

2008 ANNUAL
WATER
QUALITY
REPORT



CITY OF DAVIS

PWS ID#: 5710001

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

To Our Water Customers

This report is prepared in accordance with the U.S. Environmental Protection Agency (U.S. EPA) and the California Department of Public Health (CDPH) 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 over the last nine years (except for some Unregulated Contaminants) 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 call Davis Public Works at 530-757-5686 and ask for Marie Graham, Rick Thompson, or Dianna Jensen. If you ever have a problem with your water supply after usual working hours, please call the non-emergency police number at 530-747-5400 (land line) or 530-758-3600 (cell phone) and you will be connected to a Public Works employee.

Water Conservation

Please visit our Web site at www.cityofdavis.org or contact the Public Works office at 530-757-5686 to obtain more information about the City's efforts to conserve water.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk of infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Center 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 1-800-426-4791.

Community Participation

The City Council and the Natural Resources Commission receive public comments at their regularly scheduled meetings. Please check the city Web site at www.cityofdavis.org or call 530-757-5603 for Council dates or 530-757-5686 for NRC dates.

Additional Monitoring

During 2008, the City completed sampling all wells for the newly regulated constituent Perchlorate. The compound was not detected in any of our municipal wells.

Lead and 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. The City 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 at 1-800-426-4791 or at www.epa.gov/safewater/lead.

Radon

Radon is a radioactive gas that occurs naturally in some groundwater. It may pose a health risk when the gas is released from water into air, as occurs during showering, bathing, or washing dishes and clothes. Radon gas released from drinking water is a relatively small part of the total radon in air. Radon is released into homes and groundwater from soil. Inhalation of radon gas has been linked to lung cancer; however, the effects of radon ingested in drinking water are not yet clear. Samples taken from our wells during 2005 indicated a weighted average Radon concentration of 331 Pico Curies per Liter (pCi/L). If you are concerned about radon in your home, tests are available to determine the total exposure level. For additional information call the U.S. EPA's radon hotline at 1-800-SOS-RADON or call the State's radon program at 1-800-745-7236.

Water Treatment Process

Each well has a designated chlorine tank that injects a 12.5 percent solution of liquid sodium hypochlorite at the well site. The City targets a 0.3 parts per million dosage prior to distribution. Precautions should be taken when using chlorinated water for medical uses, such as in dialysis machines, or when adding water to fish tanks or ponds. No fluoride is added to the water.

In 2007, the City installed a surface treatment facility at Well 29, located on Alhambra Drive. It is an activated carbon adsorption filter system that treats the groundwater to reduce odor before it is chlorinated and delivered into the distribution system.

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 groundwater. 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. EPA and the CDPH prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State regulations also establish limits for contaminants in bottled water that must 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, which are by-products of industrial processes and petroleum production, and which 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 drinking water may be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Where Does Our Water Come From?

During 2008, the City pumped water from 20 municipal wells and one private well. These wells draw water from aquifers beneath the City at depths ranging from 210 to 1,800 feet below ground surface. The water is filtered naturally by sands and clays as it passes through geologic formations.

A source water assessment for the City of Davis was completed in 2002 as required by the California Department of Health Services Source Water Assessment Program. The goal of this project was to determine the water system's vulnerability to possible sources of contamination. Our groundwater is most vulnerable to historic and present-day land use activities. These activities include 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 patterns and activities. A copy of the complete assessment is available online at <http://swap.ice.ucdavis.edu/TSinfo/TSintro.asp>, or contact Marie Graham at 530-757-5686 or e-mail mgraham@cityofdavis.org.

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. Further, 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.

For a detailed discussion on the NRDC study results, visit their Web site at www.nrdc.org/water/drinking/bw/exesum.asp.

New 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. For more information, please visit the U.S. EPA's arsenic Web site at www.epa.gov/safewater/arsenic.html.

What Does Our Water Contain?

During the past year we have taken numerous water samples in order to determine the presence of any biological, inorganic, volatile organic, or semi-volatile organic contaminants. Public water systems, such as ours, are required to monitor source water (production wells) every three years. However, the City has historically monitored each well every sixteen months. Some of our wells were not tested in 2008; therefore, the most recent water quality results are listed. As required by the California Code of Regulations under Title 22, only those constituents that were detected in our water supply are listed in the table below.

The state requires us to monitor for certain substances less often 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.

