

Annual
WATER
QUALITY
REPORT

Reporting Year 2013



Presented By

City of 
Merced
Gateway to Yosemite

PWS ID#: 2410009

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

There When You Need Us

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2013. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

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

Community Participation

The City Council meets every first and third Monday of the month beginning at 7:00 pm at the Civic Center, 678 West 18th Street, Merced. The public is welcome to attend.

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 from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call the Water Quality Control Division at (209) 385-6204 or Public Works Customer Service at (209) 385-6800.

Substances That Could Be in Water

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

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (U.S. EPA) and the California Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department 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 contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but 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 www.epa.gov/safewater/lead.

Drinking Water Fluoridation

Our water system treats your water by adding fluoride to the naturally occurring level to help prevent dental caries in consumers. State regulations require the fluoride levels in the treated water be maintained within a range of 0.70-1.30 ppm with an optimum dose of 0.70 ppm. Our monitoring showed that the fluoride levels in the treated water ranged from 0.10 ppm - 2.09 ppm with an average of .83 ppm. Information about fluoridation, oral health, and current issues is available from www.cdph.ca.gov/certlic/drinkingwater/Pages/Fluoridation.aspx.

About Us

The Merced water system had its beginnings in the pioneer efforts of C. H. Huffman and Charles Crocker in 1868, when they established the Merced Water Company. The company was responsible for construction of Lake Yosemite. The first connections to the City of Merced in 1899 were made possible by a 16-inch line from Lake Yosemite. In 1917, the domestic water was changed to a well system and the largest capacity elevated storage tank in California at the time was built (300,000 gallons).

In 1973, the City of Merced Water Division assumed operations from the privately owned Merced Water Company and has maintained operation ever since. The current system is composed of 23 groundwater production wells located throughout the city, approximately 350 miles of main lines, and four water tower tanks for storage. Well pump operators ensure reliability and adequate system pressure at all times to satisfy customer demand. Diesel-powered generators help maintain uninterrupted operations during power outage. The City of Merced water system delivered more than 24 million gallons of drinking water per day in 2013 to approximately 20,733 residential, commercial, and industrial customer locations. The City of Merced Water Division is operated by the Public Works Department.

Water Conservation Update

Beginning June 2014 the City of Merced changed the watering schedule. The new watering schedule is:

- Even addresses ending in 0, 2, 4, 6, and 8 can water on Tuesday and Saturday.
- Odd addresses ending in 1, 3, 5, 7, and 9 can water on Wednesday and Sunday.
- There is no watering on Monday, Thursday, or Friday.
- Watering hours are before 9:00 am and after 9:00 pm. There is no watering between 9:00 am and 9:00 pm.
- Water only what is needed, being careful not to have water running off into the gutter or sidewalk. Conserving water is important to us all. Please remember to turn off your outdoor watering when it rains.

For more information on conservation, you can contact Public Works - Water at (209) 385-6800.

Source Water Assessment

An assessment of the drinking water sources for the City of Merced's water system was completed in March 2003. The sources are considered vulnerable from the following activities: gas stations (current and historic), dry cleaners, known contaminant plumes, leaking underground storage tanks, sewer collection system, chemical/petroleum pipeline, fertilizer, pesticide/herbicide application, agricultural drainage, farm chemical distributor/application service, low density septic system, agricultural wells, and irrigation wells.

A copy of the complete assessment is available at the City of Merced, Public Works Department, 1776 Grogan Avenue, Merced, CA 95341. You may request a summary of the assessment to be sent to you by contacting Public Works Customer Service at (209) 385-6800.

Benefits of Chlorination

Disinfection, a chemical process used to control disease-causing microorganisms by killing or inactivating them, is unquestionably the most important step in drinking water treatment. By far, the most common method of disinfection in North America is chlorination.

Before communities began routinely treating drinking water with chlorine (starting with Chicago and Jersey City in 1908), cholera, typhoid fever, dysentery, and hepatitis A killed thousands of U.S. residents annually. Drinking water chlorination and filtration have helped to virtually eliminate these diseases in the U.S. Significant strides in public health are directly linked to the adoption of drinking water chlorination. In fact, the filtration of drinking water plus the use of chlorine is probably the most significant public health advancement in human history.

How chlorination works:

Potent Germicide Reduction in the level of many disease-causing microorganisms in drinking water to almost immeasurable levels.

Taste and Odor Reduction of many disagreeable tastes and odors like foul-smelling algae secretions, sulfides, and odors from decaying vegetation.

