Advanced Metering Infrastructure (AMI). AMI provides hourly water meter reads which can be viewed by customers through the city's online water use portal, AquaHawk.

This document is a snapshot of last year's water quality. This report shows the results of our monitoring for the period of January 1 to December 31, 2019 and may include earlier monitoring data. Included are details about where your water comes from, what it contains, and how it compares to State water quality standards.

Sincerely,
Stan Gryczko, Public Works Utilities and Operations Director

Our Continuing Commitment to You

Our staff of highly trained and certified operators are available around the clock to provide service for any emergency related to the City's water supply. Through teamwork, professionalism, and hard work, the City of Davis Water Division provides drinking water that meets or exceeds all state and federal health standards.

Community Participation

The Davis City Council and the Natural Resources Commission (NRC) can receive public comments at their regularly scheduled meetings. Please check the City's web site at CityofDavis.org or call (530) 757-5602 for City Council dates or (530) 757-5610 for NRC dates. Additionally, you can sign up to receive email notifications for meeting dates and topics at https://cityofdavis.org/city-hall/city-manager-s-office/enotification

To Our Water Customers

This report is prepared in accordance with the United States Environmental Protection Agency (US EPA) and the State Water Resources Control Board – Division of Drinking Water (State Water Board) regulations under the Safe Drinking Water Act that requires water providers to report annual water quality information to their customers. This publication lists all constituents detected in your water supply and information about your water source, what it contains, how it compares to state and federal standards, and other related information.

For more information about this report, or for any questions relating to your drinking water, please contact City of Davis Public Works Utilities and Operations at Water@CityofDavis.org or (530) 757-5686 and ask for Heather Brown, Water Quality Coordinator. If you ever experience a problem with your water supply after hours, please call the non-emergency Police Department number at (530) 747-5400.

Where Does Our Water Come From?

The City of Davis water system is a conjunctive use system and utilizes both surface water and groundwater for its potable water supply. The primary water source is surface water supplied from the Sacramento River which accounted for approximately 87% of delivered water in 2019. Groundwater provides the remaining 13% and is pumped from underlying aquifers that range from 208 to 1,762 feet below ground surface. The City has 9 active groundwater wells throughout town, but the majority of well water supplied as drinking water comes from 4 deep aquifer wells.

Source Water Assessments

Surface Water

The Sacramento River Watershed Sanitary Survey 2015 Update Report, a source water assessment, was conducted by several agencies and can be obtained at https://www.wdcwa.com/project-history/. The report identified eight potential source water/watershed contaminant sources to the Sacramento River: agricultural drainage; livestock; river corridor and river recreation; illegal camping; urban runoff; industrial NPDES discharges; wastewater facilities; and watershed spills. The report stated that, "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."

Groundwater

A source water assessment for the City of Davis' groundwater wells was completed in 2002 and an assessment was conducted for Well 34 in January 2017. The City's groundwater sources are most vulnerable to historic and present-day land use activities, including agricultural and light industrial use. Additionally, the water source is vulnerable to naturally occurring contaminants such as selenium and chromium. Overall, there is a slight to moderate threat that the City's water source could become contaminated by these land use activities and naturally occurring contaminants. For information on the summary of the assessment, contact City Water Quality Staff at (530) 757-5686 or e-mail Water@CityofDavis.org.

Report a Water Quality Concern

Do you have a question or concern about your water quality? Are you experiencing any problems with your drinking water supply, such as discolored water or unusual taste or odor? Contact the Public Works Utilities and Operations Department during regular business hours at (530) 757-5686 or contact the non-emergency Police Department number after hours at (530) 747-5400.

Water Treatment Process

Surface Water: Surface water is taken in from the Sacramento River and pumped to the Regional Water Treatment Facility in Woodland. The raw water is treated by traditional surface water techniques, including flash mixing and granular media filtration to remove microorganisms and other contaminants. For more information on the treatment process, visit https://www.wdcwa.com/faq. The finished water is dosed with chlorine for disinfection and with phosphoric acid to create ortho-phosphate for corrosion control to achieve a target chlorine residual of 1.0 ppm and an ortho-phosphate residual of 2.0 ppm prior to entering the transmission line.

Groundwater: Groundwater is treated at each well head with sodium hypochlorite (chlorine) to ensure a target residual of 1.0 ppm. At Well 32, manganese is removed from the source water before entering the distribution system. The groundwater is also filtered naturally as it passes through geologic formations such as sand and clay layers.

