PUBLIC HEALTH GOAL REPORT

APPLE VALLEY SYSTEM

July 2022

21760 Ottawa Rd., Apple Valley, CA 92308

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LIBERTY UTILITIES (APPLE VALLEY RANCHOS) CORP.

2022 REPORT ON WATER QUALITY RELATIVE TO PUBLIC HEALTH GOALS

1. INTRODUCTION

The following report details the risks to public health associated with certain levels of contaminants that may be found in tap water. It further describes the best technology available for reducing contaminants and estimates the total cost and cost per customer to install and operate the technology.

2. BACKGROUND

Division 104, Part 12, Chapter 4, Article 5, Section 116470(b) of the California Health and Safety Code (Reference No. 1) specifies that water utilities with greater than 10,000 service connections prepare a special report every three years if, within that three years' time frame, the level of certain contaminants with an existing Maximum Contaminant Level (MCL) have exceeded any Public Health Goals (PHGs). Liberty Utilities (Apple Valley Ranchos) Corp. is such a water utility. The California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) sets PHGs at levels in drinking water that are not expected to pose a significant health risk to individuals consuming an average of two liters a day of that water over a 70-year lifetime. The PHGs are based solely on health risk considerations and do not analyze costs, benefits, or technical feasibility to achieve the specific PHG level. Therefore, PHGs represent desirable goals for healthful drinking water that may or may not be achievable. These goals are non-enforceable and water systems are not required to meet PHGs.

The law also requires that where OEHHA has not adopted a PHG for a regulated constituent, water suppliers are to use the established Maximum Contaminant Level Goals (MCLGs) adopted by the United States Environmental Protection Agency (USEPA). MCLGs are the federal equivalent to PHGs. Only constituents that have a California primary drinking water standard and for which either a PHG or MCLG has been set are to be addressed in this report. Appendix A contains a list of all regulated constituents with the MCLs and PHGs or MCLGs. MCLs are the enforceable drinking water standards set by either the USEPA or the California Department of Public Health (DPH). MCLs are based on the lowest observed health effects plus a margin of safety and consider the technological and economic feasibility to detect and treat the contaminant. A cost-benefit analysis was also conducted and considered when setting MCLs.

If a regulated constituent was detected in the Liberty Utilities (Apple Valley Ranchos) Corp. water system between 2019 and 2021 at a level exceeding an applicable PHG or MCLG, this report provides the information required by law. Included is the numerical public health risk associated with the MCL and the PHG or MCLG and the category or type of risk to health that could be associated with each constituent (Table 1), the best treatment technology available that could be used to reduce the constituent level, and an estimate of the cost to install that treatment if it appropriate and feasible.

3. DRINKING WATER SUPPLIES

Liberty Utilities (Apple Valley Ranchos) Corp. system obtains 100% of its source water from the Alto Subunit of the Mojave Groundwater Basin aquifer. The Liberty Utilities (Apple Valley Ranchos) Corp. system service area is shown in the attached 2021 Consumer Confidence Report (CCR).

4. GUIDELINES FOLLOWED

The Association of California Water Agencies (ACWA) prepared suggested guidelines for the preparation of required reports on Public Health Goals (PHGs) to satisfy requirements of the California Health and Safety Code, Section 116470(b). The ACWA guidelines, updated on February 2022, were used in the preparation of this report.

5. BEST AVAILABLE TREATMENT TECHNOLOGY AND COST ESTIMATE

Both the USEPA and DDW adopt what are known as Best Available Technologies (BATs), which are the best-known methods of reducing contaminant levels to the MCL. Costs can be estimated for such technologies. However, since many PHGs and all MCLGs are set much lower than the MCL, it is not always possible or feasible to determine what treatment is needed to further reduce a constituent downward to or near the PHG or MCLG - many are set at zero. Estimating the costs to reduce a constituent to zero is difficult, if not impossible because it is not possible to verify by analytical means that the level has been lowered to zero. In some cases, installing treatment to try and further reduce very low levels of one constituent may have adverse effects on other aspects of water quality.

6. WATER QUALITY CONSIDERED

All of the water quality data collected in the Liberty Utilities (Apple Valley Ranchos) Corp. System between 2019 and 2021 was considered for purposes of determining compliance with drinking water standards. This data was previously summarized in our 2019, 2020, and 2021 Consumer Confidence Reports (CCRs), which are available on Liberty's website.

7. REGULATED CONSTITUENTS DETECTED

Table 1 summarizes the regulated constituents that were detected in one or more of the Liberty Utilities (Apple Valley Ranchos) Corp sources from 2019-2021 at levels above the PHG, or if no PHG, above the MCLG. Table 1 shows the Detection Limit for the purpose of Reporting (DLR) as well. Liberty wells provided 100% of the source water in 2021.

