DRINKING WATER QUALITY MONITORING RESULTS

Tables I, II, and III list the results of water tests performed by the LADWP and MWD from January to December 2021. LADWP tested for 166 substances. These tables include only substances with values that are detected. No substance was detected above the maximum contaminant level.

Terms used in Tables:

Compliance: A drinking water standard based on the health risk (primary standards) and aesthetic (secondary standards) exposure of a contaminant to consumers. For example, bacteria and nitrate have strict limits that must be met at all times due to the acute effects they can cause. Other standards, like small amounts of disinfection by-products and man-made chemicals, have standards that are based on a lifetime of exposure because the risk to consumers is very low. Compliance with most standards is based on an average of samples collected within a year. This allows for some fluctuation above and below the numerical standard, while still protecting public health.

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

Federal Minimum Reporting Level (MRL): Minimum concentration of a contaminant which can be detected in drinking water using analytical methods established by the U.S. EPA. Data reported in Table IV reflect MRLs.

Maximum Contaminant Level (MCL): 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.

Maximum Contaminant Level Goal (MCLG): 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. EPA

Maximum Residual Disinfectant Level (MRDL): 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): Level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the beneficial use of disinfectants to control microbial contaminants. MRDLGs are set by U.S. EPA. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants

Notification Level (NL): Health-based advisory level established by SWRCB-DDW for chemicals in drinking water that lack MCLs.

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

Public Health Goal (PHG): 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.

Secondary Maximum Contaminate Level (SMCL): Highest level a constituent allowed in drinking water that may affect the taste, odor or appearance. SMCLs are set by the U.S. EPA.

State Detection Limit (DLR): A detected contaminant at or above its detection level for reporting purposes. DLRs are set by the SWRCB-DDW. Data reported in Tables I through III reflect DLRs.

Treatment Technique (TT): Required process intended to reduce the level of a contaminant in drinking water. For example, the filtration process is a treatment technique used to reduce turbidity (cloudiness in water) and microbial contaminants from surface water. High turbidities may be indicative of poor or inadequate filtration.

Chemists testing water samples at LADWP's state-of-the-art water quality lab

HOW TO READ THE TABLES

The substances found in the water served in your area are listed as follows:

- For San Fernando Valley Area – water test results are under the Los Angeles Aqueduct Filtration Plant (LAAFP), the Northern Combined Wells (NCW), and the Metropolitan Water District (MWD) Jensen Plant columns.
- For Central Los Angeles Area – water test results are under the LAAFP and the Southern Combined Wells (SCW) columns.
- For Western Los Angeles Area – water test results are under the LAAFP columns.
- For Harbor/Eastern Los Angeles Area – water test results are under MWD Weymouth, Diemer, and Jensen Plants columns.

Some substances are reported on a citywide basis as required by SWRCB-DDW.

Abbreviations and Footnotes

ACU = apparent color unit

CFU/mL = colony-forming unit per milliliter

< = less than the detection limit for reporting purposes

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

µS/cm = microsiemens per centimeter

mg/L = milligrams per liter (equivalent to ppm)

NTU = nephelometric turbidity units

NA = not applicable

NR = not reported

NT = not tested

NUM/100 mL = number per 100 milliliter

% = percentage

pCi/L = picocuries per liter

TON = threshold odor number

TABLE I

Calendar Year 2021 Water Quality Monitoring Results

Health-based Primary Drinking Water Standards (MCLs) for Substances detected in Treated Water

