ANNUAL WATER QUALITY REPORT

Reporting Year 2021

Presented By

Livermore Municipal Water

LIVERMORE
CALIFORNIA

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

PWS ID#: CA01-10-011

We've Come a Long Way

Once again, we are proud to present our annual water quality report covering the period between January 1 and December 31, 2021. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at all hours—to deliver the highest-quality drinking water without interruption. Although the challenges ahead are many, we feel that by relentlessly investing in customer outreach and education, new treatment technologies, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family. For more information about this report, or for any questions relating to your drinking water, please call David Lennier, Water Distribution Operations Manager, at (925) 960-8100.

Where Does My Water Come From?

Since its inception, Livermore Municipal Water has received 100 percent of its wholesale water from the Zone 7 Water Agency, which treats water from the State Water Project in the Sacramento-San Joaquin Delta and groundwater wells in Pleasanton. Zone 7 is the wholesale water agency responsible for managing potable water sources in the valley and providing disinfected potable surface or well water for the valley's retail water agencies. Livermore Municipal Water receives most of its water from Zone 7's two water treatment plants (Del Valle and Patterson Pass), but during 2021, 25 percent of the total water received was from the Zone 7 wells in Pleasanton.

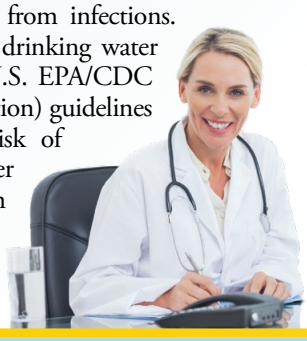
> "When the well is dry, we know the worth of water."
>
> —*Benjamin Franklin*

PFAS Regulatory Update

Over the past several years, the science on PFAS and its impacts to the environment and public health have prompted regulatory actions. The U.S. Environmental Protection Agency (EPA) has a 70 nanograms per liter (ng/L) combined Lifetime Health Advisory for perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) and is moving forward with regulatory development for these two PFAS by 2024. The California State Water Resources Control Board (SWRCB) has issued drinking water advisory levels for three PFAS (including PFOS and PFOA) so far and is pursuing advisory levels for six additional PFAS. The State is also in the process of developing Public Health Goals (PHGs) for PFOA and PFOS by the end of 2022, which is the first step in establishing any drinking water standard.

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.



Source Water Assessment

A source water assessment plan (SWAP) is now available. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area and a determination of the water supply's susceptibility to contamination by the identified potential sources.

According to the SWAP, our water system had a susceptibility rating of medium. If you would like to review the SWAP, please feel free to contact Zone 7 Water Agency, at (925) 454-5000, during regular office hours.

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 we 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 two 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 at (800) 426-4791 or at www.epa.gov/safewater/lead.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The Livermore City Council meets twice a month at 7:00 p.m. at the Civic Center Meeting Hall, 1016 South Livermore Avenue, Livermore. Call the city clerk at (925) 960-4200 or check the city's website, cityoflivermore.net, for exact meeting dates.

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 State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration regulations and California law 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.

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, 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 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, which 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.

Ensuring a Safe Water Supply in The Age of Forever Chemicals

With concern growing about the presence of "forever chemicals" known as PFAS in some water supplies, Zone 7 continues to actively monitor for PFAS in its water supplies and has taken actions to ensure delivering safe drinking water to its customers.

In 2021, Zone 7 did not detect any PFAS in its treated surface water supplies which made up majority of the total water delivered to its customers. Although Zone 7 did detect some PFAS in some of Zone 7's groundwater sources, they were blended and/or treated below the applicable State response level. No PFAS were detected in Zone 7's Hopyard Wells.

Zone 7 continues to ensure a safe water supply. All water delivered to our customers is below the state response levels for pfas.

Zone 7 has completed a PFAS Treatment Feasibility Study in 2020 and is moving forward with the design of a new PFAS treatment facility at the Chain-of-Lakes (COL) wellfield to ensure compliance with anticipated new State and federal regulations. Zone 7 also has completed a PFAS Potential Source Investigation Study in 2020 to assist in characterizing the extent of PFAS across Tri-Valley's groundwater basin and to identify potential sources of contamination. At this time, there is no indication of a single source for this contamination. Currently, Zone 7 is working on developing a groundwater contaminant transport model to further investigate how the PFAS plume could be moving in the groundwater basin under various operating scenarios and PFAS management tools.

For more details about PFAS in Zone 7's water supply, visit www.Zone7Water.com/pfas-information

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and the water we deliver must meet specific health standards. Here, we only show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The state recommends monitoring for certain substances less than once per year 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.