Table 1: MCL, PHGs, and DLRs for Constituents of Concern for Liberty Utilities (Apple Valley Ranchos) Corp. Water Sources

Constituent	MCL	DLR	PHG (MCLG)
Arsenic (µg/L)	10	2	0.004
Gross Alpha pCi/L	15	3	0
Uranium pCi/L	20	1	0.43
Hexavalent Chromium (ug/l)	10	0.5	0.02

µg/L = micrograms per liter (equivalent to parts per billion, ppb)

ρCi/L = picoCuries per liter (one trillionth of a curie)

7.1. INORGANIC CHEMICALS

Arsenic: Although the inorganic form of arsenic tends to be more predominant than organic forms, contamination of a drinking water source by arsenic can result from either natural or human activities. Typically, arsenic occurrence in water is caused by the weathering and dissolution of arsenic-bearing rocks, minerals, and ores. Arsenic contamination in water is also caused by its use in industry for wood preservatives, paints, drugs, dyes, soaps, metals, and semiconductors. Agricultural applications, mining, and smelting also contribute to arsenic release.

The Public Health Goal for arsenic is 0.004 µg/L. The federal and state MCL for arsenic is 10 µg/L (the federal MCLG is 0 µg/L). The DLR for arsenic is 2 µg/L and currently, there are no laboratory analytical methods available that can reliably measure arsenic as low as the PHG. The health risk category associated with arsenic is carcinogenicity. At the PHG, the theoretical cancer risk is 1×10^{-6}. This means one excess cancer case per million people exposed to the PHG level for a lifetime of 70 years. At the federal and state MCL of 10 µg/L, the theoretical cancer risk is 2.5×10^{-3}. This means 2.5 excess cancer cases per one thousand people exposed to the MCL for a lifetime of 70 years.

7.2. RADIONUCLIDES

Most drinking water sources have very low levels of radioactive contaminants (radionuclides) originating from natural sources, not man-made sources. These very low levels are not considered to be a public health concern, although at high levels there may be an increased risk of cancer. OEHHA has established cancer risks values for radium 228 and uranium, but not for gross alpha radiation.

OEHHA has not established a PHG for Gross Alpha particle radioactivity, so USEPA MCLG of 0 ρCi/L governs. The MCL for gross alpha is 15 ρCi/L. Gross alpha particle radioactivity has been detected in the wells and ranges from 1.66-3.94 ρCi/L with an average of 3.08 pCi/L.

7.3. CHROMIUM, HEXAVALENT

The Office of Environmental Health Hazard Assessment (OEHHA) is publishing a Public Health Goal (PHG) for hexavalent chromium of 0.02 parts per billion (ppb) or micrograms per liter (µg/L) in drinking water. OEHHA has reviewed the available data on the toxicity of hexavalent chromium and has identified the PHG level as protective against all identified toxic effects from both oral and inhalation exposure to hexavalent chromium that may be present in drinking water. While hexavalent chromium has long been recognized as a potent carcinogen via inhalation, there is now sufficient evidence that hexavalent chromium is also carcinogenic by the oral route of exposure, based on studies in rats and mice conducted by the National Toxicology Program (NTP, 2008).

To calculate the PHG, OEHHA utilized an oral cancer slope factor of 0.5 (mg/kgday)-1, based on a dose-related increase of tumors of the small intestine in male mice (NTP, 2008). While this approach follows the default approach described in OEHHA guidelines (OEHHA, 2009a), it is also consistent with the proposed mutagenic mode of action (McCarroll et al., 2010). OEHHA also used an inhalation cancer slope factor of 510 (mg/kg-day)-1, based on occupational studies, with an exposure assessment (Keating and McKone, 1993) to estimate inhalation of waterborne hexavalent chromium during showering, for estimating inhalation risk. The combined-route cancer risk is dominated by the oral exposure despite the much higher inhalation potency, because the inhalation of water droplets during showering is very small. The PHG was adjusted to account for increased sensitivity associated with early-in-life exposures

8. HEALTH RISK INFORMATION FOR PUBLIC HEALTH GOALS

As previously stated, contaminants with California MCLs that do not yet have PHGs will use the federal MCLG for the purpose of complying with the requirements of the once-every-three-years Public Health Goal Report and public hearing. MCLGs like PHGs, are strictly health-based and include a margin of safety. One difference, however, is that the MCLGs for carcinogens are set at zero because the USEPA assumes there is no absolutely safe level of exposure to them. PHGs on the other hand, are set at a level considered to pose no significant risks of cancer. This is usually a “no more than” one-in-a-million excess cancer risk level for a lifetime of exposure. The cancer risks discussed in Table 2 are based on the OEHHA evaluations.

Table 2: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category	California PHG	Cancer Risk @ PHG	California MCL	Cancer Risk @ California MCL
Gross Alpha Particles	Cancer	None MCLG = 0	(0)	15 ρCi/L	Up to 1×10^{-3} (one per thousand)
Gross Beta Particles	Cancer	None MCLG = 0	(0)	50 ρCi/L	Up to 2×10^{-3} (Two per thousand)
Radium 228	Cancer	0.019 ρCi/L	One per million	5 ρCi/L (Ra226+Ra228)	3×10^{-4} (Three per ten thousand)

Table 2: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs) (Cont.)

