

2024 Water Quality Report to Member Agencies – The Metropolitan Water District of Southern California Treatment Plant Effluents and Distribution System (PWS ID: 1910087)

Parameter	Units	State MCL	PHG	State DLR/CCRDL (RL)	Range Average	Treatment Plant Effluent *					Distribution System	Major Sources in Drinking Water	
						Diemer Plant	Jensen Plant	Mills Plant	Skinner Plant	Weymouth Plant			
Percent State Water Project	%	NA	NA	NA	Range	0 - 98	100	100	0 - 64	0 - 100		Not applicable	
PRIMARY STANDARDS—Mandatory Health-Related Standards													
CLARITY													
Combined Filter Effluent (CFE) Turbidity	(a)	NTU	TT	NA	NA	Highest	0.06	0.04	0.08	0.07	0.06		Soil runoff
		%				% ≤ 0.3 NTU	100	100	100	100	100		
MICROBIOLOGICAL													
Total Coliform Bacteria	(c)	% Positive Monthly Sample	TT	MCLG = 0	NA	Range						0 - 0.3 0.1	Naturally present in the environment
						Average							
Heterotrophic Plate Count (HPC) Bacteria	(d)	CFU/mL	TT	NA	NA	Range	ND	ND	ND	ND	ND		Naturally present in the environment
						Median							
<i>Cryptosporidium</i>		oocysts/200 L	TT	MCLG = 0	NA	Range	ND	ND	ND	ND	ND		Human and animal fecal waste
						Average							
<i>Giardia</i>		cysts/200 L	TT	MCLG = 0	NA	Range	ND	ND	ND	ND	ND		Human and animal fecal waste
						Average							
ORGANIC CHEMICALS													
Synthetic Organic Compounds (e)													
1,2,3-Trichloropropane (1,2,3-TCP)		ppt	5	0.7	5	Range	ND	ND	ND	ND	ND		Discharge from industrial and agricultural factories; byproduct of producing other compounds and pesticides; leaching from hazardous waste sites
						Average							
2,4,5-TP (Silvex)		ppb	50	3	1	Range	ND	ND	ND	ND	ND		Residue of banned herbicide
						Average							
2,4-D		ppb	70	20	10	Range	ND	ND	ND	ND	ND		Runoff from herbicide used on row crops, rangeland, lawns, and aquatic weeds
						Average							
Acrylamide	(f)	ppm	TT	MCLG = 0	NA	Range	NA	NA	NA	NA	NA		Water treatment chemical impurities
						Average							
Alachlor		ppb	2	4	1	Range	ND	ND	ND	ND	ND		Runoff from herbicide used on row crops
						Average							
Atrazine		ppb	1	0.15	0.5	Range	ND	ND	ND	ND	ND		Runoff from herbicide used on row crops and along railroad and highway right-of-ways
						Average							
Bentazon		ppb	18	200	2	Range	ND	ND	ND	ND	ND		Runoff/leaching from herbicide used on beans, peppers, corn, peanuts, rice, and ornamental grasses
						Average							
Benzo(a)pyrene		ppt	200	7	100	Range	ND	ND	ND	ND	ND		Leaching from linings and coatings of water storage tanks and distribution mains
						Average							
Carbofuran		ppb	18	0.7	5	Range	ND	ND	ND	ND	ND		Leaching of soil fumigant used on rice, alfalfa, and grape vineyards
						Average							
Chlordane		ppt	100	30	100	Range	ND	ND	ND	ND	ND		Residue of banned insecticide
						Average							
Dalapon		ppb	200	790	10	Range	ND	ND	ND	ND	ND		Runoff from herbicide used on right-of-ways, and crops and landscape maintenance
						Average							
Di(2-ethylhexyl)adipate		ppb	400	200	5	Range	ND	ND	ND	ND	ND		Discharge from chemical factories
						Average							
Di(2-ethylhexyl)phthalate		ppb	4	12	3	Range	ND	ND	ND	ND	ND		Discharge from rubber and chemical factory; inert ingredient in pesticides
						Average							
Dibromochloropropane (DBCP)		ppt	200	3	10	Range	ND	ND	ND	ND	ND		Banned nematocide that may still be present in soils due to runoff/leaching
						Average							
Dinoseb		ppb	7	14	2	Range	ND	ND	ND	ND	ND		Runoff from herbicide used on soybeans, vegetables, and fruits
						Average							
Dioxin (2,3,7,8-TCDD)		ppq	30	0.05	5	Range	ND	ND	ND	ND	ND		Waste incineration emissions; chemical factory discharge
						Average							
Diquat		ppb	20	6	4	Range	ND	ND	ND	ND	ND		Runoff from herbicide used for terrestrial and aquatic weeds
						Average							
Endothall		ppb	100	94	45	Range	ND	ND	ND	ND	ND		Runoff from herbicide used for terrestrial and aquatic weeds; defoliant
						Average							
Endrin		ppb	2	0.3	0.1	Range	ND	ND	ND	ND	ND		Residue of banned insecticide and rodenticide
						Average							
Epichlorohydrin	(f)	ppm	TT	MCLG = 0	NA	Range	NA	NA	NA	NA	NA		Water treatment chemical impurities
						Average							