PRIMARY DRINKING WATER STANDARDS							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	PHG (MCLG) [MRDLG]	WEIGHTED AVERAGE	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppb)	2008	1000	600	<50	<50–56	No	Erosion of natural deposits; residue from some surface water treatment processes
Antimony (ppb)	2008	6	20	<6.0	<6.0–3.4	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic (ppb)	2008	10	0.004	4.9	<2.0–7.5	No	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Barium (ppb)	2008	1000	2000	<100	<100–210	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Chromium (ppb)	2008	50	(100)	11.5	<0.1–47	No	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Dibromochloropropane [DBCP] (ppt)	2008	200	1.7	<0.01	<0.01–0.13	No	Banned nematocide that may still be present in soils due to runoff/leaching from former use on soybeans, cotton, vineyards, tomatoes and tree fruit
Fluoride (ppm)	2008	2.0	1	0.21	0.1–0.4	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Gross Alpha Particle Activity (pCi/L)	2007	15	(0)	2.3	0.17–5.49	No	Erosion of natural deposits
Nitrate [as nitrate] (ppm)	2008	45	45	9	1–34	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Radium 226 (pCi/L)	2007	5	0.05	0.01	-0.0244–0.0839	No	Erosion of natural deposits
Radium 228 (pCi/L)	2007	5	0.019	0.5	-0.102–2.02	No	Erosion of natural deposits
Selenium (ppb)	2008	50	NS	6.6	<1.0–41	No	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive)
TTHMs [Total Trihalomethanes] (ppb)	2008	80	NS	<0.50	<0.50–2.10	No	By-product of drinking water chlorination
Total Coliform Bacteria (% positive samples)	2008	More than 5.0% of monthly samples are positive	(0)	1.3	NA	No	Naturally present in the environment
Trichloroethylene [TCE] (ppb)	2008	5	0.8	<0.50	<0.50–0.51	No	Discharge from metal degreasing sites and other factories
Uranium (pCi/L)	2007	20	0.43	4.1	0.17–5.09	No	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	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	EXCEEDANCE	TYPICAL SOURCE
Copper (ppm)	2008	1.3	0.3	0.24	0/30	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	2008	15	2	2.5	0/30	No	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

SECONDARY DRINKING WATER STANDARDS

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	PHG (MCLG)	WEIGHTED AVERAGE	RANGE LOW-HIGH	EXCEEDANCE	TYPICAL SOURCE
Aluminum (ppb)	2008	200	NS	<50	<50–56	No	Erosion of natural deposits; residual from some surface water treatment processes
Chloride (ppm)	2008	500	NS	40	12–82	No	Runoff/leaching from natural deposits; seawater influence
Color (Units)	2008	15	NS	0.94	0–5	No	Naturally occurring organic materials
Copper (ppb)	2008	1,000	NS	<50	<50–65	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Iron (ppb)	2008	300	NS	<50	<50–93	No	Leaching from natural deposits; industrial wastes
Manganese (ppb)	2008	50	NS	18.8	<50–73	Yes ¹	Leaching from natural deposits
Specific Conductance (µS/cm)	2008	1,600	NS	792	460–1,300	No	Substances that form ions when in water; seawater influence
Sulfate (ppm)	2008	500	NS	57	23–110	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	2008	1,000	NS	466	260–740	No	Runoff/leaching from natural deposits
Turbidity (NTU)	2008	5	NS	<0.1	<0.1–1.4	No	Soil runoff
Zinc (ppb)	2008	5,000	NS	<50	<50–76	No	Runoff/leaching from natural deposits; industrial wastes

UNREGULATED AND OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	WEIGHTED AVERAGE	RANGE LOW-HIGH
Boron (ppb)	2008	814	520–1,100
Bromoform (ppb)	2008	<0.5	<0.5–2.10
Calcium (ppm)	2008	30	13–53
Carbonate (ppm)	2008	5.3	3–16
Chloroform (ppb)	2008	<0.5	<0.5–0.75
Chromium VI [Hexavalent Chromium] (ppb)	2006	12.6	<0.2–38
Hardness (ppm)	2008	264	62–520
Magnesium (ppm)	2008	46	7–100
pH	2008	8.3	8.2–8.4
Sodium (ppm)	2008	81	44–110
Potassium (ppm)	2008	0.90	<1.0–3.0

¹ Two wells exceeded the Secondary Maximum Contaminant Level (SMCL) of 50 parts per billion of Manganese in 2008. In May, Well 15 exceeded the annual running average at 52.5 ppb; the following two samples taken brought the running annual average below the SMCL to 47 ppb by November, 2008. Well 32 exceeded the SMCL for each of the two quarters it was sampled; this well will remain off-line until the level falls below the SMCL.

Definitions

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

µS/cm (microsiemens per centimeter): A unit expressing the amount of electrical conductivity of a solution.

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 U.S. EPA.

MRDL (Maximum Residual Disinfectant Level): The level of a

disinfectant added for water treatment that may not be exceeded at the customer's tap.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. EPA.

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).

ppt (parts per trillion): One part substance per trillion parts water (or nanograms per liter).

SMCL (Secondary MCL): SMCLs are set to protect the odor, taste, and appearance of drinking water.