No fluoride is added to either the surface water or the groundwater.

Distribution System Operations

Surface water is pumped into a transmission line at the Regional Water Treatment Facility in Woodland. The water flows through the transmission line into Davis and then branches off to west and south Davis. Surface water enters into the City's distribution system primarily at three main turn-outs located in west, central, and south Davis.

The City's production wells pump groundwater directly from underlying aquifers into the transmission line. Here the groundwater and surface water are blended prior to entering the distribution system and arriving at the tap.

The ratio of surface water to groundwater varies throughout the year. The City's surface water allotment is 10.2 million gallons per day. During periods of low water demand, the majority of the water entering into the distribution system is surface water. In warmer months when there is higher water demand, groundwater is supplemented to meet demand. Wells are still operated periodically during the low demand months to ensure that they are exercised properly and as required for water quality testing. In 2019, surface water accounted for an average of 87% of the total amount of water that was consumed, while the monthly average of surface water ranged from 79% to 99%.

Water Quality Testing

The City is required to monitor drinking water for specific constituents on a regular basis. The City's monitoring program consists of sampling certain constituents on a weekly, monthly, quarterly, or annual basis. The City samples for constituents at sampling stations within the distribution system, at municipal groundwater wells, and as surface water enters the City. During the past year, the City tested for over 150 regulated and unregulated constituents. Twenty routine bacteriological samples are collected weekly at dedicated locations throughout the City.

Water Quality Changes with Surface Water

The delivery of surface water (since June of 2016) has significantly change the quality of the City's drinking water. In 2019, drinking water consisted of 87% surface water and 13% groundwater on average. Surface water contains very few metals and tends to be softer than local groundwater. The weighted average of some constituents has decreased with the introduction of surface water, including, but not limited to: alkalinity, boron, calcium, conductivity, hardness, magnesium, manganese, sodium, and total dissolved solids.

Water Hardness

One of the most frequent questions the City receives about the change in water quality relates to water hardness. The level of water hardness has decreased significantly with the delivery of surface water. In 2015, when the City supplied only groundwater, the weighted average for hardness was 306 parts per million (ppm) or 18 grains per gallon (gpg). In 2019, the City supplied 87% surface water and 13% groundwater, and the weighted average for hardness in 2019 was reduced to 62 ppm or 3.6 gpg.

Historically high hardness levels contributed to a significant number of homeowners installing water softeners. If you are still using a water softener at your home, please consider bypassing it to determine if the current level of water hardness is acceptable for your home, or adjust the grains setting on the water softener accordingly. Reducing or eliminating the use of water softeners can also save water and energy costs.

Minimizing the use of water softeners is also important to protect water quality, as some water softeners release large quantities of salts into the City's wastewater system. These salts are not removed, even after the water is processed through the City's wastewater treatment plant. The salts remain in the treated water that feeds the local wetlands, increasing the salt loading of the wetlands and rivers, and contributes to a variety of problems for the Sacramento Valley.

Source Water Protection Tips

Protection of drinking water is everyone's responsibility. You can help protect our community's drinking water source in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides – they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets. Pet waste can carry diseases.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help.
- Contact the City to request that a storm drain marker be placed at your nearest storm drain, if one does not exist already. These markers provide the message "Rainwater Only – Drains to the Wetlands."

Water Conservation

During the most recent drought, many residents in Davis instituted long-term changes to their water use by replacing turf areas with low-water use plantings, replacing older appliances and fixtures with water and energy efficient models, and making changes in everyday water use habits. Whether we are in a dry or wet year, there are always actions we can take to increase long-term water use efficiency. For more information on the State's long term water conservation framework, visit https://water.ca.gov/Programs/Water-Use-And-Efficiency/Making-Conservation-a-California-Way-of-Life .

The AquaHawk online customer water use portal is available to City of Davis water customers. The AquaHawk portal allows customers to view their hourly water usage and set and then receive usage alerts. For more water savings tips and information on AquaHawk, water-wise landscaping, and links to helpful indoor and outdoor water use efficiency websites, visit www.SaveDavisWater.org.

Water Conservation Tips

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference – try one today and soon it will become second nature.

- Take short showers – a 5-minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair, and shaving to save up to 500 gallons a month.
- Consider installing a water-efficient showerhead. They are inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaking toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered and keep water off the sidewalk. Apply water only as fast as the soil can absorb it and during the late evening or early morning to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Sign up for AquaHawk at www.SaveDavisWater.org.
- Visit https://www.epa.gov/watersense for more information.

