



# Loma Linda University 2012 Water Quality Report

**We are proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2012. 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 campus has met or exceeded all State and Federal drinking water health standards. We remain vigilant in safeguarding our water supply.**

## THE WATER SYSTEM

The Loma Linda University water system consists of two wells, a 1.4 million gallon storage tank, and many miles of pipeline that service approximately 300 residents in student housing year-round and a substantial transient population. The Loma Linda University wells 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. Loma Linda University also uses a supplementary supply of water from the City of Loma Linda when necessary.

**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.

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



## LEAD IN 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 plumbing. The Loma Linda University Water System is responsible for providing high quality drink-*

*ing water, but cannot control the variety of materials used in plumbing components. We do conduct random periodic lead testing around the Loma Linda University campus and the drinking water has never exceeded the regulated maximum contaminant level.*

*When water has been sitting for several hours, you can minimize the potential for lead exposure by flushing the tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water at home, 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/safewater/lead>.*

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

# 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:

**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.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency and the California Department of Public Health 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.

## 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.

## 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.*



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## 2012 DRINKING WATER QUALITY TEST RESULTS

In 2012, the Loma Linda University Power Plant certified water technicians conducted many 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, are more than one year old. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk.

REGULATED CONTAMINANTS WITH PRIMARY MCL'S						
Radioactive Contaminants						
	LLU Average	LLU Range	MCL	PHG (MCLG)	Violation	Typical Source of Contaminant
Gross Alpha (pCi/L) (2008)	3.7	2.06 - 5.24	15	N/A	No	Erosion of natural deposits
Inorganic Contaminants						
	LLU Average	LLU Range	MCL	PHG (MCLG)	Violation	Typical Source of Contaminant
Total Chromium (ppb) (2011)	2.9	1.6 - 5.2	50	N/A	No	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride (ppm) (2011)	0.77	0.6 - 0.9	2	1	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (ppm) (2012)	20.67	7.4 - 39	45	45	No	Runoff and leaching from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Perchlorate (ppb) (2012)	ND	ND	6	6	No	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 Byproducts, Disinfectant Residuals, & Disinfection Byproduct Precursors						
	LLU Average	LLU Range	MRDL	MRDLG	Violation	Typical Source of Contaminant
Total Trihalomethanes (TTHMs) (ppb) (2012)	0.65	0.65	80	N/A	No	By-product of drinking water disinfection
REGULATED CONTAMINANTS WITH SECONDARY MCL'S						
	LLU Average	LLU Range	Secondary MCL	Violation	Typical Source of Contaminant	
Chloride (ppm) (2012)	40	35 - 45	500	No	Runoff/leaching from natural deposits	
Iron (ppb) (2008)	220	220	300	No	Leaching from natural deposits; industrial waste	
Specific Conductance (micromhos) (2011)	370	520 - 770	1,600	No	Substances that form ions when in water	
Sulfate (ppm) (2012)	56	43 - 69	500	No	Runoff/leaching from natural deposits; industrial wastes	
Total Dissolved Solids (ppm) (2012)	365	270 - 460	1,000	No	Runoff/leaching from natural deposits	

### Nitrate

*Nitrate in drinking water at levels above 45 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 45 ppm 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.*

SAMPLING RESULTS SHOWING THE DETECTION OF COPPER						
	No. of Samples Collected	90th %ile Level Detected	No. Sites Exceeding AL	AL	PHG	Typical Source of Bacteria
Copper (ppm) (2010)	5	0.10	0	1.3	0.17	Internal corrosion of plumbing systems; erosion of natural deposits; leaching from wood preservatives

SAMPLING RESULTS FOR SODIUM AND HARDNESS						
Chemical or Constituent	No. of Samples Collected	LLU Average	LLU Range	MCL	PHG (MCLG)	Typical Source of Bacteria
Sodium (ppm) (2012)	2	82	82	None	None	Refers to the salt present in the water and is generally naturally occurring.
Hardness (ppm) (2012)	2	135	59—210	None	None	Is the sum of polyvalent cations present generally magnesium and calcium. The cations are usually naturally occurring.

UNREGULATED CONTAMINANTS AND OTHER SUBSTANCES						
	LLU Average	LLU Range	Notification Level			
Alkalinity (ppm) (2011)	167	140 - 220	None	Unregulated contaminant 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) (2011)	203	170 - 260	None			
Calcium (ppm) (2012)	40	19 - 61	None			
Chromium VI (ppb) (2004)	4.25	4.2 - 4.3	None			
Magnesium (ppm) (2012)	7.85	2.7 - 13	None			
pH (2011)	8	7.8 - 8.1	None			
Potassium (ppm) (2008)	2	1.6 - 2.8	None			
Radium 228 (pCi/L) (2008)	0.18	0 - 0.532	None			

## **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 your own 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 well-head protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use 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 body.***

**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.