

APPLE VALLEY



2016 / 2017 CONSUMER CONFIDENCE REPORT AND
Annual Water Quality Report

Liberty Utilities Apple Valley is pleased to provide you with a copy of this year's Annual Water Quality Report. We have put together information that we hope will keep you better informed on water quality issues both in general and specific to what comes from your own tap. Please feel free to contact us should you ever have any questions about service or quality.

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



LIBERTY UTILITIES APPLE VALLEY SOURCES

Liberty Utilities Apple Valley (LU-AV) pumps 100% of our source water from 20 deep wells located throughout the community. These wells draw water from the deep Alto subunit of the Mojave ground water basin. This high quality aquifer is recharged from snowmelt from the San Bernardino Mountains to the south and the Mojave River to the west. Also, the Mojave Water Agency (MWA) imports water from the California State Water project to spread in the Mojave River to help recharge the ground water. Some of the water we pump has been age-dated close to 10,000 years old by the United States Geologic Survey. That means it has been protected and naturally filtered for a very long time.

Liberty Utilities Apple Valley (LU-AV) has provided dedicated service to its customers for 69 years. In 2016 we produced 9,204 acre-feet of high quality potable drinking water to over 21,000 residential and business customers. This equates to 3.00 billion gallons of water served over an area of approximately 50 square miles that encompasses approximately 81% of the Town of Apple Valley and portions of the surrounding area through a network of 472 miles of underground pipeline.

While we are currently experiencing low levels of growth within our system we do not expect this to last. Historically growth has come in rapid bursts followed by periods of calm. We are using this time to perform hydraulic modeling of transmission mains to ensure an adequate supply of water for the next 25 years. We are also working on a study to improve flows to the Northern part of our system allowing the Town of Apple Valley to develop its much anticipated Industrial Park.

LU-AV is constantly working to improve our service and guarantee that we have water to meet future demands. Several ways in which we are doing this is by following the suggestions of our Water Use Efficiency Plan, our Standard Water Audit Plan, and our Water Pumping Facility Maintenance programs.

As you can see, we are dedicated to maintaining and improving our water system. All this adds up to one thing: a large investment in your future!



What EPA Says About the Kinds of Contaminants That Might Be Found In Drinking Water

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 United States Environmental Protection Agency (EPA) and the California State Water Resources Control Board (SWRCB) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The federal Food and Drug Administration (FDA) and SWRCB regulations also establish limits for contaminants in bottled water, which must provide the same protection for public health.

Contaminants that may be present in untreated 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** that 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, and septic systems.
- **Radioactive contaminants** that can be naturally occurring or be the result of oil and gas production and mining activities.

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. The tables in this report indicate which minerals and substances have been detected in the water provided by LU-AV. More information about contaminants and potential health effects can be obtained by calling the USEPA Safe Drinking Water Hotline at 1-800-426-4791. You can also go to the following websites for more information:

USEPA - www.epa.gov/safewater

CA State Water Resources Control Board – www.waterboards.ca.gov/drinking_water/programs/index.shtml

What are drinking water standards?

Drinking water standards are regulations that the EPA sets to control the level of contaminants in the nation's drinking water. EPA, the SWRCB and the California Public Utilities Commission (CPUC) are the agencies responsible for establishing drinking water quality standards in California. These standards are part of the Safe Drinking Water Act's "multiple barrier" approach to drinking water protection, which includes assessing and protecting drinking water sources; protecting wells and surface water; making sure water is treated as needed by the appropriate treatment technology by qualified operators; ensuring the integrity of distribution systems; and making information available to the public on the quality of their drinking water. With the involvement of EPA, SWRCB, the CPUC, drinking water utilities, communities and citizens, these multiple barriers ensure that tap water is safe to drink. The water delivered to your home meets standards required by EPA, SWRCB and CPUC. To recover the growing cost of meeting and maintaining EPA, SWRCB and CPUC standards, LU-AV submits a General Rate Case to the CPUC every three years. The CPUC is responsible for establishing water rates for LU-AV.