What Does Our Water Contain?

The Safe Drinking Water Act requires all water purveyors to sample their source and treated water for biological, inorganic, organic, and radioactive constituents. The State Water Board allows systems to monitor for certain constituents less than once per year because the concentration of these contaminants do not change frequently. Some of the data in this year's report, though representative, are more than one year old.

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).

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.

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.
- **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 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. EPA and the 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.

Important Health Information

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).

Definitions

AL (Regulatory Action Level): The concentration of a contaminant which, 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.
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 US 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. Constituent was not detected at the reporting level.
NL (Notification Level): Health based advisory set by the State Water Board for constituents without an MCL. This is not an enforceable standard, although requirements and recommendations may apply if detected above this level.
NS: No standard. Officials have not developed a Public Health Goal or MCLG standard.
pCi/L (picocuries per liter): A measure of radioactivity.
PDWS (Primary Drinking Water Standard): MCLs, MRDLs, and treatment techniques (TTs) for contaminants that affect health along with their monitoring and reporting 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).
SMCL (Secondary MCL): SMCLs are set to protect the odor, taste, and appearance of drinking water.
T.O.N. – Threshold Odor Number
TT (treatment technique): A required process intended to reduce the level of a contaminant in drinking water.
µS/cm (microsiemens per centimeter): A unit expressing the amount of electrical conductivity of a solution.

PRIMARY DRINKING WATER STANDARD						
Inorganic Constituents	**Unit**	**MCL (AL) [MRDL]**	**PHG or (MCLG) [MRDLG]**	**Range Detected**	**Weighted Average**	**Major Sources in Drinking Water**
Arsenic	ppb	10	0.004	ND – 8.2	ND	Erosion from natural deposits; runoff from orchards; glass & electrical production wastes
Barium	ppm	1	(2)	ND – 0.18	ND	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Total Chromium	ppb	50	(100)	ND – 32	ND	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride	ppm	2.0	1	ND – 0.34	ND	Erosion from natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as N)	ppm	10	10	ND – 6.5	ND	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Selenium	ppb	50	30	ND – 19	ND	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive)
Organic Constituents	**Unit**	**MCL (AL) [MRDL]**	**PHG or (MCLG) [MRDLG]**	**Range Detected**	**Weighted Average**	**Major Sources in Drinking Water**
Total Trihalomethanes	ppb	80	NS	ND – 7	5.8	By-product of water chlorination*
Radioactive Constituents (2018 & 2019)	**Unit**	**MCL (AL) [MRDL]**	**PHG or (MCLG) [MRDLG]**	**Range Detected**	**Weighted Average**	**Major Sources in Drinking Water**
Gross Alpha	pCi/L	15	(0)	ND – 12.1	ND	Erosion from natural deposits
Gross Beta**	pCi/L	50	(0)	ND – 10.45	ND	Decay of natural and man-made deposits
Combined Radium	pCi/L	5	(0)	ND – 3.95	ND	Erosion from natural deposits
Uranium***	pCi/L	20	0.43	ND – 4.6	ND	Erosion from natural deposits
Point of Entry for Surface Water	**Disinfection By-Products**	**Unit**	**MCL (AL) [MRDL]**	**PHG or (MCLG) [MRDLG]**	**Range Detected**	**Weighted Average**	**Major Sources in Drinking Water**
	Total Organic Carbon	ppm	TT	NA	0.75 – 1.5	0.9	Various natural and manmade sources
Distribution System	**Disinfection By-Products**	**Unit**	**MCL (AL) [MRDL]**	**PHG or (MCLG) [MRDLG]**	**Range Detected**	**Weighted Average**	**Major Sources in Drinking Water**
	Total Trihalomethanes	ppb	80	0.8	8.3 – 29	NA	By-product of water chlorination
	Total Haloacetic Acids	ppb	60	N/A	ND – 12	NA	By-product of water chlorination
	Free Chlorine	ppm	[4.0]	[4.0]	0.23 – 1.07	NA	By-product of water chlorination
	Microbial Constituents	**% Positive**	**MCL**	**MCLG**	**Number of Samples Collected**		**Major Sources in Drinking Water**
	Total Coliform Bacteria	0% - 1.2%	5%	0%	1043		Naturally occurring in the environment

