



LOMA LINDA UNIVERSITY 2022 WATER QUALITY REPORT

We are pleased to present our annual water quality report for water tests performed between January 1 and December 31, 2022. The water supplied to Loma Linda University, Loma Linda University Medical Center, and many other related entities on the Loma Linda University Health campus, has met or exceeded all U.S. EPA and State drinking water health standards. We are firmly committed to maintaining high quality water.

THE WATER SYSTEM

The Loma Linda University Water System operates three wells which are located in the Bunker Hill Basin. The Bunker Hill Basin is a natural underground aquifer that is replenished from annual rainfall and snow pack from the San Bernardino Mountain Range. The water system also includes a 1.4 million gallon storage reservoir, and many miles of pipeline that service residents living in student housing and a substantial transient population. Loma Linda University also uses a supplementary supply of water from the City of Loma Linda when necessary.

NITRATE

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.

SAFE DRINKING WATER HOTLINE:

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 the 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 at (800) 426-4791.



SPECIAL 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 at (800) 426-4791.

EN ESPAÑOL: Este informe contiene información muy importante sobre su agua para beber. Favor de comunicarse Loma Linda University Water System at (909) 558-4559 para asistirlo en español.

Drinking Water Sources

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:

Units of Measure

mg/L: milligrams per liter or parts per million (ppm).

ug/L: micrograms per liter or parts per billion (ppb).

ng/L: nanograms per liter or parts per trillion (ppt).

ug/L: picograms per liter or parts per quadrillion (ppq)

pCi/L: picocuries per liter (a measure of radiation)

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 storm water 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 storm water runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production and can also come from gas stations, urban storm-water runoff, agricultural application, and septic systems.

Radioactive contaminants, which can be naturally occurring or 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. The U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottle water that provide the same protection for public health.

Abbreviations and 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 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. Environmental Protection Agency (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.

ND: Not detectable at testing limit

PDWS (Primary Drinking Water Standards): 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 Environmental Protection Agency.

SDWS (Secondary Drinking Water Standards): 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.

LEAD—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. Loma Linda University Water System 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>.

2022 DRINKING WATER QUALITY TEST RESULTS

In 2022, the Loma Linda University Central Utilities Plant water technicians conducted numerous water quality tests from samples taken at various locations through-out the water system in accordance with state and federal regulations. We are pleased that our water complied with or did better than those regulations. The following chart shows contaminants that were detected in the water. The State allows us to monitor for some contaminants less than once per year because concentrations of these contaminants do not change frequently. Some of our data, though representative, is more than one year old.

PRIMARY REGULATED CONTAMINANTS						
CONSTITUENT	YEAR	LLU AVERAGE	LLU RANGE	MCL	PHG (MCLG)	SOURCE
RADIOACTIVE CONTAMINANTS						
Gross Alpha (pCi/L)	2022	3.4	0.785 - 5.41	15	N/A	Erosion of natural deposits
Radium 226 (pCi/L)	2022	0.41	-0.14 - 1.89	5	N/A	
Radium 228 (pCi/L)	2022	0.23	0 - 0.695	5	N/A	
Uranium (pCi/L)	2022	2.2	1.7 - 2.8	20	N/A	
INORGANIC CONTAMINANTS						
Barium (mg/L)	2021	0.0095	0.0095	1	2	Erosion of natural deposits; discharges of oil drilling wastes and from metal refineries
Fluoride (mg/L)	2021	1.1	1.1	2	1	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as Nitrogen) (mg/L)	2022	5.84	1.5 - 7.6	10	10	Runoff and leaching from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Perchlorate (ug/L)	2022	3.7	2.9 - 4.1	6	1	Inorganic chemical used in solid rocket propellant, fireworks, explosives, flares, matches, and a variety of industries. It usually gets into drinking water as a result of environmental contamination from historic aerospace or other industrial operations that used or use, store, or dispose of perchlorate and its salts
DISINFECTION BY-PRODUCTS, DISINFECTION RESIDUALS, & DISINFECTION BY-PRODUCT PRECURSORS						
Total Trihalomethanes (TTHMs) (ug/L)	2022	4.4	3.9 - 4.9	80	N/A	By-product of drinking water disinfection
MICROBIAL CONTAMINANTS						
Total Coliform Bacteria (%)	2022	0.05	0 - 0.05	1	0	Naturally present in the environment
E. coli (in the distribution system) (#)	2022	1*	0 - 1	0	0	Human and animal fecal waste
REGULATED CONTAMINANTS WITH SECONDARY DRINKING WATER STANDARDS						
CONSTITUENT	YEAR	LLU AVERAGE	LLU RANGE	PHG (MCLG)		SOURCE
Chloride (mg/L)	2022	43.5	38 - 49	500		Runoff/leaching from natural deposits
Conductivity@25C (uS/cm)	2022	737.5	720 - 760	1,600		Substances that form ions when in water
Sulfate (mg/L)	2022	54.5	42 - 67	500		Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (mg/L)	2022	365	280 - 450	1,000		Runoff/leaching from natural deposits
SAMPLING RESULTS FOR SODIUM AND HARDNESS						
Sodium (mg/L)	2022	90	86 - 93	None		Generally naturally occurring
Hardness (mg/L)	2022	122	43 - 200	None		Sum of polyvalent cations present generally magnesium and calcium. The cations are usually naturally occurring
LEAD AND COPPER RULE						
CONSTITUENT	YEAR	SAMPLES COLLECTED	90TH %ILE LEVEL DETECTED	MCL	PHG (MCLG)	SOURCE
Lead (ug/L)	2022	20	ND	15	0.2	Internal corrosion of water plumbing systems; erosion of natural deposits; leaching from wood preservatives
Copper (mg/L)	2022	20	0.2	1.3	0.3	