Chemical	Health Risk Category	California PHG	Cancer Risk @ PHG	California MCL	Cancer Risk @ California MCL
Uranium	Cancer	0.43 ρCi/L	One per million	20 ρCi/L	5×10^{-5} (Five per hundred thousand)
Arsenic	Cancer	0.0004 ppb	One per million	0.010 ppm	2.5×10^{-3} (2.5 per thousand)
Chromium-6	Cancer	0.0020 ppb	One per million	None	NA*
Coliform Bacteria	Indicator of other potentially harmful bacteria (diarrhea, cramps, nausea, headaches)	None MCLG = 0	NA*	No more than 5% of the samples can be positive	NA*
Lead	Developmental neurotoxicity, cardiovascular toxicity (high blood pressure), cancer	2 ppb	$3x10^{-8}$ (PHG is not based on caner effect)	15 ppb	2×10^{-6} (Two per million)

** NA = Not applicable*

9. RECOMMENDATIONS FOR FURTHER ACTION

The water quality of drinking water provided by Liberty Utilities (Apple Valley Ranchos) Corp. meets all State of California Department of Public Health and USEPA drinking water standards which are set to protect public health. Additionally, costly treatment processes would be required to further reduce the levels of constituents to the PHG levels. The effectiveness of the treatment process to provide any significant reduction in constituent levels at the current low values is uncertain as these treatment processes have been designed to meet the drinking water standards and not PHGs. The health protection of these further hypothetical reductions is not at all clear and may not be quantifiable. Due to this uncertainly, the lack of a regulatory driver to require treatment to such levels, and the significant rate increase required to implement this treatment, no action is proposed by Liberty Utilities (Apple Valley Ranchos) Corp.

The public hearing to receive comment from the public for Liberty Utilities (Apple Valley Ranchos) Corp. system customers is scheduled online for July 26th, 2022 from 9:00 a.m. to 11:00 a.m.

10. REFERENCES

Reference 1: State of California Health and Safety Code, Section 116470 (b) – (f).
Reference 2: Liberty Utilities (Apple Valley Ranchos) Corp. 2022 Consumer Confidence Report on Water Quality for 2021.

REFERENCE 1: STATE OF CALIFORNIA HEALTH AND SAFETY CODE SECTION 116470 (B) - (F)

(b) On or before July 1, 1998, and every three years thereafter, public water systems serving more than 10,000 service connections that detect one or more contaminants in drinking water that exceed the applicable public health goal, shall prepare a brief written report in plain language that does all of the following:

(1) Identifies each contaminant detected in drinking water that exceeds the applicable public health goal.

(2) Discloses the numerical public health risk, determined by the office, associated with the maximum contaminant level for each contaminant identified in paragraph (1) and the numerical public health risk determined by the office associated with the public health goal for that contaminant.

(3) Identifies the category of risk to public health, including, but not limited to, carcinogenic, mutagenic, teratogenic, and acute toxicity, associated with exposure to the contaminant in drinking water, and includes a brief plainly worded description of these terms.

(4) Describes the best available technology, if any is then available on a commercial basis, to remove the contaminant or reduce the concentration of the contaminant. The public water system may, solely at its own discretion, briefly describe actions that have been taken on its own, or by other entities, to prevent the introduction of the contaminant into drinking water supplies.

(5) Estimates the aggregate cost and the cost per customer of utilizing the technology described in paragraph (4), if any, to reduce the concentration of that contaminant in drinking water to a level at or below the public health goal.

(6) Briefly describes what action, if any, the local water purveyor intends to take to reduce the concentration of the contaminant in public drinking water supplies and the basis for that decision.

(c) Public water systems required to prepare a report pursuant to subdivision (b) shall hold a public hearing for the purpose of accepting and responding to public comment on the report. Public water systems may hold the public hearing as part of any regularly scheduled meeting.

(d) The department shall not require a public water system to take any action to reduce or eliminate any exceedance of a public health goal.

(e) Enforcement of this section does not require the department to amend a public water system's operating permit.

(f) Pending adoption of a public health goal by the Office of Environmental Health Hazard Assessment pursuant to subdivision (c) of Section 116365, and in lieu thereof, public water systems shall use the national maximum contaminant level goal adopted by the United States Environmental Protection Agency for the corresponding contaminant for purposes of complying with the notice and hearing requirements of this section.

REFERENCE 2: LIBERTY UTILITIES (APPLE VALLEY RANCHOS) CORP. 2022 CONSUMER CONFIDENCE REPORT ON WATER QUALITY FOR 2021.

2022 Consumer Confidence Report on Water Quality for 2021

Annual Water Quality Report

Apple Valley (PWS ID# 3610003)

Liberty

Message from the President

Liberty is committed to providing customers with safe, quality drinking water. We are proud to present this Water Quality Report (Consumer Confidence Report) that shares detailed information regarding local water service and our compliance with state and federal quality standards during the 2021 calendar year.