*Total Trihalomethanes may also occur naturally

**The State Water Board considers 50 pCi/L to be the level of concern for beta particles.

***The uranium result in pCi/L is based on a calculation.

SECONDARY DRINKING WATER STANDARD						
Constituents	**Unit**	**SMCL**	**PHG**	**Range Detected**	**Weighted Average**	**Major Sources in Drinking Water**
Chloride	ppm	500	NS	1.1 – 74	4.7	Runoff/leaching from natural deposits; seawater influence
Iron	ppb	300	NS	ND - 130	ND	Leaching from natural deposits; industrial wastes
Manganese	ppb	50	NS	ND – 33	ND	Leaching from natural deposits
Odor – Threshold	T.O.N.	3	NS	1 – 2	1.8	Naturally occurring organic materials
Specific Conductance	µS/cm	1600	NS	190 – 1300	240.7	Substances that form ions when in water; seawater influence
Sulfate	ppm	500	NS	4.8 – 100	9.9	Runoff/leaching from natural deposits; industrial waste
Total Dissolved Solids	ppm	1000	NS	96 – 720	128.9	Runoff/leaching from natural deposits
Turbidity	Units	5	NS	ND – 0.72	ND	Soil runoff

NO DRINKING WATER STANDARD			
Constituents	**Unit**	**Range Detected**	**Weighted Average**
Alkalinity	ppm	54 – 490	71.5
Bicarbonate	ppm	66 – 600	87.2
Boron	ppb	ND - 930	ND
Calcium	ppm	12 – 51	12.7
Carbonate	ppm	ND – 4.7	ND
Hardness	ppm	55 – 510	61.9
Hexavalent Chromium	ppb	ND - 26	ND
Potassium	ppm	ND – 2.5	ND
Magnesium	ppm	6 – 94	7.2
Sodium	ppm	17 – 110	25.5
pH	(No unit)	7.9 – 8.4	8.1

Lead in Drinking Water

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. City of Davis 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 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 or at http://www.epa.gov/lead.

Lead and Copper Rule

The City conducted testing under the Lead and Copper Rule in 2019. Thirty-seven first-draw drinking water samples were collected from private residences in August and September and tested for lead and copper. The federal government has established Action Levels for lead and copper at 15 parts per billion (ppb) and 1300 ppb, respectively. For the 2019 sampling event, the 90th percentile for lead was not detected and the 90th percentile for copper was 89 ppb. Compliance with the Lead and Copper Rule is determined when the 90th percentile result does not exceed the Action Level.

Arsenic in Drinking Water

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. EPA 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.

Nitrate in Drinking Water

Nitrate in drinking water at levels above 10 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.

Testing for Cryptosporidium

Cryptosporidium is a microbial pathogen found in surface water throughout the United States. Cryptosporidium was detected one time in the untreated surface water during 2019. However, the 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.

Unregulated Contaminant Monitoring Rule 4

As part of the Safe Drinking Water Act Amendments of 1996, the US 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 which the US EPA may consider as candidates for regulation in the future.

The City completed sampling requirements for the Unregulated Contaminant Monitoring Rule 4 (UCMR4) in 2018. The City sampled selected wells, sampling stations, and the Point of Entry for surface water for three Assessment Monitoring (AM) lists of unregulated contaminants.

The table below lists the unregulated constituents that were detected during UCMR4 sampling events. For more information regarding the UCMR4 sampling program and for a complete list of constituents, visit the Water Quality Results page within http://cityofdavis.org/city-hall/public-works/water/water-quality-information/water-quality-results.

UCMR4 SAMPLING RESULTS

Constituents	Unit	Year Sampled	Range
Manganese*	ppb	2018	<10 – 200
Bromochloroacetic Acid (BCAA)**	ppb	2018	0.67 – 3.6
Bromodichloroacetic Acid (BDCAA)**	ppb	2018	0.59 – 2.6
Chlorodibromoacetic Acid (CDBAA)**	ppb	2018	0.37 – 1.3
Dibromoacetic Acid (DBAA)**	ppb	2018	0.43 – 1.7
Dichloroacetic Acid (DCAA)**	ppb	2018	0.96 – 5.6
Trichloroacetic Acid (TCAA)**	ppb	2018	0.72 – 3.8

*Manganese was tested at the source water. The weighted average was <10 ppb. Although manganese is regulated under the California Code of Regulations, UCMR4 required testing of this constituent at a lower detection level.

**The Haloacetic Acids (HAA) were tested from the distribution system.

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