If you would like more information about water quality, or to find out about upcoming opportunities to participate in public meetings, please call Jeremy Caudell at 760-240-8334.

This report describes those contaminants that have been detected in the analysis of almost 200 different potential contaminants, nearly 100 of which are regulated by EPA and the SWRCB. LU-AV is proud to tell you that there have been no contaminants detected that exceed any federal or state drinking water standards. Hundreds of samples analyzed every month and thousands every year by LU-AV contract certified laboratories assure that all primary (health related) and secondary (aesthetic) drinking water standards are being met. See the tables on the following page to see how your water quality rates.

This report is intended to provide information for all water users. If received by an absentee landlord, a business, or a school, please share the information with tenants, employees or students. We will be happy to make additional copies of this report available. Complete records of water quality analyses are open for inspection by the public upon request. You may also access this report on the LU-AV web site at www.libertyutilities.com and navigate your way to Apple Valley.

Source Water Assessment Completed and Available

The 1996 Safe Drinking Water Act amendments required states to perform an assessment of potentially contaminating activities near drinking water sources of all water utilities. In California, the SWRCB required the utilities to perform the assessments themselves. LU-AV completed the Source Water Assessment in December of 2002. The assessment has been updated since for three new wells. LU-AV wells are considered most vulnerable to the following activities associated with potential contamination of ground water in Apple Valley: high density housing, high and low density septic systems, parks, irrigated crops, golf courses and sewer collection systems. Additional activities that are potentially vulnerable for our wells are: gas stations, roads, streets, railroads, storm water injection wells, storm drain discharge points, storm water detention facilities, agricultural and irrigation water wells, historic grazing, historic waste dumps and landfills, machine shops and leaking underground storage tanks.

Sensitive Populations May be More Vulnerable

Some people may be more vulnerable to contaminants in drinking water than the general population. Persons with compromised immune systems such as those 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 provider. The USEPA and the national Centers for Disease Control (CDC) have guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants. These are available by calling the Safe Drinking Water Hotline at 1-800-426-4791.

A copy of the complete assessment is available at the LU-AV office and at the SWRCB San Bernardino office. You may request a summary of the assessment be sent to you by contacting Jeremy Caudell at 760-240-8334 or by calling the SWRCB office at 909-383-4328.

Issues to Know About

Lead and Copper

While there have never been any problems with lead or copper at LU-AV, the USEPA and the SWRCB require the following information be presented in this report. 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. LU-AV 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 www.epa.gov/safewater/lead.

Boron

In 2011, the naturally occurring mineral Boron was detected in a rarely used LU-AV well at a level exceeding the SWRCB Notification Level (NL). The NL for Boron is 1 milligram per liter (mg/L), or part per million (ppm). The level of Boron in this well in 2013 was 1.12 mg/L. Also in 2013, LU-AV detected and confirmed Boron above the NL in one additional well, at an average level of 1.12 mg/L. The health endpoint of concern is described by the SWRCB as follows: "Non-cancer – decreased fetal weight (developmental) in rats". This is based on animal studies reviewed by the EPA. No known human health outcomes have been discovered, thus no drinking water standard currently exists for Boron. The SWRCB does not recommend that LU-AV take any corrective action unless the level of Boron in this well reaches ten times the NL, which would be 10 mg/L. LU-AV will continue to perform frequent monitoring of these wells for Boron in order to track any possible increases. The only action required by these findings was notification of the Apple Valley Town Council and LU-AV customers in this Consumer Confidence Report.

Unregulated Contaminant Monitoring

The Safe Drinking Water Act requires EPA to identify unregulated contaminants for potential regulation. Every five years, EPA identifies a list of unregulated contaminants to be monitored for by the nation's water utilities over a three-year period. This monitoring occurred in 2013 – 2015 with the third UCMR. LU-AV has monitored for a total of 29 chemical contaminants from all of our wells spread out over the three years along with a corresponding sampling from the distribution system reflecting water from each well. Once EPA has obtained this occurrence data nationally, they are required to determine if there is a meaningful opportunity for increased health protection of drinking water by regulating these contaminants. The findings from this monitoring are reported in this year's Consumer Confidence Report.