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Ethylene Dibromide (EDB)	ppt	50	10	20	Range Average	ND	ND	ND	ND	ND	Petroleum refinery discharges; underground gas tank leaks; banned nematocide that may still be present in soils due to runoff and leaching Runoff from herbicide use Residue of banned insecticide Breakdown product of heptachlor Discharge from metal refineries and agrichemicals factories; wastewater chlorination reaction byproduct Discharge from chemical factories Runoff/leaching from insecticide used on cattle, lumber, and gardens Runoff/leaching from insecticide uses on fruits, vegetables, alfalfa, and livestock Runoff/leaching from herbicide used on rice Runoff/leaching from insecticide uses Discharge from wood preserving factories, and other insecticidal and herbicidal uses Herbicide runoff Runoff from landfills; discharge of waste chemicals Herbicide runoff Runoff/leaching from herbicide used on rice Runoff/leaching from insecticide used on cotton and cattle	
Glyphosate	ppb	700	900	25	Range Average	ND	ND	ND	ND	ND		
Heptachlor	ppt	10	8	10	Range Average	ND	ND	ND	ND	ND		
Heptachlor Epoxide	ppt	10	6	10	Range Average	ND	ND	ND	ND	ND		
Hexachlorobenzene	ppb	1	0.03	0.5	Range Average	ND	ND	ND	ND	ND		
Hexachlorocyclopentadiene	ppb	50	2	1	Range Average	ND	ND	ND	ND	ND		
Lindane	ppt	200	32	200	Range Average	ND	ND	ND	ND	ND		
Methoxychlor	ppb	30	0.09	10	Range Average	ND	ND	ND	ND	ND		
Molinate (OrDRAM)	ppb	20	1	2	Range Average	ND	ND	ND	ND	ND		
Oxamyl (Vydate)	ppb	50	26	20	Range Average	ND	ND	ND	ND	ND		
Pentachlorophenol	ppb	1	0.3	0.2	Range Average	ND	ND	ND	ND	ND		
Picloram	ppb	500	166	1	Range Average	ND	ND	ND	ND	ND		
Polychlorinated Biphenyls (PCBs)	ppt	500	90	500	Range Average	ND	ND	ND	ND	ND		
Simazine	ppb	4	4	1	Range Average	ND	ND	ND	ND	ND		
Thiobencarb	ppb	70	42	1	Range Average	ND	ND	ND	ND	ND		
Toxaphene	ppb	3	0.03	1	Range Average	ND	ND	ND	ND	ND		
Volatile Organic Compounds												
1,1,1-Trichloroethane	ppb	200	1,000	0.5	Range Average	ND	ND	ND	ND	ND		Metal degreasing site discharge; manufacture of food wrappings Discharge from industrial and agrichemical factories; solvent used in production of TCE, pesticides, varnish, and lacquers Discharge from metal degreasing sites and other factories; dry cleaning solvent; refrigerant Discharge from industrial chemical factories Extraction and degreasing solvent; fumigant Discharge from industrial chemical factories Discharge from textile-finishing factories Discharge from industrial chemical factories Discharge from industrial chemical factories Industrial chemical factory discharge; primary component of some fumigants Runoff/leaching from nematocide used on croplands Discharge from industrial chemical factories Plastics factory discharge; gas tanks and landfill leaching
1,1,2,2-Tetrachloroethane	ppb	1	0.1	0.5	Range Average	ND	ND	ND	ND	ND		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	ppm	1.2	4	0.01	Range Average	ND	ND	ND	ND	ND		
1,1,2-Trichloroethane	ppb	5	0.3	0.5	Range Average	ND	ND	ND	ND	ND		
1,1-Dichloroethane	ppb	5	3	0.5	Range Average	ND	ND	ND	ND	ND		
1,1-Dichloroethylene	ppb	6	10	0.5	Range Average	ND	ND	ND	ND	ND		
1,2,4-Trichlorobenzene	ppb	5	5	0.5	Range Average	ND	ND	ND	ND	ND		
1,2-Dichlorobenzene	ppb	600	600	0.5	Range Average	ND	ND	ND	ND	ND		
1,2-Dichloroethane	ppt	500	400	500	Range Average	ND	ND	ND	ND	ND		
1,2-Dichloropropane	ppb	5	0.5	0.5	Range Average	ND	ND	ND	ND	ND		
1,3-Dichloropropene	ppt	500	200	500	Range Average	ND	ND	ND	ND	ND		
1,4-Dichlorobenzene	ppb	5	6	0.5	Range Average	ND	ND	ND	ND	ND		
Benzene	ppb	1	0.15	0.5	Range Average	ND	ND	ND	ND	ND		

