

LAS FLORES WATER COMPANY 2018 ANNUAL DRINKING WATER QUALITY REPORT

Las Flores Water Company (Las Flores) is pleased to provide you with our Annual Water Quality Report, which contains information about the quality of drinking water we deliver to you. You have been receiving a water quality report each year from us for the past 29 years. This format meets California requirements for reporting water quality information to customers of public water systems (**Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien**):

- Where does our water come from?
- What are the possible sources of contaminants in tap water and bottled water?
- How is our drinking water treated?
- What, if any, contaminants have been detected in our drinking water?
- Is there reason for concern about organic solvents, nitrate and radon in our water?
- Are certain people more vulnerable to the effects of some contaminants in drinking water?
- Were there any violations of drinking water regulations?
- What are the definitions for all those regulatory and technical terms in the report?
- Who can I contact for more information and when does the Board of Directors meet?

Other educational information in this report informs you about drinking water safety and, hopefully, encourages you to consider the challenges of delivering a safe and protected supply of drinking water.

Las Flores Water Company serves approximately 4,500 people in North-Central Altadena. The General Manager oversees the Company's operations and reports to a five member Board of Directors. The Board meets on the 3rd Monday of every month. An annual shareholder meeting is held in March. All meetings are at the Company office located at 428 E. Sacramento Street, Altadena, CA. For more information, you may contact General Manager, Mr. William Kimberling, at (626) 797-1138.

In 2018, Las Flores distributed approximately 697-acre feet of water to its customers. This is nearly equivalent to 227 million gallons. One acre foot is enough water to cover one acre of land, one foot deep, or 325,900 gallons. Forty five percent of the water came from one well pumping from the Raymond groundwater basin. Fifty five percent of the total was purchased from the Metropolitan Water District of Southern California, via a connection with the Foothill Municipal Water District. This water is a blend of Colorado River water delivered through Metropolitan's Colorado River Aqueduct and surface water from Northern California delivered through the State of California Water Project Aqueduct. Metropolitan's water is filtered and disinfected at the Weymouth Filtration Plant in La Verne. Chlorine disinfectant is added to all water served by Las Flores to kill micro-organisms and prevent re-growth of bacteria in storage reservoirs and distribution pipelines.

In general, 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: 1) microbial contaminants, such as virus and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; 2) 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; 3) pesticides and herbicides that may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; 4) 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; 5) radioactive contaminants, that 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 U.S. Environmental Protection Agency (USEPA) and the State Water Resources Control Board (SWRCB) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. SWRCB regulations also establish 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 U.S. Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

Las Flores is required by the State Water Resources Control Board (SWRCB) to test well water for organic chemicals, minerals, metals, and bacteria. Also, we are required to test regularly for bacteria and total trihalomethanes in our distribution system. Lead and copper are tested in tap water from selected residences. Metropolitan is responsible for water quality testing of their treated water. Your drinking water followed all SWRCB water quality standards in 2018.

As in past years, the Detected Contaminant Chart compares the quality of your tap water to State drinking water standards. The water quality chart lists all the regulated drinking water contaminants (and unregulated contaminants requiring monitoring) that were detected during the 2018 calendar year. Certain regulated chemicals are monitored less frequently than once each year. The results from the most recent testing done in accordance with the monitoring regulations and the respective sampling year are noted in each table. Some of the data, although more than one year old, are representative of the current drinking water quality.

Most contaminants detected in our groundwater and surface water sources occur in your drinking water from erosion of natural deposits in soils. However, several detected contaminants are present in tap water as the result of the treatment process itself or from industrial discharges:

- **Perchlorate**, a component of rocket fuel, has seeped into Metropolitan's Colorado River supply over the years from a former manufacturing plant in Henderson, Nevada. Perchlorate contaminating Las Flores's groundwater supply is presumed to be from past discharges at the Jet Propulsion Laboratory. The SWRCB has set a primary **Maximum Contaminant Level (MCL)** of 6 micrograms per liter in October 2007. The highest amount of perchlorate in our well in 2018 was 5.5 micrograms-per-liter and the highest level in Metropolitan's treated water was at **non-detectable** micrograms-per-liter. **At all times**, perchlorate levels for **delivered** water were kept below the **Maximum Contaminant Level (MCL)** of 6 micrograms per liter by blending with purchased water from the Metropolitan Water District of Southern California. **All 2018 blended** water sample results for perchlorate were at **non-detectable** levels. Testing for perchlorate in our well is done weekly, as required.
- **Aluminum** in Metropolitan's drinking water comes from a treatment chemical used to assist in the removal of soil particles and microorganisms.
- **Total trihalomethanes** are a group of organic chemicals that form when chlorine is added to disinfect the water. These chemicals are monitored in the distribution system.
- **Nitrate** in groundwater could come from nitrogen-based fertilizers or leakage from old septic tanks.
- **Tetrachloroethylene** (also known as perchloroethylene or PCE) is a volatile organic solvent used as a degreasing agent. The source of the PCE in our groundwater is not known. Las Flores utilizes a filtration system and/or blending method, with Metropolitan Water District water, for removal of this contaminant.