Liberty makes appropriate investments each year to deliver water that meets safety standards established by the State Water Resources Control Board's Division of Drinking Water (DDW), California Public Utilities Commission (CPUC), and the United States Environmental Protection Agency (EPA). We invest responsibly to maintain the local water infrastructure because a strong infrastructure is key to delivering quality water. The water we deliver to your home or business is thoroughly tested by independent laboratories, and data is provided to DDW to verify compliance with primary and secondary state and federal water quality standards.

We know our customers rely on us for water that is safe to drink, and we take this responsibility seriously. At Liberty, "Energy and Water for Life" are more than a tagline. Our employees live in the community and take pride in providing quality water and reliable service to you and your neighbors.

If you have any questions about this report, please don't hesitate to contact us at 800-727-5987.

On behalf of the entire Liberty family, thank you for being a valued customer and neighbor. We are proud to be your water provider.

Sincerely,

Edward Jackson

President, Liberty - California

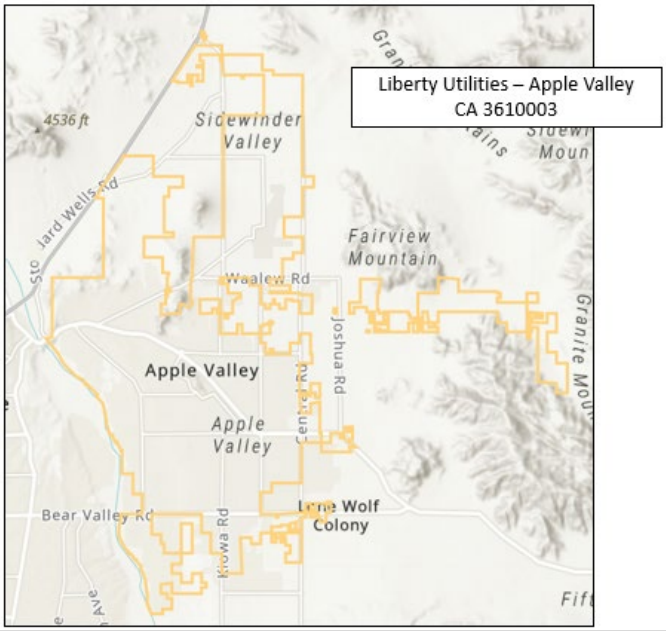
This report contains important information about your drinking water. Please contact Liberty at (800) 727-5987 for assistance in Spanish.

Este informe contiene información muy importante sobre su agua para beber. Favor comunicarse con Liberty al (800) 727-5987 para asistirlo en Español.

Where Does My Water Come From?

In 2021 Liberty -Apple Valley system obtained 100% of its source water from 18 deep wells owned by Liberty and 1 Well owned by Mojave Water Agency. These wells draw water from the deep Alto sub-unit of the Mojave groundwater 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 groundwater. 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-Apple Valley has provided dedicated service to its customers for 70 years. In 2021 we produced 10,045 acre-feet of high-quality potable drinking water for over 21,000 residential and business customers. This equates to over 3.2 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 475 miles of underground pipe.



Source Water Assessment

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. Liberty completed the Source Water Assessment in 2002. Liberty's wells are considered most vulnerable to the following activities: high-density housing; septic systems - low and high density; parks; irrigated crops; golf courses; sewer collection systems; gas stations; roads and streets; railroads; stormwater injection wells; storm drain discharge points; stormwater detention facilities; agricultural and irrigation water wells; historic grazing; historic waste dumps and landfills; machine shops; and leaking underground storage tanks.

A copy of the complete assessment is available at Liberty's Apple Valley office and the SWRCB office in San Bernardino. You may request a summary of the assessment by contacting Jeremy Caudell at Liberty Utilities at 760-240-8334; or by contacting the SWRCB office in San Bernardino at 909-383-4328.

What are Drinking Water Standards?

Drinking water standards are the regulations set by the USEPA to control the level of contamination in the nation's drinking water. The USEPA and the SWRCB are the agencies responsible for establishing drinking water quality standards in California. This approach includes assessing and protecting drinking water sources; protecting wells and surface water; making sure water is treated by qualified operators; ensuring the integrity of the

distribution system; and making information about water quality available to the public. The water delivered to your home meets the standards required by the USEPA and the SWRCB.

This report describes those contaminants that have been detected in the analyses of almost 200 different potential contaminants, nearly 100 of which are regulated by the USEPA and the SWRCB. Liberty 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 by Liberty's contract certified laboratory assures that all primary (health-related) and secondary (aesthetic) drinking water standards are being met. Sample results are available on the Table that is part of this report.