PRIMARY STANDARDS Mandatory (health-related) INORGANIC CHEMICALS	Water Quality Parameters Detected in Liberty Utilities Apple Valley Wells						
	State MCL	PHG or (MCLG)	Units of Measurement	LU-AV Range (including highest value)	Average for LU-AV Wells (a)	b) LU-AV Date of last Measurement	Potential Sources of Contamination
Arsenic	10	0.004	ppb	<2 - 5	<2	2014/15/16	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Fluoride	2	1	ppm	0.2 - 1.0	0.50	2014/15/16	Erosion of natural deposits; discharge from fertilizer and aluminum factories; water additive that promotes strong teeth (not added by LU-AV)
Hexavalent Chromium (Cr +6)	10	0.02	ppb	<1.0 - 6.8	2.1	2015/16	Erosion of natural deposits, discharge from electroplating factories, leather tanneries, wood preservations, chemical synthesis, refractory production, and textile manufacturing facilities
Nitrate (as N)	10	10	ppm	<0.6 - 5.8	1.4	2016	Erosion of natural deposits; runoff and leaching from fertilizer use; leaching from septic tanks and sewers
RADIONUCLIDES							
Gross Alpha	15	(0)	pCi/L	<3 - 4.9	ND	2007 - 2014	Erosion of natural deposits
Uranium	20	0.43	pCi/L	<1 - 7.7	ND	2007 - 2014	Erosion of natural deposits
2016 LEAD AND COPPER MONITORING							
	Action Level (AL)	PHG or (MCLG)	Units of Measurement	Number of Samples Collected	No. of Sites Exceeding Action Level	90th Percentile Level Detected	Potential Sources of Contamination
Copper (e)	1300	300	ppb	30	0	0.078	Internal corrosion of household water plumbing systems
Lead (e)	15	2	ppb	30	0	ND	Internal corrosion of household water plumbing systems
DISTRIBUTION SYSTEM							
	Water Quality Parameters Measured in the Distribution System						
	State MCL	PHG or (MCLG)	Units of Measurement	LU-AV Range (including highest value)	Average for LU-AV	(b) LU-AV Date of last Measurement	Potential Sources of Contamination
Chlorine residual	MRDL = 4	MRDLG = 4	ppm	<0.2 - 1.3	0.5	weekly	Added for disinfection purposes
Color	15	none	units	<3 - 5	ND	monthly	Naturally occurring organic materials
Heterotrophic Plate Count Bacteria	NS	none	CFU / ml	<1 - 340	<1	weekly	Naturally present in the environment
Total Trihalomethanes (TTHM's) (f)	80	none	ppb	9.2-16	13	quarterly	By-product of drinking water disinfection
Turbidity	5	none	NTU	<0.1 - 3.9	0.10	monthly	Soil runoff
SECONDARY STANDARDS							
Aesthetic standards (non-health related) CHEMICAL PARAMETERS	State MCL	PHG or (MCLG)	Units of Measurement	LU-AV Range (including highest value)	Average for LU-AV Wells (a)	b) LU-AV Date of last Measurement	Potential Sources of Contamination
Chloride	500	none	ppm	5.0 - 280	24	2014/15/16	Runoff / leaching from natural deposits; seawater influence
Specific Conductance	1,600	none	umho/cm	200 - 1500	343	2014/15/16	Substances that form ions when in water; seawater influence
Sulfate	500	none	ppm	9 - 220	38	2014/15/16	Runoff / leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	1,000	none	ppm	120 - 1100	207	2014/15/16	Runoff / leaching from natural deposits
Turbidity / Clarity	5.0	none	NTU	<0.1 - 0.3	ND	2014/15/16	Soil runoff