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Carbon Tetrachloride	ppt	500	100	500	Range Average	ND	ND	ND	ND	ND		Discharge from chemical plants and other industrial waste		
<i>cis</i> -1,2-Dichloroethylene	ppb	6	13	0.5	Range Average	ND	ND	ND	ND	ND		Industrial chemical factory discharge; byproduct of TCE and PCE biodegradation		
Dichloromethane (Methylene Chloride)	ppb	5	4	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from pharmaceutical and chemical factories; insecticide		
Ethylbenzene	ppb	300	300	0.5	Range Average	ND	ND	ND	ND	ND		Petroleum refinery discharge; industrial chemical factories		
Methyl- <i>tert</i> -butyl ether (MTBE)	ppb	13	13	3	Range Average	ND	ND	ND	ND	ND		Gasoline discharge from watercraft engines		
Monochlorobenzene	ppb	70	70	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from industrial and agricultural factories, and dry cleaners		
Styrene	ppb	100	0.5	0.5	Range Average	ND	ND	ND	ND	ND		Rubber and plastics factories discharge; landfill leaching		
Tetrachloroethylene (PCE)	ppb	5	0.06	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from factories, dry cleaners, and auto shops		
Toluene	ppb	150	150	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from petroleum and chemical refineries		
<i>trans</i> -1,2-Dichloroethylene	ppb	10	50	0.5	Range Average	ND	ND	ND	ND	ND		Industrial chemical factory discharge; byproduct of TCE and PCE biodegradation		
Trichloroethylene (TCE)	ppb	5	1.7	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from metal degreasing sites and other factories		
Trichlorofluoromethane (Freon-11)	ppb	150	1,300	5	Range Average	ND	ND	ND	ND	ND		Industrial factory discharge; degreasing solvent; propellant and refrigerant		
Vinyl Chloride	ppt	500	50	500	Range Average	ND	ND	ND	ND	ND		Leaching from PVC piping; plastic factory discharge; byproduct of TCE and PCE biodegradation		
Xylenes, Total	ppm	1,750	1.8	0.0005	Range Average	ND	ND	ND	ND	ND		Discharge from petroleum and chemical refineries; fuel solvent		
INORGANIC CHEMICALS														
Aluminum	(g)	ppb	1,000	600	50	Range Highest RAA	ND - 110 ND	52 - 91 62	ND - 110 ND	ND - 160 74	ND - 150 93		Residue from water treatment process; erosion of natural deposits	
Antimony		ppb	6	1	6	Range Average	ND	ND	ND	ND	ND		Petroleum refinery discharges; fire retardants; solder; electronics	
Arsenic		ppb	10	0.004	2	Range Average	ND	ND	ND	ND	ND		Natural deposits erosion, glass and electronics production wastes	
Asbestos	(h)	MFL	7	7	0.2	Range Average	ND	ND	ND	ND	ND		Asbestos cement pipes internal corrosion; runoff and leaching from natural deposits	
Barium		ppb	1,000	2,000	100	Range Average	124	ND	ND	ND	124		Oil and metal refineries discharge; natural deposits erosion	
Beryllium		ppb	4	1	1	Range Average	ND	ND	ND	ND	ND		Discharge from metal refineries, aerospace, and defense industries	
Cadmium		ppb	5	0.04	1	Range Average	ND	ND	ND	ND	ND		Internal corrosion of galvanized pipes; discharge from electroplating, industrial factories, and metal refineries; runoff from waste batteries and paints; natural deposits erosion	
Chromium		ppb	50	MCLG = 100	10	Range Average	ND	ND	ND	ND	ND		Discharge from steel and pulp mills; natural deposits erosion	
Chromium VI		ppb	10	0.02	0.1	Range Average	ND	ND	ND	ND	ND		Runoff/leaching from natural deposits; discharge from industrial wastes	
Copper	(i)	ppm	AL = 1.3	0.3	0.05	Range Average	ND	ND	ND	ND	ND		Internal corrosion of household pipes; runoff/leaching from natural deposits; wood preservatives leaching	
Cyanide		ppb	150	150	100	Range Average	ND	ND	ND	ND	ND		Discharge from steel/metal, plastic, and fertilizer factories	
Fluoride	(j)	ppm	2.0	1	0.1	Range Average	0.6 - 0.8 0.7	0.6 - 0.8 0.7	0.6 - 0.9 0.7	0.6 - 0.8 0.7	0.3 - 0.8 0.7		0.3 - 0.8 0.7	Runoff and leaching from natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Lead	(i)	ppb	AL = 15	0.2	5	Range Average	ND	ND	ND	ND	ND		Internal corrosion of household water plumbing systems; industrial manufacturers' discharge; runoff and leaching from natural deposits	
Mercury		ppb	2	1.2	1	Range Average	ND	ND	ND	ND	ND		Erosion of natural deposits; factory discharge; landfill runoff	