This Consumer Confidence Report (CCR) reflects changes in drinking water regulatory requirements during 2021. These revisions add the requirements of the federal Revised Total Coliform Rule, effective since April 1, 2016 to the existing state Total Coliform Rule. The revised rule maintains the purpose to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbials (i.e., total coliform and E. coli bacteria). The U.S. EPA anticipates greater public health protection as the rule requires water systems that are vulnerable to microbial contamination to identify and fix problems. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment to determine if any sanitary defects exist. If found, these must be corrected by the water system. The state Revised Total Coliform Rule became effective July 1, 2021.

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 are happy to make additional copies of this report available. You may also access this report on the Liberty web page at is www.libertyenergyandwater.com.

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.

Contaminants that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic Contaminants, such as salts and metals, which can be naturally- occurring or 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 byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive Contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the USEPA and the SWRCB prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration (USFDA) also establishes 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. More information about contaminants and potential health effects can be obtained by calling the USEPA Safe Drinking Water Hotline at 1-800-426-4791 or visiting their website at https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations. For information on bottled water visit the USFDA website at www.fda.gov.

Do I Need to Take Special Precautions?

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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA and 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 1-800-426-4791.

Important Health Information

Lead - Lead, in drinking water, is primarily from materials and components associated with service lines and home plumbing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. 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 2 minutes before using water for drinking or cooking. 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 https://www.epa.gov/lead.

Nitrate - Nitrates in drinking water at levels above 10 ppm are a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

How Might I Become Actively Involved?

If you would like to observe the decision-making process that affect drinking water quality or if you have any further questions about your drinking water report, please call us at 1-800-727-5987 to inquire about scheduled meetings or contact persons.

Apple Valley 2021 Annual Water Quality Report

Primary Standards - Health Based (units)	Primary MCL	PHG (MCLG)	Range of Detection for LU Sources	Average Level for LU Sources	Most Recent Sampling Date [a]	Typical Source of Constituent
Inorganic Constituents						
Arsenic (µg/L)	10	0.004	2.4-3.0	2.7	2021	Erosion of natural deposits; runoff from orchards, glass and electronics production wastes
Fluoride (mg/L) [Naturally occurring]	2.0	1	0.21-0.68	0.49	2021	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories

Primary Standards - Health Based (units)	Primary MCL	PHG (MCLG)	Range of Detection for LU Sources	Average Level for LU Sources	Health Effects	Most Recent Sampling Date [b]	Typical Source of Constituent
Nitrate [as N] (mg/L)	10	10	0.43-5.8	1.7	Infants below the age of six months who drink water containing nitrate in excess of the MCL may quicly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the oxygen-carrying ability of the blood of pregnant women.	2021	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits

Secondary Standards - Aesthetic (units)	Secondary MCL	PHG (MCLG)	Range of Detection for LU Sources	Average Level for LU Sources	Most Recent Sampling Date	Typical Source of Constituent
Chloride (mg/L)	500	n/a	7.4-130	41	2021	Runoff/leaching from natural deposits; seawater influence
Specific Conductance (µS/cm)	1600	n/a	190-970	430	2021	Substances that form ions when in water; seawater influence
Sulfate (mg/L)	500	n/a	12-200	70	2021	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (mg/L)	1000	n/a	130-620	270	2021	Runoff/leaching from natural deposits

Other Parameters (units)	Notification Level	PHG (MCLG)	Range of Detection for LU Sources	Average Level for LU Sources	Most Recent Sampling Date	Typical Source of Constituent
Alkalinity (mg/L)	n/a	n/a	67-94	77	2021	Runoff or leaching from natural deposits
Calcium (mg/L)	n/a	n/a	11-71	26	2021	Runoff or leaching from natural deposits
Hardness [as CaCO3] (mg/L) [b]	n/a	n/a	35-240	113	2021	Runoff or leaching from natural deposits
Hardness [as CaCO3] (grains/gallon)	n/a	n/a	2.0-14.0	6.8	2021	Runoff or leaching from natural deposits
Magnesium (mg/L)	n/a	n/a	1.1-16	6.4	2021	Runoff or leaching from natural deposits
pH (pH units)	n/a	n/a	7.4-8.2	7.9	2021	Hydrogen ion concentration
Sodium (mg/L) [c]	n/a	n/a	16-110	45	2021	Refers to the salt present in the water and is generally naturally occurring

Radioactive Contaminants	Primary MCL	PHG (MCLG)	Range of Detection for LU Sources	Average Level for LU Sources	Most Recent Sampling Date	Typical Source of Constituent
Gross Alpha Activity (pCi/L)	15	(0)	1.66-3.94	3.08	2021	Erosion of natural deposits

Apple Valley 2021 Annual Water Quality Report

Unregulated Drinking Water Constituents (units)	Notification Level	PHG (MCLG)	Range of Detection for LU Sources	Average Level for LU Sources	Most Recent Sampling Date	Typical Source of Constituent
Haxavalent Chromium (µg/L)	10	0.02	0.6-7.1	3.4	2020	Discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities; erosion of natural deposits
Bromide (µg/L)	n/a	n/a	26-330	132	2019	
Manganese (µg/L)	n/a	n/a	ND-5.9	1	2019	