ADDITIONAL PARAMETERS Unregulated	Detected Unregulated Chemicals That May be of Interest to Consumers					
	State MCL	PHG or (MCLG)	Units of Measurement	LU-AV Range (including highest value)	Average for LU-AV Wells (a)	b) LU-AV Date of last Measurement
Aggressiveness Index (c)	NS	none	units	10.8 - 12.3	11.7	2014/15/16
Alkalinity (as Ca CO ₃)	NS	none	ppm	52 - 94	74	2014/15/16
Boron	NS	NL = 1,000	ppb	<100 - 1400	102	2012
Calcium	NS	none	ppm	13 - 120	26	2014/15/16
Corrosivity (Langlier Index) (d)	Non-corrosive	none	positive / negative	(-0.9) - (+0.5)	-0.1	2014/15/16
Hardness (Ca CO ₃)	NS	none	ppm	37 - 430	83	2014/15/16
Hardness (grains)	NS	none	grains	2.2 - 25	4.8	2014/15/16
Magnesium	NS	none	ppm	1.3 - 33	4.5	2014/15/16
pH	6.5-8.5	none	units	7.2 - 8.3	7.9	2014/15/16
Potassium	NS	none	ppm	<1 - 4.6	1.3	2014/15/16
Sodium	NS	none	ppm	14 - 130	33	2014/15/16
THIRD UNREGULATED CONTAMINANT MONITORING REGULATION (UCMR3) 5 wells monitored in 2014 CHEMICAL PARAMETERS	State MCL / PHG or (MCLG)	Units of Measurement	Entry Point Range (including highest value)	Entry Point Average for Wells	Distribution System Range	Distribution System Average
Chromium, Total	NS	ppb	0.65 - 3.2	1.79	1.2 - 4.9	1.97
Molybdenum	NS	ppb	<1 - 4.1	1.8	1.1 - 14	3.1
Strontium	NS	ppb	240 - 2400	639	240 - 1100	439
Vanadium	NS	ppb	6.8 - 19	11.5	6.6 - 22	11
Chlorate	NS	ppb	<20 - 390	86	<20 - 73	30

KEY TO ABBREVIATIONS AND FOOTNOTES

AL = Action Level

ND = Not detected

NL = Notification Level

NS = No Standard

NTU = Nephelometric Turbidity Units. This is a measure of the suspended material in water

CFU / ml = colong forming units per millimeter

ppm = parts per million or milligrams per liter

ppb = parts per billion or micrograms per liter

pCi/L = picoCuries per liter

< = less than (essentially equivalent to ND)

= Unregulated contaminant monitoring helps EPA and the SWRCB to determine where certain contaminants occur and whether the contaminants need to be regulated. Boron, hexavalent chromium and vanadium were monitored as part of the federal and state Unregulated Contaminant Monitoring Regulations.

(a) = The average is weighted according to the individual contribution in pumping by each well to the total (active wells only)

(b) = The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants in groundwater sources do not change frequently. Some of our data, though representative, are more than one year old.

(c) = An aggressiveness index of 11 or greater indicates that the water is not aggressive (noncorrosive)

(d) = A positive number Langlier Index indicates that the water is noncorrosive

(e) = Lead and Copper are regulated as a Treatment Technique (TT) under the Lead and Copper Rule. It requires water systems to take samples at "most vulnerable" consumer taps every three years and treatment steps must be taken if more than 10% of tap samples exceed the AL. LU-AV has not exceed this level.

(f) = Average value reported is highest quarterly value of the four quarters sampled.

DEFINITIONS

Public Health Goal (PHG): 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.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCL's are set as close to the PHG's (or MCLG's) as is economically and technologically feasible. Secondary MCL's are set to protect the odor, taste, and appearance of drinking water.

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

Maximum Residual Disinfectant Level (MRDL) 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.

Maximum Residual Disinfectant Level Goal (MRDLG) 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.

Regulatory Action Level (AL): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

Primary Drinking Water Standard: MCL's and MRDL's for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Secondary Drinking Water Standard: Requirements that ensure that appearance, taste and smell of drinking water are acceptable.

Notification Level (NL) The concentration of a contaminant that, if exceeded, triggers notification to local political jurisdictions and customers.