REGULATED SUBSTANCES

				Livermore Municipal Water		Zone 7 Water Wholesaler			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	PHG (MCLG) [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2021	1	2	NA	NA	0.181	ND–0.369	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Bromate (ppb)	2021	10	0.1	NA	NA	8	ND–18	No	By-product of drinking water disinfection
Chloramines (ppm)	2021	[4.0 (as Cl2)]	[4 (as Cl2)]	1.82	0.51–2.20	NA	NA	No	Drinking water disinfectant added for treatment
Chromium, Total (ppb)	2021	50	(100)	NA	NA	ND	ND–12	No	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride (ppm)	2021	2.0	1	NA	NA	ND	ND–0.2	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Gross Alpha Particle Activity (pCi/L)	2021	15	(0)	NA	NA	3	ND–6	No	Erosion of natural deposits
HAA5 [sum of five haloacetic acids]–Stage 2 (ppb)	2021	60	NA	14.7	1.4–21.3	NA	NA	No	By-product of drinking water disinfection
Nitrate [as nitrogen] (ppm)	2021	10	10	NA	NA	2.9	0.9–4.8	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Selenium (ppb)	2021	50	30	NA	NA	ND	ND–8	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]–Stage 2 (ppb)	2021	80	NA	45	11.9–68.1	NA	NA	No	By-product of drinking water disinfection
Turbidity[1] (NTU)	2021	TT	NA	NA	NA	0.2	ND–0.2	No	Soil runoff
Turbidity (lowest monthly percent of samples meeting limit)	2021	TT = 95% of samples meet the limit	NA	NA	NA	95	NA	No	Soil runoff
Uranium (pCi/L)	2021	20	0.43	NA	NA	1.2	ND–4.1	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 (MCLG)	Livermore Municipal Water: AMOUNT DETECTED (90TH %ILE)	Livermore Municipal Water: SITES ABOVE AL/ TOTAL SITES	Zone 7 Water Wholesaler: AMOUNT DETECTED (90TH %ILE)	Zone 7 Water Wholesaler: SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2019	1.3	0.3	ND	0/34	0.063[2]	0/12[2]	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	2019	15	0.2	ND	0/34	7[2]	0/12[2]	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)	Livermore Municipal Water: AMOUNT DETECTED	Livermore Municipal Water: RANGE LOW-HIGH	Zone 7 Water Wholesaler: AMOUNT DETECTED	Zone 7 Water Wholesaler: RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2021	500	NS	NA	NA	113	47–177	No	Runoff/leaching from natural deposits; seawater influence
Iron (ppb)	2021	300	NS	NA	NA	ND	ND–373	No	Leaching from natural deposits; industrial wastes
Specific Conductance (µS/cm)	2021	1,600	NS	NA	NA	825	569–1,244	No	Substances that form ions when in water; seawater influence
Sulfate (ppm)	2021	500	NS	NA	NA	57	23–92	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	2021	1,000	NS	NA	NA	482	323–782	No	Runoff/leaching from natural deposits
Turbidity (NTU)	2021	5	NS	0.138	0.050–0.251	ND	ND–0.1	No	Soil runoff

UNREGULATED SUBSTANCES (ZONE 7 WATER WHOLESALER) [3]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Sodium (ppm)	2021	81	30–115	Runoff/leaching from natural deposits
Total Hardness [as calcium carbonate] (ppm)	2021	241	96–452	Erosion of natural deposits

[1] Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
[2] Sampled in 2021.
[3] Unregulated contaminant monitoring helps U.S. EPA and the State Board determine where certain contaminants occur and whether the contaminants need to be regulated.

PFAS*** (NG/L)

WATER SUPPLY SOURCES	PFOS AVERAGE	PFOS RANGE	PFOA AVERAGE	PFOA RANGE	PFBS AVERAGE	PFBS RANGE	PFHXS AVERAGE	PFHXS RANGE	PFHXA AVERAGE	PFHXA RANGE
Mocho Wellfield										
Mocho Well 2 (before treatment)*	32	31–33	4	4–4	6	6–6	29	28–29	5	6–7
Mocho Well 3	49	45–56	6	5–6	8	8–8	37	34–42	7	5–6
Mocho Well 4	14	12–16	ND	ND–4	5	4–5	15	13–16	ND	ND
Blended/Treated Mocho Water	29	21–33	ND	ND–4	6	5–6	25	21–28	5	ND–5
Chain of Lakes (COL) Wellfield										
COL Well 1	38	27–46	5	4–6	6	5–8	31	21–39	5	ND–7
COL Well 2	18	15–22	ND	ND–4	ND	ND–5	17	14–20	ND	ND–5
COL Well 5 (before treatment)**	20	18–20	ND	ND	ND	ND	14	12–16	ND	ND
Blended COL Water	22	17–29	ND	ND–4	4	ND–5	19	15–25	ND	ND–5
Stoneridge Well	16	15–18	ND	ND	5	5–6	18	18–19	ND	ND–4
Hopyard Wellfield (Well 6 and 9)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Treated Surface Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes: ng/L = nanograms per liter; ND indicates no detection at or above the Consumer Confidence Report Detection Level (CCRDL) which is 4 ng/L for the above analytes; ND or value in range column indicates that more one sample was collected.
* Mocho Well 1 was not used in 2020; Mocho Well 2 was blended/treated at the Mocho Groundwater Demineralization Plant (MGDP) whenever the well was online; All Mocho wells can also be treated at the MGDP.
**COL Well 5 was blended with other COL well water whenever it was online.
***Eighteen analytes were tested per EPA Method 537.1; Only detected analytes above the CCRDL are shown on the table; PFOS = perfluro-octane sulfonic acid, PFOA = perfluoro-octanoic acid, PFBS = perfluorobutane sulfonic acid, PFHxA = perfluorohexanoic acid, PFHxS = perfluorohexane sulfonic acid.

STATE REGULATORY ADVISORY LEVELS FOR PFAS (NG/L)*

PFAS	NOTIFICATION LEVEL	RESPONSE LEVEL
Perfluorooctanesulfonic acid (PFOS)	6.5	40
Perfluorooctanoic acid (PFOA)	5.1	10
Perfluorobutanesulfonic acid (PFBS)	500	5,000

*When a contaminant is found at concentrations greater than its advisory level, certain notification requirements and recommendations apply.

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

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).

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.