Substances	Major Sources in Drinking Water	Units	Meets Primary Standard (YES / NO)	State Primary Standard MCL	State PHG	Los Angeles Aqueduct Filtration Plant		Northern Combined Wells		Southern Combined Wells		MWD Weymouth Plant		MWD Diemer Plant		MWD Jensen Plant	
						Average	Range	Average	Range	Average	Range	Average	Range	Average	Range	Average	Range
Aluminum	Erosion of natural deposits; residue from surface water treatment processes	µg/L	YES	1000	600	<50	<50	<50	<50	<50	<50	148 (a)	<50 - 240	141 (a)	<50 - 210	64 (a)	<50 - 220
Arsenic	Erosion of natural deposits	µg/L	YES	10	0.004	<2	<2 - 3.1	<2	<2	<2	<2 - 2	<2	<2	<2	<2	<2	<2
Barium	Erosion of natural deposits	µg/L	YES	1000	2000	<100	<100	<100	<100	<100	<100	110	110	111	111	<100	<100
Bromate (b)	By-product of ozone disinfection; formed under sunlight for chlorinated water	µg/L	YES	10	0.1	2.3 (a)	1.5 - 2.1	2 (a)	<1 - 2	2 (a)	<1 - 2	<1 (a)	<1 - 7	<1 (a)	<1 - 4.6	4.5 (a)	1.2 - 9.8
Fluoride	Erosion of natural deposits; water additive that promotes good dental health	mg/L	YES	2	1	0.7	0.7 - 0.8	0.7	0.3 - 0.8	0.7	0.7 - 0.9	0.7	0.6 - 0.9	0.7	0.6 - 0.9	0.7	0.6 - 0.8
Gross Alpha Particle Activity (d)	Naturally present in the environment	pCi/L	YES	15	0	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3 - 3	<3	<3
Gross Beta Particle Activity (d)	Naturally present in the environment	pCi/L	YES	50	0	<4	<4 - 4.3	4.2	<4 - 5.6	4.4	<4 - 5.2	5	4 - 6	5	4 - 6	<4	<4
Heterotrophic Plate Count Bacteria	Naturally present in the environment	CFU/ mL	YES	TT	none	<1	<1	<1	<1	<1	<1 - 1800	<1	<1	<1	<1	<1	<1
Nitrate (as N)	Erosion of natural deposits; runoff and leaching from fertilizer use	mg/L	YES	10	10	<0.4	<0.1 - 0.5	2	1 - 4	2	1 - 3	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Nitrate + Nitrite (as N)	Erosion of natural deposits; runoff and leaching from fertilizer use	mg/L	YES	10	10	<0.4	<0.1 - 0.5	2	1 - 4	3	2 - 3	NA	NA	NA	NA	NA	NA
Total Organic Carbon (TOC)	Erosion of natural deposits	mg/L	YES	TT	none	1.7	1.5 - 1.9	1	<0.3 - 2	1	<0.3 - 2	2.4 (a)	1.8 - 2.5	2.4 (a)	1.9 - 2.8	2 (a)	1.1 - 2.0
Trichloroethylene (TCE)	Discharge from metal degreasing sites and other factories	µg/L	YES	5	1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 - 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Turbidity (c)	Soil runoff	NTU %	YES	TT = 1 TT = 95% of samples ≤0.3 NTU	none	0.63	NA	NA	NA	NA	NA	0.03	NA	0.03	NA	0.06	NA
Uranium (d)	Erosion of natural deposits	pCi/L	YES	20	0.4	5	4 - 5	5	3 - 5	5	3 - 6	2	1 - 3	2	1 - 3	<1	<1 - 3

(a) Values reflect Highest Running Annual Average (HRAA). HRAA is the highest of all Running Annual Averages (RAAs) in the reported calendar year. RAA is a calculated average of all samples collected within the previous 12-month period, which may include test data from the previous calendar year. HRAA may be higher than the range, which is based on the test data in the reported calendar year.

(b) Bromate is formed in water treated with ozone in the presence of bromide. Bromate has also been found in water treated with chlorine in some uncovered reservoirs in LADWP that have elevated bromide levels and are exposed to sunlight. MWD tests for bromate at its Diemer and Jensen Filtration Plants, which use ozone. All LADWP distribution reservoirs are now shielded with flexible covers or shade balls to minimize bromate formation.

(c) Turbidity is a measure of the cloudiness of water and is a good indicator of water quality and filtration performance. High turbidity can hinder the effectiveness of disinfectants. The Primary Drinking Water Standard for turbidity (included in this table) at water filtration plants is less than or equal to 0.3 NTU in at least 95 percent of the measurements taken in any month and shall not exceed 1.0 NTU at any time. The reporting requirement for treatment plant turbidity is to report the highest single measurement in the calendar year as well as the lowest monthly percentage of measurements that are less than or equal to 0.3 NTU.

(d) Radiological monitoring is performed in LADWP for treated sources water and at the blend points.