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Nickel	ppb	100	12	10	Range Average	ND	ND	ND	ND	ND	Erosion of natural deposits; discharge from metal factories Runoff and leaching from fertilizer use; septic tank and sewage; natural deposits erosion Runoff and leaching from fertilizer use; septic tank and sewage; natural deposits erosion Naturally-occurring in arid regions; industrial waste discharge Refineries, mines, and chemical waste discharge; runoff from livestock lots Leaching from ore processing; discharge from electronics, glass, and pharmaceutical factories	
Nitrate (as Nitrogen)	ppm	10	10	0.4	Range Average	ND	0.5	0.6	ND	ND		
Nitrite (as Nitrogen)	ppm	1	1	0.4	Range Average	ND	ND	ND	ND	ND		
Perchlorate	ppb	6	1	1	Range Average	ND	ND	ND	ND	ND		
Selenium	ppb	50	30	5	Range Average	ND	ND	ND	ND	ND		
Thallium	ppb	2	0.1	1	Range Average	ND	ND	ND	ND	ND		
RADIOLOGICALS (k)												
Gross Alpha Particle Activity	pCi/L	15	MCLG = 0	3	Range Average	ND - 5 ND	ND	ND	ND - 4 ND	ND	Runoff/leaching from natural deposits	
Gross Beta Particle Activity	pCi/L	50	MCLG = 0	4	Range Average	ND - 5 4	ND	ND	ND - 5 4	ND - 5 ND		Decay of natural and man-made deposits
Radium-226	pCi/L	NA	0.05	1	Range Average	ND	ND	ND	ND	ND	Erosion of natural deposits	
Radium-228	pCi/L	NA	0.019	1	Range Average	ND	ND	ND - 1 ND	ND	ND		
Combined Radium-226 + 228	pCi/L	5	MCLG = 0	NA	Range Average	ND	ND	ND - 1 ND	ND	ND		
Strontium-90	pCi/L	8	0.35	2	Range Average	ND	ND	ND	ND	ND	Decay of natural and man-made deposits	
Tritium	pCi/L	20,000	400	1,000	Range Average	ND	ND	ND	ND	ND	Decay of natural and man-made deposits	
Uranium	pCi/L	20	0.43	1	Range Average	ND - 3 1	2 - 3 2	ND	ND - 3 2	ND - 3 ND	Erosion of natural deposits	
DISINFECTION BYPRODUCTS, DISINFECTANT RESIDUALS, AND DISINFECTION BYPRODUCT PRECURSORS (l)												
Total Trihalomethanes (TTHM) (Plant Core Locations and Distribution System)	ppb	80	NA	1.0	Range Highest LRAA	24 - 30 44	13 - 27 21	14 - 29 44	15 - 48 34	28 - 37 32	12 - 48 45	Byproducts of drinking water chlorination
Sum of Five Haloacetic Acids (HAA5) (Plant Core Locations and Distribution System)	ppb	60	NA	1.0	Range Highest LRAA	ND - 9.5 19	1.3 - 5 5.6	ND - 5.7 13	1.2 - 23 12	ND - 4.2 6.2	ND - 23 19	
Chloramines (as total chlorine residual)	ppm	MRDL = 4.0	MRDLG = 4	NA	Range Highest RAA						1.6 - 3.0 2.5	Drinking water disinfectant added for treatment
Bromate	ppb	10	0.1	1.0	Range Highest RAA	ND - 1.6 ND	ND - 5.4 3.1	ND - 19 7.9	ND - 6.0 1.5	ND - 9.2 2.0		Byproduct of drinking water ozonation
Total Organic Carbon (TOC)	ppm	TT	NA	0.30	Range Highest RAA	2.0 - 2.5 2.4	2.0 - 2.5 2.4	1.5 - 2.5 2.2	2.3 - 3.0 2.6	2.1 - 2.6 2.4		Various natural and man-made sources; TOC is a precursor for the formation of disinfection byproducts
SECONDARY STANDARDS—Aesthetic Standards												
Aluminum (g)	ppb	200	600	50	Range Highest RAA	ND - 110 ND	52 - 91 62	ND - 110 ND	ND - 160 74	ND - 150 93		Residue from water treatment process; runoff and leaching from natural deposits
Chloride	ppm	500	NA	(2)	Range Average	93 - 116 104	39 - 41 40	41 - 67 54	92 - 100 96	96 - 116 106		Runoff/leaching from natural deposits; seawater influence
Color	Color Units	15	NA	(1)	Range Average	1 - 2 2	1 1	1 - 2 2	1 - 2 2	1 1		Naturally-occurring organic materials
Copper (i)	ppm	1.0	0.3	0.05	Range Average	ND	ND	ND	ND	ND		Internal corrosion of household pipes; runoff/leaching from natural deposits; wood preservatives leaching
Foaming Agents - Methylene Blue Active Substances (MBAS)	ppb	500	NA	(50)	Range Average	ND	ND	ND	ND	ND		Municipal and industrial waste discharges
Iron	ppb	300	NA	100	Range Average	ND	ND	ND	ND	ND		Leaching from natural deposits; industrial wastes
Manganese	ppb	50	NL = 500	(5)	Range Average	ND	ND	ND	ND	ND		Leaching from natural deposits
Methyl-tert-butyl ether (MTBE)	ppb	5	13	3	Range Average	ND	ND	ND	ND	ND		Gasoline discharge from watercraft engines
Odor Threshold	TON	3	NA	1	Range Average	1	1	1	1	ND		Naturally-occurring organic materials