No schools have requested lead sampling.

*E.coli Violation: We were notified on July 12, 2022 of an E. coli positive sample in the distribution system causing an MCL violation. When a sample tests positive for E. coli, additional samples associated with that site are collected and the cause of the positive result is investigated. The source of this contamination is unknown, however all subsequent test samples analyzed were negative. Multiple variables can cause a positive result, including localized contamination of the tap where the sample was taken or an analytical error.

UNREGULATED CONTAMINANTS AND OTHER SUBSTANCES

CONSTITUENT	LLU AVERAGE	LLU RANGE	REGULATORY ACTION LEVEL	
Alkalinity (mg/L) (2021)	120	120	None	Unregulated constituent monitoring helps the U.S. EPA and the State Water Resources Control Board to determine where certain contaminants occur and whether the contaminants need to be regulated.
Biocarbonate (mg/L) (2021)	120	120	None	
Calcium (mg/L) (2022)	37.5	15 - 60	None	
Hexavalent Chromium (ug/L) (2014)*	3.1	1.8 - 4.4	0.02 (PHG)	
Magnesium (mg/L) (2022)	6.55	1.1 - 12	None	
pH (pH units) (2021)	8.2	8.2	None	
				*Some people who drink water containing hexavalent chromium in excess of the MCL over many years may have an increased risk of getting cancer.

Source Water Protection

Protection of drinking water is everyone's responsibility. You can help protect your 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.
- If you have a septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- 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. If there are no active groups, consider starting one. Use U.S. EPA's Adopt Your Watershed to locate groups in your community, or visit the Watershed Information Network's How to Start a Watershed Team.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste—Drains to River" or "Protect Your Water". Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water source.

DRINKING WATER SOURCE ASSESSMENT: A drinking water source assessment of Anderson Well 2 and Anderson Well 3 was conducted by San Bernardino County Environmental Health Services in May, 2002. Anderson Well 4 drinking water source assessment was conducted in March, 2014. The purpose of these assessments is to identify potential sources of contamination and develop ways to protect the water supply. Our water source is considered most vulnerable to contamination by activities such as sewer collection systems and automobile gas stations. It is also vulnerable from a known contaminant plume that contains perchlorate.

A copy of the complete assessment may be viewed at the San Bernardino County Environmental Health Services office at 385 N. Arrowhead Avenue, 2nd Floor, San Bernardino, CA 92415-0160. You may request a summary of the assessment be sent to you by contacting the Environmental Health Specialist at (800) 442.2283.

Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal waste. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some elderly, and people with severely compromised immune systems.

**FOR ADDITIONAL INFORMATION ABOUT
 LOMA LINDA UNIVERSITY
 WATER QUALITY,
 PLEASE CONTACT THE
 LOMA LINDA UNIVERSITY
 CENTRAL UTILITIES PLANT
 AT (909) 558-4559.**