TABLE I (CONT'D)

Calendar Year 2021 Water Quality Monitoring Results

Health-based Primary Drinking Water Standards (MCLs) Substances Detected in Treated Water and Reported on City-Wide Basis

Substances	Major Sources in Drinking Water	Units	Meets Primary Standard (YES/NO)	State Primary Standard MCL or (MRDL)	State PHG / (MRDLG)	Average	Range
Bromate (uncovered reservoirs)	Byproduct of ozone disinfection; formed under sunlight for chlorinated water	µg/L	YES	10	0.1	HRAA = 2.6 (a)	Range = 1.9 - 3.0
Chlorine Residual, Total	Drinking water disinfectant added for treatment	mg/L	YES	(4)	(4)	HRAA = 2.0 (a)	Range = 0.5 - 2.9
Copper (at-the-tap) Action Level = 1300 (e)	Internal corrosion of household water plumbing systems	µg/L	YES	TT	300	90th Percentile value = 394	"Number of samples exceeding AL = 0 out of 100"
Fluoride	Erosion of natural deposits; water additive that promotes good dental health	mg/L	YES	2	1	Average = 0.7	Range = 0.7 - 0.8
Haloacetic Acids (Five) (HAA5)	Byproduct of drinking water disinfection	µg/L	YES	60	none	HLRAA = 12.7 (f)	Range = 3 – 13
Lead (at-the-tap) Action Level = 15 (e)	Internal corrosion of household water plumbing systems	µg/L	YES	TT	0.2	90th Percentile value = 5.0	"Number of samples exceeding AL = 1 out of 100"
Total Coliform Bacteria	Naturally present in the environment	% Positives	YES	≤5% of monthly samples are coliform positive	0	Highest monthly % positive samples = 0.3%	Range = % positive samples 0% – 0.3%
Total Trihalomethanes (TTHM)	Byproduct of drinking water disinfection	µg/L	YES	80	none	HLRAA = 38 (f)	Range = 15 - 48

(a) Values reflect Highest Running Annual Average (HRAA). HRAA is the highest of all Running Annual Averages (RAAs) in the reported calendar year. RAA is a calculated average of all samples collected within the previous 12-month period, which may include test data from the previous calendar year. HRAA may be higher than the range, which is based on the test data in the reported calendar year.

(e) At-the-tap monitoring of lead and copper is conducted as required by the federal Lead and Copper Rule. A system is out of compliance if the federal Action Level is exceeded in more than 10 percent of all samples collected at the customers' tap. The most recent monitoring was conducted in 2020. Although the City's treated water has little or no detectable lead, studies were conducted and corrosion control implementation started. A corrosion control study was completed in 2019 which found that LADWP's corrosion control treatment is optimized and that it does not require the continued addition of a corrosion inhibitor.

(f) The federal Stage 2 Disinfectants/Disinfection Byproducts Rule (Stage 2 D/DBPR) requires compliance monitoring and reporting for total trihalomethanes (TTHM) and five haloacetic acids (HAA5) based on Locational Running Annual Averages (LRAAs) of established monitoring locations. The Highest Locational Running Annual Averages (HLRAAs) of all LRAAs in the current calendar year for TTHM and HAA5 are reported.

TABLE II

Calendar Year 2021 Water Quality Monitoring Results

Aesthetic-based Secondary Drinking Water Standards (SMCLs) for Substances detected in Treated Water

Substances	Major Sources in Drinking Water	Units	Meets Secondary Standard (YES/NO)	State SMCL or Federal (SMCL)	Los Angeles Aqueduct Filtration Plant		Northern Combined Wells		Southern Combined Wells		MWD Weymouth Plant		MWD Diemer Plant		MWD Jensen Plant	
					Average	Range	Average	Range	Average	Range	Average	Range	Average	Range	Average	Range
Aluminum	Erosion of natural deposits; residue from some surface water treatment processes	µg/L	YES	(200)	<50	<50	<50	<50	<50	<50	148 (a)	<50 - 240	141 (a)	<50 - 210	64 (a)	<50 - 220
Chloride	Runoff / leaching from natural deposits; seawater influence	mg/L	YES	500	60	41 - 74	55	43 - 66	55	48 - 66	96	95 - 97	96	95 - 97	72	65 - 80
Color, Apparent (unfiltered)	Naturally-occurring organic materials	ACU	YES	15	<3	<3 - 4	3	<3 - 4	3	<3 - 5	<3	<3	<3	<3	<3	<3
Odor	Naturally-occurring organic materials	TON	YES	3	<1	<1	<1	<1	<1	<1 - 2	1	1	2	2	1	1
pH	Naturally-occurring dissolved gases and minerals	Unit	YES	6.5 - 8.5	7.7	7.4 - 8.8	7.8	7.0 - 8.8	7.8	7.0 - 8.4	8.1	8.1	8.1	8.1	8.3	8.3 - 8.4
Specific Conductance	Substances that form ions when in water; seawater influence	µS/cm at 25°C	YES	1600	457	320 - 600	667	360 - 880	667	460 - 1080	964	962 - 965	958	950 - 965	558	519 - 598
Sulfate (as SO4)	Runoff / leaching from natural deposits	mg/L	YES	500	49	38 - 64	99	58 - 132	99	59 - 153	219	217 - 221	214	214 - 215	66	61 - 72
Total Dissolved Solids (TDS)	Runoff / leaching from natural deposits	mg/L	YES	1000	278	235 - 304	386	277 - 459	386	307 - 482	604	599 - 609	597	597	300	298 - 302
Turbidity (g)	Soil runoff	NTU	YES	5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