Biological Growth Elimination of slime bacteria, molds, and algae that commonly grow in water supply reservoirs, on the walls of water mains, and in storage tanks.

Chemical Removal of hydrogen sulfide (which has a rotten egg odor), ammonia, and other nitrogenous compounds that have unpleasant tastes and hinder disinfection. It also helps to remove iron and manganese from raw water.

Sampling Results

The tables below list all drinking water contaminations that we tested for and detected according to State drinking water requirements. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless noted, the data presented in this report are from testing accomplished from January 1, 2013, to December 31, 2013.

The State requires us to monitor for certain substances once every three to five years because the concentrations of these substances do not frequently change. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	PHG (MCLG) [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppm)	2011	1	0.6	0.17	ND–0.17	No	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic ¹ (ppb)	2013	10	0.004	4.9	ND–9.2	No	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Barium (ppm)	2011	1	2	0.20	0.12–0.46	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Chlorine (ppm)	2013	[4.0 (as Cl ₂)]	[4 (as Cl ₂)]	0.68	0.06–1.04	No	Drinking water disinfectant added for treatment
Dibromochloropropane [DBCP] (ppt)	2012	200	1.7	0.014	ND–0.014	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)	2013	2.0	1	0.83	0.10–2.09	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Gross Alpha Particle Activity (pCi/L)	2013	15	(0)	5.44	ND–8.28	No	Erosion of natural deposits
Nitrate [as nitrate] ² (ppm)	2013	45	45	12.8	6.2–22	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrite [as nitrogen] (ppm)	2011	1	1	0.053	ND–0.053	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
TTHMs [Total Trihalomethanes]–Stage 2 (ppb)	2013	80	NA	0.53	ND–0.53	No	By-product of drinking water disinfection
Tetrachloroethylene [PCE] ³ (ppb)	2013	5	0.06	0.88	ND–1.4	No	Discharge from factories, dry cleaners, and auto shops (metal degreaser)
Trichloroethylene [TCE] ³ (ppb)	2013	5	1.7	0.71	ND–0.79	No	Discharge from metal degreasing sites and other factories

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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	PHG (MCLG)	AMOUNT DETECTED (90TH% TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2012	1.3	0.3	0.146	0/40	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	2012	15	0.2	ND	2/40	No	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	PHG (MCLG)	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2011	500	NS	8.8	4.4–13	No	Runoff/leaching from natural deposits; seawater influence
Copper (ppm)	2011	1.0	NS	36	6.5–89	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Corrosivity ⁴ (Units)	2011	Noncorrosive	NS	12	12–12	No	Natural or industrially influenced balance of hydrogen, carbon and oxygen in the water; affected by temperature and other factors
Iron (ppb)	2011	300	NS	0.56	0.14–0.97	No	Leaching from natural deposits; industrial wastes
Manganese (ppb)	2011	50	NS	0.021	ND–0.021	No	Leaching from natural deposits
Sulfate (ppm)	2011	500	NS	9.9	6.3–15	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	2011	1,000	NS	239	180–380	No	Runoff/leaching from natural deposits
Turbidity (NTU)	2011	5	NS	2.1	ND–22	No	Soil runoff

OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH
Magnesium (ppm)	2011	12.79	5.1–24
Sodium (ppm)	2011	22	14–34
pH, Laboratory (Units)	2011	8.0	7.9–8.2
tert-Butyl Alcohol (TBA) (ppb)	2011	4.05	3.4–4.7

¹ Arsenic results at Well Site 2 for all three wells are within the blending MCL of 10 ppb. While your drinking water contains low levels of arsenic, it meets the federal and state standards for arsenic. The arsenic standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. The U.S. Environmental Protection Agency continues to research the health effects such as skin damage and circulatory problems.

² Nitrate in drinking water at levels above 45 ppm 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 serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 45 ppm may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.

³ PCE results at Well Site 3C and TCE results at Well Site 13 were detected below the MCL. All other city well sites reported no detection. While your drinking water meets federal and state standards, it may contain low levels of contaminants below detection limits and below the Regulatory Action Level. The PCE and TCE standard balances the current understanding of possible health effects against the cost of removing contaminants from drinking water. The U.S. Environmental Protection Agency continues to research the health effects of low levels of PCE and TCE.

⁴ Corrosivity is not a National Environmental Laboratory Accreditation Program-accredited analyte. All sampling results are based and calculated on an average of 23 production wells.

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

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. EPA.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

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

NS: No standard

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

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

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

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

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