Microbiological Constituents (units) - Distribution System	Primary MCL	PHG (MCLG)	Value	Most Recent Sampling Date	Typical Source of Constituent
Total Coliform Bacteria ≥40 Samples/Month (Present / Absent)	More than 5% of monthly samples are positive	(0)	Highest percent of monthly samples positive was 1%	2021	Naturally present in the environment

Distribution System	Primary MCL (MRDL)	PHG (MRDLG)	Range of Detection	Average Level	Most Recent Sampling Date	Typical Source of Constituent
Chlorine [as Cl_2] (mg/L)	(4.0)	(4)	0.26 - 1.48	0.84	2021	Drinking water disinfectant added for treatment
TTHMs [Total of Four Trihalomethanes] (µg/L)	80	n/a	5.5	5.5	2021	Byproduct of drinking water disinfection

Lead and Copper Rule	Action Level	PHG (MCLG)	Sample Data	Range of Detection	90th % Level	Most Recent Sampling Date	Typical Source of Constituent
Copper (mg/L)	1.3	0.3	0 of the 30 samples collected exceeded the action level.	ND-0.24	ND	2019	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (µg/L)	15	0.2	0 of the 30 samples collected exceeded the action level.	ND	ND	2019	Internal corrosion of household plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

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

(b) = Hardness is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.

[c] = Sodium refers to the salt present in the water and is generally naturally occurring.

Definitions, Terms and Abbreviations

AL: Action Level, or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.

HAA5: Haloacetic Acids (mono-, di- and tri-chloracetic acid, and mono- and di- bromoacetic acid) as a group.

LRAA: Locational Running Annual Average, or the locational average of sample analytical results for samples taken during the previous four calendar quarters.

MCLG: Maximum Contaminant Level Goal, or the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MCL: Maximum Contaminant Level, or the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL: Maximum Residual Disinfectant Level, or the highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG: Maximum Residual Disinfectant Level Goal, or 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 detectable at testing limits.

NTU: Nephelometric Turbidity Unit, used to measure cloudiness in drinking water.

pCi/L: picocuries per liter, a measure of radioactivity

ppb: parts per billion or micrograms per liter.

ppm: parts per million or milligrams per liter.

ppt: parts per trillion or nanograms per liter.

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.

Primary Drinking Water Standard (PDWS): MCLs, MRDLs, and treatment techniques (TTs) for contaminants that affect healt, along with their monitoring and reporting requirements.

RAA: Running Annual Average, or the average of sample analytical results for samples taken during the previous four calendar quarters.

Range of Results: Shows the lowest and highest levels found during a testing period, if only one sample was taken, then this number equals the Highest Test Result or Highest Value.

SMCL: Secondary Maximum Contaminant Level, or the secondary standards that are non-enforceable guidelines for contaminants and may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as

taste, odor or color) in drinking water. EPA recommends these standards but does not require water systems to comply

TT: Treatment Technique, or a required process intended to reduce the level of a contaminant in drinking water.

TTHM: Total Trihalomethanes (chloroform, bromodichloromethane, dibromochloromethane, and bromoform) as a group.

Conservation Tips for Consumers

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference – try one today and soon it will become second nature.

- ✓ Take short showers – a 5 minutes shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- ✓ Shut off water while brushing your teeth, washing your hair, and shaving and save up to 500 gallons a month.
- ✓ Use a water-efficient showerhead. They are inexpensive, easy to install, and can save you up to 750 gallons a month.
- ✓ Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- ✓ Water plants only when necessary.
- ✓ Fix leaking toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- ✓ Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- ✓ Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- ✓ Visit https://www.epa.gov/watersense for more information.

Violations

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the calendar year 2021, we did not monitor for nitrate from Well 34 and therefore, cannot be sure of the quality of our drinking water during that time. You should be informed that this source has been offline since April 2021 so you haven't received water from the well since then. This source was sampled for nitrate in July of 2020 with a result of 1.9 mg/L; and most recently on February 10, 2022, with a result of 2.7 mg/L. Both of these results are well below the State and Federal Maximum Contaminant Level (MCL) of 10 mg/L for nitrate. Liberty is being diligent with all the water quality monitoring to ensure that all Federal and State health standards are met.

Contact Information

For information about this report, or your water quality in general, please contact Liberty's office at 1-800-727-5987 or Jeremy Caudell, Water Quality Control Specialist at (760) 240-8334.

APPENDIX A: TABLE OF REGULATED CONTAMINANTS WITH MAXIMUM CONTAMINANT LEVELS AND PUBLIC HEALTH GOALS OR MAXIMUM CONTAMINANT LEVEL GOALS

MCLs, DLRs, PHGs, for Regulated Drinking Water Contaminants

(Units are in milligrams per liter (mg/L), unless otherwise noted.)