Definitions of terms used in the water quality charts:

- **Public Health Goal (PHG)** is the level of a contaminant in drinking water, below which there is no known or suspected risk to health. PHGs are set by the California Environmental Protection Agency.
- **Maximum Contaminant Level Goal (MCLG)** is the level of a contaminant in drinking water below which there is no known or suspected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.
- **Maximum Contaminant Level (MCL)** is 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. **Primary drinking water standards** are MCLs for contaminants that effect health along with their monitoring and reporting requirements, and water treatment requirements. **Secondary MCLs** are set to protect the odor, taste, and appearance of drinking water.
- **Regulatory Action Level (AL)** is the concentration of a contaminant which, when exceeded, triggers treatment or other requirements that a water system must follow.

LAS FLORES WATER COMPANY BLENDED WATER QUALITY IN 2018

(SOURCES: GROUNDWATER AND IMPORTED SURFACE WATER)

Chemical	MCL	PHG, or (MCLG)	Average Amount	Range of Detections	MCL Violation?	Most Recent Sample Date	Typical Source of Contaminant
Radiologicals							
Alpha Radiation (pCi/L)	15	NA	5.6	ND - 13	No	2018	Erosion of natural deposits
Beta Radiation (pCi/L)	50	NA	4.0	ND - 6	No	2018	Erosion of natural/man-made deposits
Uranium (pCi/L)	20	0.5	6.5	ND - 10	No	2018	Erosion of natural deposits
Organic Chemicals							
Tetrachloroethylene (PCE)(ppb)	5	0.06	1.5	ND - 1.8	No	2018	Industrial solvent spill
Inorganic Chemicals							
Nitrate*** (ppm as N)	10	10	8.6	ND - 9.2	No	2018	Fertilizers or septic tanks
Aluminum (ppm)	1000	600	104.5	ND - 220	No	2018	Residue from water treatment process
Perchlorate (ppb)	6	6	4.6	ND - 5.2	No	2018	Aerospace-related activities
Arsenic (ppb)	50	0.004	ND	ND	No	2016	Erosion of natural deposits
Fluoride* (ppm)	2	1	0.65	0.54 - 0.8	No	2018	Erosion of natural deposits/regulated fluoridation
Secondary Standards**							
Chloride** (ppm)	500	NA	72	41 - 103	No	2018	Erosion of natural deposits
Specific Conductance** (mmho/cm)	1600	NA	570	460 - 680	No	2018	Erosion of natural deposits
Sulfate** (ppm)	500	NA	83	82 - 84	No	2018	Erosion of natural deposits
Total Dissolved Solids** (ppm)	1000	NA	361	272 - 450	No	2018	Erosion of natural deposits
Unregulated Contaminants Requiring Monitoring							
Sodium (ppm)	NA	NA	36.5	23 - 50	NA	2018	Erosion of natural deposits
Hardness (ppm)	NA	NA	197.5	105 - 290	NA	2018	Erosion of natural deposits

Turbidity ****	MCL	PHG, or (MCLG)	Average Amount	Range of Detections	MCL Violation?	Most Recent Sample Date	Typical Source of Contaminant
Ground Water Mt. View Well	5	NA	ND	0.3	No	2018	Soil runoff
Purchased Water MWD	5	NA	ND	ND	No	2018	Soil runoff

LAS FLORES WATER COMPANY DISTRIBUTION SYSTEM WATER QUALITY IN 2018

	MCL	Average Amount	Range of Detections	MCL Violation?	Typical Source Of Contaminant
Color** (color units)	15	1.1	<0.3 - 10	No	Naturally present in groundwater
Turbidity*** (NTU)	5	0.4	<0.1 - 1.7	No	Naturally present in groundwater
Odor** (threshold odor number)	3	1	1	No	Naturally present in groundwater
Total Trihalomethanes (ppb)	80	24.3	22.0 -26.7	No	Byproducts of chlorine disinfection
Haloacetic Acids (HAA5)(ppb)	60	11.6	11.2 - 12.1	No	Byproducts of chlorine disinfection

Four locations in the distribution system are tested quarterly for **Total Trihalomethanes**; Two locations are tested monthly for **color, odor and turbidity**.