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N-Nitrosopyrrolidine (NPYR)	ppt	NA	NA	(2)	Range Average	ND	ND	ND	ND	ND	ND	Byproducts of drinking water chloramination; industrial processes
N-Nitrosopiperidine (NPIP)	ppt	NA	NA	(2)	Range Average	ND	ND	ND	ND	ND	ND	
N-Nitrosomorpholine (NMOR)	ppt	NA	NA	(2)	Range Average	ND	ND	ND	ND	ND	ND	Industrial processes
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Analyzed by EPA Methods 533 and 537.1 (n,o)												
Perfluorooctanoic Acid (PFOA)	ppt	NL = 5.1	0.007	4	Range Average	ND	ND	ND	ND	ND	Industrial chemical factory discharges; runoff/leaching from landfills; used in fire-retarding foams and various industrial processes	
Perfluorooctanesulfonic Acid (PFOS)	ppt	NL = 6.5	1	4	Range Average	ND	ND	ND	ND	ND		
Perfluorobutanesulfonic acid (PFBS)	ppt	NL = 500	NA	3	Range Average	ND	ND	ND	ND	ND		
Perfluorononanoic acid (PFNA)	ppt	NA	NA	4	Range Average	ND	ND	ND	ND	ND		
Perfluorohexanesulfonic acid (PFHxS)	ppt	NL = 3	NA	3	Range Average	ND	ND	ND	ND	ND		
Perfluoroheptanoic acid (PFHpA)	ppt	NA	NA	3	Range Average	ND	ND	ND	ND	ND		
Perfluorodecanoic acid (PFDA)	ppt	NA	NA	3	Range Average	ND	ND	ND	ND	ND		
Perfluorododecanoic acid (PFDoA)	ppt	NA	NA	3	Range Average	ND	ND	ND	ND	ND		
Perfluorohexanoic Acid (PFHxA)	ppt	NL = 1,000	NA	3	Range Average	ND	ND	ND	ND	ND		
Perfluoroundecanoic acid (PFUnA)	ppt	NA	NA	2	Range Average	ND	ND	ND	ND	ND		
4,8-dioxa-3H-perfluorononanoate (ADONA)	ppt	NA	NA	3	Range Average	ND	ND	ND	ND	ND		
F-53B Major (11Cl-PF3OUdS)	ppt	NA	NA	5	Range Average	ND	ND	ND	ND	ND		
F-53B Minor (9Cl-PF3ONS)	ppt	NA	NA	2	Range Average	ND	ND	ND	ND	ND		
GenX (HFPO-DA)	ppt	NA	NA	5	Range Average	ND	ND	ND	ND	ND		
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Analyzed by EPA Method 537.1 Only (n)												
Perfluorotetradecanoic acid (PFTA)	ppt	NA	NA	8	Range Average	ND	ND	ND	ND	ND	Industrial chemical factory discharges; runoff/leaching from landfills; used in fire-retarding foams and various industrial processes	
Perfluorotridecanoic acid (PFTrDA)	ppt	NA	NA	7	Range Average	ND	ND	ND	ND	ND		
N-ethyl Perfluorooctanesulfonamidoacetic acid (NEIFOSAA)	ppt	NA	NA	5	Range Average	ND	ND	ND	ND	ND		
N-methyl Perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ppt	NA	NA	6	Range Average	ND	ND	ND	ND	ND		