Last Update: September 14, 2021

The following tables includes California's maximum contaminant levels (MCLs), detection limits for purposes of reporting (DLRs), public health goals (PHGs) from the Office of Environmental Health Hazard Assessment (OEHHA). For comparison, Federal MCLs and Maximum Contaminant Level Goals (MCLGs) (USEPA) are also displayed.

Inorganic Chemicals Table, Chemicals with MCLs in 22 CCR §64431

State Regulated Inorganic Chemical Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Aluminum	1	0.05	0.6	2001	--	--
Antimony	0.006	0.006	0.001	2016	0.006	0.006
Arsenic	0.010	0.002	0.000004	2004	0.010	zero
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	7 MFL	0.2 MFL	7 MFL	2003	7 MFL	7 MFL
Barium	1	0.1	2	2003	2	2
Beryllium	0.004	0.001	0.001	2003	0.004	0.004
Cadmium	0.005	0.001	0.00004	2006	0.005	0.005
Chromium, Total - OEHHA withdrew the 0.0025-mg/L PHG	0.05	0.01	withdrawn Nov. 2001	1999	0.1	0.1

State Regulated Inorganic Chemical Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Chromium, Hexavalent - 0.01-mg/L MCL & 0.001-mg/L DLR repealed September 2017	--	--	0.00002	2011	--	--
Cyanide	0.15	0.1	0.15	1997	0.2	0.2
Fluoride	2	0.1	1	1997	4.0	4.0
Mercury (inorganic)	0.002	0.001	0.0012	1999 (rev2005)*	0.002	0.002
Nickel	0.1	0.01	0.012	2001	--	--
Nitrate (as nitrogen, N)	10 as N	0.4	45 as NO3 (=10 as N)	2018	10	10
Nitrite (as N)	1 as N	0.4	1 as N	2018	1	1
Nitrate + Nitrite (as N)	10 as N	--	10 as N	2018	--	--
Perchlorate	0.006	0.002	0.001	2015	--	--
Selenium	0.05	0.005	0.03	2010	0.05	0.05
Thallium	0.002	0.001	0.0001	1999 (rev2004)	0.002	0.0005

Copper and Lead Table, 22 CCR §64672.3

Values referred to as MCLs for lead and copper are not actually MCLs; instead, they are called “Action Levels” under the lead and copper rule.

State Regulated Copper and Lead Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Copper	1.3	0.05	0.3	2008	1.3	1.3
Lead	0.015	0.005	0.0002	2009	0.015	zero

Radiological Table, Radionuclides with MCLs in 22 CCR §64441 and §64443

[units are picocuries per liter (pCi/L), unless otherwise state; n/a = not applicable]

State Regulated Radionuclides Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Gross alpha particle activity - OEHHA concluded in 2003 that a PHG was not practical	15	3	none	n/a	15	zero
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr	4	none	n/a	4 mrem/yr	zero
Radium-226	--	1	0.05	2006		
Radium-228	--	1	0.019	2006		
Radium-226 + Radium-	5	--	--	--	5	zero

State Regulated Radionuclides Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
228						
Strontium-90	8	2	0.35	2006	--	--
Tritium	"20,000"	"1,000"	400	2006	--	--
Uranium	20	1	0.43	2001	30 µg/L	zero

Organic Chemicals Table, Chemicals with MCLs in 22 CCR §64444

Volatile Organic Chemicals (VOCs)

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Benzene	0.001	0.0005	0.00015	2001	0.005	zero
Carbon tetrachloride	0.0005	0.0005	0.0001	2000	0.005	zero
1,2-Dichlorobenzene	0.6	0.0005	0.6	1997 (rev2009)	0.6	0.6
1,4-Dichlorobenzene (p-DCB)	0.005	0.0005	0.006	1997	0.075	0.075
1,1-Dichloroethane (1,1-DCA)	0.005	0.0005	0.003	2003	--	--
1,2-Dichloroethane (1,2-DCA)	0.0005	0.0005	0.0004	1999 (rev2005)	0.005	zero

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	1999	0.007	0.007
cis-1,2-Dichloroethylene	0.006	0.0005	0.013	2018	0.07	0.07
trans-1,2-Dichloroethylene	0.01	0.0005	0.05	2018	0.1	0.1
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	2000	0.005	zero
1,2-Dichloropropane	0.005	0.0005	0.0005	1999	0.005	zero
1,3-Dichloropropene	0.0005	0.0005	0.0002	1999 (rev2006)	--	--
Ethylbenzene	0.3	0.0005	0.3	1997	0.7	0.7
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	1999	--	--
Monochlorobenzene	0.07	0.0005	0.07	2014	0.1	0.1
Styrene	0.1	0.0005	0.0005	2010	0.1	0.1
1,1,2,2-Tetrachloroethane	0.001	0.0005	0.0001	2003	0.1	0.1
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	2001	0.005	zero