	MRDL	MRDLG	Average Amount	Range of Detections	MRDL Violation	Typical Source
Chlorine Residual	4	4	1.06	1.01 - 1.12	No	Disinfectant added after treatment

LEAD AND COPPER ACTION LEVELS AT RESIDENTIAL TAPS

	Action Level (AL)	PHG	90th Percentile Value	Sites Exceeding AL / Number of Sites	AL Violation?	Typical Source Of Contaminant
Lead (ppb)	15	0.2	0.99	0/20	No	Corrosion of household plumbing
Copper(ppm)	1.3	0.3	0.99	0/20	No	Corrosion of household plumbing

Every three years, 20 residences are tested for lead and copper at-the-tap. The most recent set of samples was collected in 2016. **Lead was not detected.** Copper was detected in six samples, none of which exceeded the regulatory action level (AL). **A regulatory action level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.**

The groundwater pumped by our well contains the volatile organic solvent perchloroethylene, or PCE. PCE contamination was discovered in late 1997. At that time, the pumped groundwater exceeded the SWRCB maximum contaminant level (MCL) for PCE. In 2003, the Company completed the installation of a treatment system for PCE, which has been successful in removing this contaminant below detectable levels. We also utilize a blending method with imported water from Metropolitan, which does not contain PCE, to insure regulatory compliance. Monitoring of blended (delivered) water is done weekly for PCE and other contaminants to insure regulatory compliance. All 2018 blended (delivered) weekly water sample results for PCE were below non-detectable levels.

In the summer of 1999, nitrate was discovered in Las Flores groundwater at a level exceeding the SWRCB MCL. Blending pumped groundwater with imported surface water reduces both PCE and nitrate below the SWRCB MCL. Tests for nitrate in the blended supply are conducted every week. The source of the elevated nitrate could be septic tanks or fertilizers. Nitrate as “N” in drinking water at levels above the MCL of 10 milligrams-per-liter is a health risk for infants under six months of age. High 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. High nitrate levels 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. 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 advice from your health care provider, or choose to use bottled water for mixing formula and juice for your baby. If you are pregnant, you should use bottled water. To date, Las Flores has never served (distributed) water exceeding this MCL to its customers.

Lead and copper have not been detected in our groundwater sources; however, these metals can increase when water contacts plumbing materials in your home. Because domestic plumbing is the primary source of these metals, drinking water regulations require testing tap water samples for lead and copper inside a number of representative homes every three years. If more than 10 percent of the tap samples from homes exceed the action level set by the USEPA, the water system is required to treat the water in a way that reduces the corrosiveness of the water. Testing completed in 2016 showed no detectable lead levels. Tap water samples from some households contained copper at levels well below the action level of concern.

It is possible that lead levels at your home are higher than at other homes in the community as a result of materials used in your home’s plumbing. Infants and young children are more vulnerable to the effects of lead in drinking water than the general population. You can minimize exposure to lead by using the first water in the morning out of your tap for something other than drinking or you can flush the water out of your tap before drinking by running the water for only a few seconds.

LAS FLORES WATER COMPANY GROUNDWATER QUALITY IN 2018

Chemical	MCL ppb	PHG (MCLG)	Average Amount	Range of Detections	MCL Violation?	Most Recent Sampling Date	Typical Source of Contaminant
Radiologicals							
Alpha Radiation (pCi/L)	15	NA	13	13	No	2016	Erosion of Natural Deposits
Uranium (pCi/L)	20	(0)	10	10	No	2016	Erosion of Natural Deposits
Organic Chemicals							
Tetrachloroethylene - PCE (ppb)	5	(0)	1.5	ND - 1.8	No	2018	Industrial Solvent Spill
Inorganic Chemicals							
Nitrate (ppm N)	10	10	8.6	7.4 - 9.2	No	2018	Fertilizers, Septic Tanks
Arsenic (ppb)	10	NA	ND	ND	No	2016	Erosion of Natural Deposits
Perchlorate (ppb)	6	6	4.6	ND - 5.2	No	2018	Aerospace related activities
Fluoride (ppm)	2	1	0.68	0.54 - 0.8	No	2018	Erosion of Natural Deposits
Secondary Standards**							
Chloride** (ppm)	500	NA	41	41	No	2016	Erosion of Natural Deposits
Specific Conductance** (mmho/cm)	1,600	NA	680	680	No	2016	Erosion of Natural Deposits
Sulfate** (ppm)	500	NA	82	82	No	2016	Erosion of Natural Deposits
Total Dissolved Solids** (ppm)	1,000	NA	450	450	No	2016	Erosion of Natural Deposits
Unregulated Contaminants Requiring Monitoring							
Sodium (ppm)	Not Regulated	NA	23	23	NA	2016	Erosion of Natural Deposits
Hardness (ppm)	Not Regulated	NA	290	290	NA	2016	Erosion of Natural Deposits

ABBREVIATIONS AND FOOTNOTES

Abbreviations

AL	Action Level	NTU	Nephelometric Turbidity Units
DLR	Detection Limits for purpose of Reporting	pCi/L	picocuries per liter
MCL	Maximum Contaminant Level	PHG	Public Health Goal
MCLG	Maximum Contaminant Level Goal	ppb	parts per billion or micrograms per liter (µg/L)
MRDL	Maximum Residual Disinfectant Level	ppm	parts per million or milligrams per liter (mg/L)
MRDLG	Maximum Residual Disinfectant Level Goal	TON	Threshold Odor Number
N	Nitrogen	TT	Treatment Technique
NA	Not Applicable	(mmho/cm)	micromho per centimeter
NC	Not Collected		

Footnotes

* In addition to naturally occurring levels, Fluoride is added in accordance with EPA Fluoride Rule mandates.