(a) Values reflect Highest Running Annual Average (HRAA). HRAA is the highest of all Running Annual Averages (RAAs) in the reported calendar year. RAA is a calculated average of all samples collected within the previous 12-month period, which may include test data from the previous calendar year. Hence, HRAA may be higher than the range, which is based on the test data in the reported calendar year.

(g) The Secondary Maximum Contaminant Level for turbidity of treated water in the distribution system is 5 NTU at the entry points to the distribution system.

TABLE III

Calendar Year 2021 Water Quality Monitoring Results

Unregulated Drinking Water Substances Detected in Treated Water

Substances	Major Sources in Drinking Water	Units	State MCL (PHG)	Los Angeles Aqueduct Filtration Plant		Northern Combined Wells		Southern Combined Wells		MWD Weymouth Plant		MWD Diemer Plant		MWD Jensen Plant	
				Average	Range	Average	Range	Average	Range	Average	Range	Average	Range	Average	Range
Alkalinity, Total (as CaCO3)	Erosion of natural deposits	mg/L	none	93	86 - 102	127	104 - 190	127	104 - 186	126	123 - 128	125	124 - 126	92	86 - 97
Ammonia + Chloramines (as N)	Drinking water disinfectant added for treatment	mg/L	none	0.4	0.4 - 0.5	<0.05	<0.05 - 1	<0.05	<0.05	NA	NA	NA	NA	NA	NA
Bicarbonate Alkalinity (as HCO3)	Naturally-occurring dissolved gas; erosion of natural deposits	mg/L	none	114	105 - 125	155	127-232	155	127 - 227	NA	NA	NA	NA	NA	NA
Boron NL = 1000	Erosion of natural deposits	µg/L	none	287	206 - 419	201	126 - 240	201	107 - 237	130	130	130	130	180	180
Bromide	Runoff / leaching from natural deposits; seawater influence	mg/L	none	0.1	0.1 - 0.2	<0.02	<0.02	<0.02	<0.02	NA	NA	NA	NA	180	NA
Calcium	Erosion of natural deposits; natural hot springs	mg/L	none	28	27 - 30	52	36-75	52	36 - 75	67	64 - 70	66	65 - 66	180	27 - 32
Chromium, Hexavalent	Industrial discharge; erosion of natural deposits	µg/L	0.02	<1	<1	<1	<1 - 2.8	<1	<1 - 1	<1	<1	<1	<1	180	<1
Hardness, Total (as CaCO3)	Erosion of natural deposits	mg/L	none	112	100 - 116	195	138 - 252	195	140 - 256	272	270 - 273	274	271 - 276	180	110 - 133
Magnesium	Erosion of natural deposits	mg/L	none	9.9	8.3 - 11	16	11 - 18	16	12 - 20	26	25 - 26	25	24 - 26	180	12 - 13
Phosphate (as PO4)	Erosion of natural deposits, agricultural run-off	mg/L	none	0.1	0.1	0.1	0.1	0.1	0.1 - 0.2	NA	NA	NA	NA	180	NA
Potassium	Erosion of natural deposits	mg/L	none	3.1	2.5 -3.7	3	3 - 5	3	3 - 4	4.6	4.4 - 4.7	4.4	4.2 - 4.6	180	2.6 - 2.7
Silica (as SiO2)	Erosion of natural deposits	mg/L	none	14	12 - 17	17	15 - 24	17	15 - 26	NA	NA	NA	NA	180	NA
Sodium	Erosion of natural deposits	mg/L	none	53	43 - 61	52	38 - 55	52	46 - 55	98	95 - 101	94	93 - 95	180	61 - 68
Temperature	Natural seasonal fluctuation	°C	none	17	9 - 27	19	12 - 28	19	12 - 28	NA	NA	NA	NA	180	NA
Total Coliform	Naturally present in the environment	MPN/100mL	0	<1	<1 - 2	<1	<1 - 6	<1	<1 - 2	NA	NA	NA	NA	180	NA
Vanadium NL = 50	Erosion of natural deposits	µg/L	none	<3	<3	<3	<3 - 8	<3	<3 - 3	<3	<3	<3	<3	180	<3