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Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Analyzed by EPA Method 533 Only (n)												
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ppt	NA	NA	3	Range Average	ND	ND	ND	ND	ND	Industrial chemical factory discharges; runoff/leaching from landfills; used in fire-retarding foams and various industrial processes	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ppt	NA	NA	5	Range Average	ND	ND	ND	ND	ND		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ppt	NA	NA	5	Range Average	ND	ND	ND	ND	ND		
Perfluoro-3-methoxypropanoic acid (PFMPA)	ppt	NA	NA	4	Range Average	ND	ND	ND	ND	ND		
Perfluoro-4-methoxybutanoic acid (PFMBA)	ppt	NA	NA	3	Range Average	ND	ND	ND	ND	ND		
Perfluorobutanoic acid (PFBA)	ppt	NA	NA	5	Range Average	ND	ND	ND	ND	ND		
Perfluoroheptanesulfonic acid (PFHpS)	ppt	NA	NA	3	Range Average	ND	ND	ND	ND	ND		
Perfluoropentanesulfonic acid (PFPeS)	ppt	NA	NA	4	Range Average	ND	ND	ND	ND	ND		
Perfluoropentanoic acid (PFPeA)	ppt	NA	NA	3	Range Average	ND	ND	ND	ND	ND		
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ppt	NA	NA	20	Range Average	ND	ND	ND	ND	ND		
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ppt	NA	NA	3	Range Average	ND	ND	ND	ND	ND		
Miscellaneous (p)												
Calcium Carbonate Precipitation Potential (CCPP) (as CaCO ₃)	(q)	ppm	NA	NA	Range Average	5.4 - 10 7.7	2.0 - 4.4 3.4	1.2 - 4.4 2.9	5.0 - 10 7.6	5.5 - 11 8.4	Measures of the balance between pH and calcium carbonate saturation in the water	
Corrosivity (as Aggressiveness Index)	(r)	AI	NA	NA	Range Average	12.4 - 12.6 12.5	12.2	12.2 - 12.3 12.2	12.3 - 12.4 12.4	12.4 - 12.6 12.5		
Corrosivity (as Saturation Index)	(s)	SI	NA	NA	Range Average	0.58 - 0.65 0.62	0.36 - 0.39 0.38	0.40 - 0.41 0.40	0.46 - 0.57 0.52	0.60 - 0.65 0.62		
pH	pH Units	NA	NA	NA	Range Average	8.2	8.2 - 8.3 8.3	8.7 - 8.8 8.7	8.1	8.2	Not applicable	
Radon	(k)	pCi/L	NA	NA	Range Average	ND	ND	ND	ND	ND	Gas produced by the decay of naturally-occurring uranium in soil and water	
Total Dissolved Solids, Calculated (TDS)	(t)	ppm	1,000	NA	Range Average	492 - 682 590	295 - 313 304	169 - 262 222	493 - 597 559	506 - 680 587	Runoff/leaching from natural deposits	