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Toluene	0.15	0.0005	0.15	1999	1	1
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	1999	0.07	0.07
1,1,1-Trichloroethane (1,1,1-TCA)	0.200	0.0005	1	2006	0.2	0.2
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	2006	0.005	0.003
Trichloroethylene (TCE)	0.005	0.0005	0.0017	2009	0.005	zero
Trichlorofluoromethane (Freon 11)	0.15	0.005	1.3	2014	--	--
"1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)"	1.2	0.01	4	1997 (rev2011)	--	--
Vinyl chloride	0.0005	0.0005	0.00005	2000	0.002	zero
Xylenes	1.750	0.0005	1.8	1997	10	10

Non-Volatile Synthetic Organic Chemicals (SOCs)

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Alachlor	0.002	0.001	0.004	1997	0.002	zero

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Atrazine	0.001	0.0005	0.00015	1999	0.003	0.003
Bentazon	0.018	0.002	0.2	1999 (rev2009)	--	--
Benzo(a)pyrene	0.0002	0.0001	0.000007	2010	0.0002	zero
Carbofuran	0.018	0.005	0.0007	2016	0.04	0.04
Chlordane	0.0001	0.0001	0.00003	1997 (rev2006)	0.002	zero
Dalapon	0.2	0.01	0.79	1997 (rev2009)	0.2	0.2
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00001	0.000003	2020	0.0002	zero
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.01	0.02	2009	0.07	0.07
Di(2-ethylhexyl)adipate	0.4	0.005	0.2	2003	0.4	0.4
Di(2-ethylhexyl)phthalate (DEHP)	0.004	0.003	0.012	1997	0.006	zero
Dinoseb	0.007	0.002	0.014	1997	0.007	0.007

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
				(rev2010)		
Diquat	0.02	0.004	0.006	2016	0.02	0.02
Endothal	0.1	0.045	0.094	2014	0.1	0.1
Endrin	0.002	0.0001	0.0003	2016	0.002	0.002
Ethylene dibromide (EDB)	0.00005	0.00002	0.00001	2003	0.00005	zero
Glyphosate	0.7	0.025	0.9	2007	0.7	0.7
Heptachlor	0.00001	0.00001	0.000008	1999	0.0004	zero
Heptachlor epoxide	0.00001	0.00001	0.000006	1999	0.0002	zero
Hexachlorobenzene	0.001	0.0005	0.00003	2003	0.001	zero
Hexachlorocyclopentadiene	0.05	0.001	0.002	2014	0.05	0.05
Lindane	0.0002	0.0002	0.000032	1999 (rev2005)	0.0002	0.0002
Methoxychlor	0.03	0.01	0.00009	2010	0.04	0.04
Molinate	0.02	0.002	0.001	2008	--	--
Oxamyl	0.05	0.02	0.026	2009	0.2	0.2

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Pentachlorophenol	0.001	0.0002	0.0003	2009	0.001	zero
Picloram	0.5	0.001	0.166	2016	0.5	0.5
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	2007	0.0005	zero
Simazine	0.004	0.001	0.004	2001	0.004	0.004
Thiobencarb	0.07	0.001	0.042	2016	--	--
Toxaphene	0.003	0.001	0.00003	2003	0.003	zero
1,2,3-Trichloropropane	0.000005	0.000005	0.0000007	2009	--	--
2,3,7,8-TCDD (dioxin)	3x10-8	5x10-9	5x10-11	2010	3x10-8	zero
2,4,5-TP (Silvex)	0.05	0.001	0.003	2014	0.05	0.05

Disinfection Byproducts Table, Chemicals with MCLs in 22 CCR §64533

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Total Trihalomethanes	0.080	--	--	--	0.080	--

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Bromodichloromethane	--	0.0010	0.00006	2020	--	zero
Bromoform	--	0.0010	0.0005	2020	--	zero
Chloroform	--	0.0010	0.0004	2020	--	0.07
Dibromochloromethane	--	0.0010	0.0001	2020	--	0.06
Haloacetic Acids (five) (HAA5)	0.060	--	--	--	0.060	--
Monochloroacetic Acid	--	0.0020	--	--	--	0.07
Dichloroacetic Adic	--	0.0010	--	--	--	zero
Trichloroacetic Acid	--	0.0010	--	--	--	0.02
Monobromoacetic Acid	--	0.0010	--	--	--	--
Dibromoacetic Acid	--	0.0010	--	--	--	--
Bromate	0.010	0.0050**	0.0001	2009	0.01	zero
Chlorite	1.0	0.020	0.05	2009	1	0.8

Chemicals with PHGs established in response to DDW requests. These are not currently regulated drinking water contaminants.

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
N-Nitrosodimethylamine (NDMA)	--	--	0.000003	2006	--	--

*OEHHA's review of this chemical during the year indicated (rev20XX) resulted in no change in the PHG.

**The DLR for Bromate is 0.0010 mg/L for analysis performed using EPA Method 317.0 Revision 2.0, 321.8, or 326.0.