Unregulated Contaminant Monitoring Rule

The Unregulated Contaminant Monitoring Rule (UCMR) is a special program developed by the U.S. EPA that requires public water systems to monitor up to 30 selected contaminants of emerging concerns once every five years.

During the fourth UCMR (UCMR4), LADWP monitored 29 unregulated contaminants. The contaminants monitored were total microcystins, microcystin-LA, microcystin-LF, microcystin-L, microcystin-LY, microcystin-RR, microcystin-YR, nodularin, anatoxin-a, cylindrospermopsin, germanium, manganese, alpha- hexachlorocyclohexane, chlorpyrifos, dimethipin, ethoprop, profenofos, tebuconazole, total permethrin (cis- & trans-), tribufos, oxyfluorfen, HAA5, HAA6Br, HAA9, 1-butanol, 2-methoxyethanol, 2-propen-1-ol, butylated hydroxyanisole, o-toluidine and quinolone. The UCMR samples were taken 2018 through 2019 and will be reported in future annual reports until the next fifth UCMR is completed.

Most of the contaminants were not detected. Table IV below provides the contaminants that were detected during UCMR4. Contaminants that were detected were lower than the MCLs. Algal bloom and cyanotoxin were monitored at the source locations for each sampling event and were not detected.

TABLE IV

Calendar Year 2021 Water Quality Monitoring Results

The Fourth U.S. EPA Unregulated Contaminant Monitoring Rule (UCMR4) Substances Detected In Treated Water

Substances	Units	Meets MCL or NL (YES / NO)	State Primary Standard MCL or (NL)	State PHG or Federal (MCLG)	San Fernando Valley				Central LA		Western LA		Harbor/Eastern LA	
					Los Angeles Aqueduct Filtration Plant		Northern Combined Wells		Southern Combined Wells		Los Angeles Aqueduct Filtration plant		Distribution System Sampling Locations	
					Average	Range	Average	Range	Average	Range	Average	Range	Average	Range
Bromide	mg/L	NA	NA	NA	0.06	0.04 - 0.09	0.07	0.03 - 0.11	0.07	0.03 - 0.2	0.06	0.04 - 0.09	NA	NA
HAA5	µg/L	YES	60	NA	3.3 (a)	1.9 - 4.4 (a)	3.3 (a)	1.9 - 4.4 (a)	3.6 (a)	2.7 - 5.0 (a)	4.0 (a)	2.7 - 7.4 (a)	6.0 (a)	5.3 - 7.0 (a)
HAA6Br	µg/L	NA	NA	NA	2.1 (a)	1.0 - 3.7 (a)	2.1 (a)	1.0 - 3.7 (a)	2.7 (a)	2.2 - 3.8 (a)	2.6 (a)	1.5 - 4.6 (a)	3.7 (a)	3.3 - 4.3 (a)
HAA9	µg/L	NA	NA	NA	1.5 (a)	0.8 - 2.9 (a)	1.5 (a)	0.8 - 2.9 (a)	1.6 (a)	1.1 - 2.4 (a)	1.8 (a)	1.2 - 3.7 (a)	3.3 (a)	2.8 - 4.3 (a)
Manganese	µg/L	YES	(50)	NA	<0.4	<0.4 - 0.45	0.76	0.55 - 0.87	0.76	0.70 - 0.82	<0.4	<0.4 - 0.45	1.34	0.60 - 1.86
Total Organic Carbon (TOC)	mg/L	NA	NA	NA	1.6	1.5 - 1.7	1.3	1.1 - 1.6	1.3	0.3 - 2.2	1.6	1.5 - 1.7	7	4.4 - 12.8

(a) For UCMR4 sampling, LADWP used the same established sampling locations as used for the Stage 2 Disinfectants/Disinfection By-Products Rule compliance monitoring. HAA5, HAA6Br and HAA9 were based on locational averages. These sample points are located throughout LADWP's distribution system. Data has been grouped by geographical area for the HAA results.