



# LOMA LINDA UNIVERSITY 2019 WATER QUALITY

*We are proud to present our annual water quality report covering all water testing performed between January 1 and December 31, 2019. We are pleased that the safe and reliable 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 State and USEPA drinking water health standards. We remain vigilant in safeguarding our water supply.*

## THE WATER SYSTEM

The Loma Linda University Water System operates three wells; Anderson 2, Anderson 3, and Anderson 4 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 system also consists of a 1.4 million gallon storage tank, 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.

### **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 USEPA'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. USEPA/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.



---

**LEAD**—Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and/or flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the USEPA Safe Drinking Water Hotline (1-800-426-4791).

# 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:

## Abbreviations and Definitions

**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 (USEPA).

**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

**Notification Level:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

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

**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.

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

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

**Primary Drinking Water Standards (PDWS):** MCLs or MRDL's for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

**Secondary Drinking Water Standards (SDWS):** 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.

**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 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. State Board regulations also establish limits for contaminants in bottled water that provide the same protection for public health. Additional information on bottled water is available on the California Department of Public Health website at:

(<http://www.cdph.ca.gov/programs/Pages/fdbBVW.aspx>).

### Parts per million (ppm)

**1 ppm = 1 mg/L = 1 part per 1,000,000**  
**One ppm is like: 1 drop in 17 gallons of water**

### Parts per billion (ppb)

**1 ppb = 1 ug/L = 1 part per 1,000,000,000**  
**One ppb is like: 1 drop in 17,000 gallons of water**



## 2019 DRINKING WATER QUALITY TEST RESULTS

In 2019, 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. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk.

PRIMARY DRINKING WATER STANDARDS						
CONSTITUENT	YEAR	LLU AVERAGE	LLU RANGE	MCL	PHG (MCLG)	SOURCE
<b>RADIOACTIVE CONSTITUENTS</b>						
Gross Alpha (pCi/L)	2017	3.4	2.8 - 4.0	15	N/A	Erosion of natural deposits
Radium 226 (pCi/L)	2017	0.07	-0.19 - 0.25	5	N/A	
Radium 228 (pCi/L)	2017	0.27	-0.03 - 0.51	5	N/A	
<b>INORGANIC CONSTITUENTS</b>						
Aluminum (ppm)	2017	0.03	ND - 0.10	1	0.6	Erosion of natural deposits
Barium (ppm)	2017	0.03	ND - 0.09	1	2	Discharge from oil drilling wastes and metal refineries; erosion of natural deposits
Fluoride (ppm)	2018	0.95	0.95	2	1	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Lead (ppb)	2017	0.7	ND - 2.1	15	0.2	Internal corrosion of water plumbing systems; discharges from industrial manufactures; erosion of natural deposits
Nickel (ppb)	2017	6	ND - 18	100	12	Erosion of natural deposits; discharge from metal factories
Nitrate (as Nitrogen) (ppm)	2019	6.2	1.8 - 8.4	10	10	Runoff and leaching from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Perchlorate (ppb)	2019	2.1	ND - 3.9	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
<b>DISINFECTION BY-PRODUCTS, DISINFECTION RESIDUALS, &amp; DISINFECTION BY-PRODUCT PRECURSORS</b>						
Total Trihalomethanes (TTHMs) (ppb)	2018	3.4	2.3 - 4.5	80	N/A	By-product of drinking water disinfection
<b>SECONDARY DRINKING WATER STANDARDS</b>						
CONSTITUENT	YEAR	LLU AVERAGE	LLU RANGE	MCL	PHG (MCLG)	SOURCE
Chloride (ppm)	2019	45	40 - 49		500	Runoff/leaching from natural deposits
Iron (ppb)	2018	ND	ND		300	Leaching from natural deposits; industrial waste
Manganese (ppb)	2018	ND	ND		50	Leaching from natural deposits
Turbidity (units)	2018	ND	ND		5	Soil runoff
Conductivity@25C (umhos/cm)	2019	668	490 - 760		1,600	Substances that form ions when in water
Sulfate (ppm)	2019	59	45 - 68		500	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	2019	440	310 - 500		1,000	Runoff/leaching from natural deposits
<b>SAMPLING RESULTS FOR SODIUM AND HARDNESS</b>						
Sodium (ppm)	2019	88	86 - 91		None	Generally naturally occurring
Hardness (ppm)	2019	148	44 - 210		None	Sum of polyvalent cations present generally magnesium and calcium. The cations are usually naturally occurring
<b>LEAD AND COPPER RULE</b>						
CONSTITUENT	YEAR	SAMPLES COLLECTED	90TH %ILE LEVEL DETECTED	MCL	PHG (MCLG)	SOURCE
Lead (ppb)	2019	20	ND	15	0.2	Internal corrosion of water plumbing systems; erosion of natural deposits; leaching from wood preservatives
Copper (ppm)	2019	20	0.2	1.3	0.3	

## UNREGULATED CONSTITUENTS AND OTHER SUBSTANCES

CONSTITUENT	LLU AVERAGE	LLU RANGE	NOTIFICATION LEVEL	
Alkalinity (ppm) (2018)	120	120	None	Unregulated constituent monitoring helps the EPA and the California Department of Public Health to determine where certain contaminants occur and whether the contaminants need to be regulated.
Biocarbonate (ppm) (2018)	120	120	None	
Calcium (ppm) (2019)	46	16 - 63	None	
Chromium VI (ppb) (2014)	3.1	1.8 - 4.4	None	
Magnesium (ppm) (2019)	8.3	1 - 13	None	
pH (2018)	8.3	8.3	None	
Potassium (ppm) (2018)	0	0	None	
Hexavalent Chromium (2014)*	3.1	1.8 - 4.4	0.02 (PHG)	*Some people who drink water containing hexavalent chromium in excess of the MCL over many years may have an increased risk of getting cancer.

### Nitrate

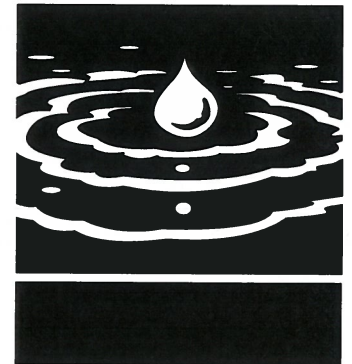
Nitrate in drinking water at levels above 10 ppm (mg/L) is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness 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.

**DRINKING WATER SOURCE ASSESSMENT:** A drinking water source assessment of both LLU wells was conducted by San Bernardino County Environmental Health Services in May, 2002. The purpose of this assessment was 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 (909) 387-4666.

***Did you know that the Loma Linda University Water System.....***

- ***produced 313 million gallons of water in 2019.***
- ***has approximately 33,300 feet of water piping which is more than 6 miles.***
- ***tests more than 165 backflow prevention devices annually.***
- ***has over 60 fire hydrants.***



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

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