** Contaminant is regulated by a secondary standard to maintain aesthetic qualities (taste, odor & color).

*** 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.

***** Turbidity is a measure of the cloudiness of the water, an indication of particulate matter, some of which may include harmful microorganisms.

***** Treatment Technique is a required process intended to reduce the level of contaminants in drinking water that are difficult or impossible to measure directly.

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA TREATED SURFACE WATER IN 2018

Chemical	MCL	PHG, or (MCLG)	Average Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
Radiologicals						
Alpha Radiation (pCi/L)	15	(0)	ND	ND	No	Erosion of natural deposits
Beta Radiation (pCi/L)	50	(0)	ND	ND	No	Decay of man-made or natural deposits
Uranium (pCi/L)	20	0.43	ND	ND	No	Erosion of natural deposits
Inorganic Chemicals						
Aluminum**(ppm)	1000	500	105	ND-220	No	Residue from water treatment process
Arsenic (ppb)	10	0.004	ND	ND	No	Erosion of natural deposits
Perchlorate (ppb)	6	6	ND	ND	No	Run off or leaching of natural deposits
Fluoride* (ppm)	2	1	0.7	0.4-0.9	No	Erosion of natural deposits
Secondary Standards**						
Chloride** (ppm)	500	NA	96	96-97	NA	Runoff or leaching from natural deposits
Specific Conductance** (mmho/cm)	1600	NA	954	897-1010	NA	Substances that form ions in water
Sulfate** (ppm)	500	NA	213	190-236	NA	Runoff or leaching of natural deposits
Total Dissolved Solids** (ppm)	1000	NA	596	553-639	NA	Runoff or leaching of natural deposits
Unregulated Contaminants Requiring Monitoring						
Sodium (ppm)	Not Regulated	NA	98	94-103	NA	Runoff or leaching of natural deposits
Hardness (ppm)	Not Regulated	NA	254	233-274	NA	Runoff or leaching of natural deposits
Turbidity - combined filter effluent***		MCL (TT)	Turbidity Measurements		TT Violation?	Typical Source of Contaminant
1) Average amount		5 NTU	ND		No	Soil run-off
2) Range of detections		5 NTU	ND		No	Soil run-off

Groundwater is protected from many infectious organisms, such as the parasite *Cryptosporidium*, by the natural filtration action of water percolating through soils. Current conventional surface water treatment methods remove most *Cryptosporidium* organisms when they are present, but 100 percent elimination cannot be guaranteed. Metropolitan has detected *Cryptosporidium* in some areas of their watershed but has never detected the organism in their treated water. There is no evidence that *Cryptosporidium* has entered our water supply. **However, 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 (1-800-426-4791).**

As per the Company’s notification to you in September, 2007, the Metropolitan Water District (MWD) began adding fluoride to their water deliveries in November 2007, in order to meet State Water Resources Control Board (SWRCB) requirements. MWD will maintain levels of 0.7 - 0.8 mg/L (parts per million) in their water supply. Las Flores Water Company purchases approximately 65% of its water from MWD, which is then blended with well water for distribution, as needed. Fluoride has been added to public water systems to many cities across the nation for many decades and according to extensive research over 50 years is considered to be the single, most cost-effective method to prevent tooth decay and improve dental health. Las Flores conducts monthly testing for fluoride levels and results are reported to the CDPH, as required. In 2016, fluoride sample levels were within regulatory compliance after the blending of our groundwater with purchased water from The Metropolitan Water District.

An assessment of the drinking groundwater source for Las Flores Water Company was completed in August 2002. The groundwater from the well is considered most vulnerable to the following activities associated with contaminants detected in the water supply: Automobile repair/body shops, gas stations, parks, dry cleaners, known contaminant plumes, fleet/truck/bus terminals, apts./condos, schools, medical/dental/offices/clinics, wells/water supply, drinking water treatment plants.

The source is considered most vulnerable to the following activities not associated with any detected contaminants: Automobile-carwashes, underground storage tanks (confirmed leaking tanks).

A copy of the completed assessment is available at Las Flores Water Company’s office. You may also request a summary of the assessment by calling Meenakshi Iyer or William Kimberling at 626-79