2024 Water Quality Report to Member Agencies – The Metropolitan Water District of Southern California Treatment Plant Effluents and Distribution System (PWS ID: 1910087)

Parameter	Units	State MCL	PHG	State DLR/ CCRDL (RL)	Range Average	Treatment Plant Effluent *					Distribution System	Major Sources in Drinking Water
						Diemer Plant	Jensen Plant	Mills Plant	Skinner Plant	Weymouth Plant		

DEFINITION OF TERMS AND FOOTNOTES

* As a wholesale water system, Metropolitan provides its member agencies with relevant treated water information and monitoring results that they may need for their annual water quality report. Metropolitan compliance with state or federal regulations is determined at the treatment plant effluent locations and/or distribution system, or plant influent per frequency stipulated in Metropolitan's State-approved monitoring plan, and is based on TT, RAA, or LRAA, as appropriate. Data above Metropolitan's laboratory reporting limit (RL) but below the State DLR or CCRDL are reported as ND in this report; these data are available upon request. Metropolitan was in compliance with all primary and secondary drinking water regulations for the current monitoring period.

Note: Metropolitan monitors the distribution system for constituents under the Revised Total Coliform Rule (RTCR), Water Fluoridation Standards, and Disinfectants/Disinfection Byproduct Rule (TTHM, HAA5, and total chlorine residual). Constituents with grayed out areas in the distribution system column are routinely monitored at treatment plant effluents and not in the distribution system.

Definition of Terms

AI	Aggressiveness Index	MFL	Million Fibers per Liter	RAA	Running Annual Average; highest RAA is the highest of all
AL	Action Level	MRDL	Maximum Residual Disinfectant Level		RAAs calculated as an average of all the samples collected
Average	Arithmetic mean	MRDLG	Maximum Residual Disinfectant Level Goal		within a 12-month period
CaCO ₃	Calcium Carbonate	MRL	Minimum Reporting Level	Range	Minimum and maximum values; range and
CCPP	Calcium Carbonate Precipitation Potential	NA	Not Applicable		average values are the same if a single value is reported for
CCRDL	Consumer Confidence Report Detection Level	ND	Not Detected at or above DLR or RL		samples collected once or twice annually
CFE	Combined Filter Effluent	NL	Notification Level to SWRCB	SI	Saturation Index (Langelier)
CFU	Colony-Forming Units	NTU	Nephelometric Turbidity Units	TDS	Total Dissolved Solids
DLR	Detection Limit for Purposes of Reporting	pCi/L	picoCuries per Liter	TON	Threshold Odor Number
EPA	Environmental Protection Agency	PHG	Public Health Goal	TT	Treatment Technique is a required process intended to reduce
LRAA	Locational Running Annual Average; highest LRAA	ppb	parts per billion or micrograms per liter (µg/L)		the level of a contaminant in drinking water
	is the highest of all LRAAs calculated as an average	ppm	parts per million or milligrams per liter (mg/L)	UCMR5	Fifth Unregulated Contaminant Monitoring Rule
	of all samples collected within a 12-month period	ppq	parts per quadrillion or picograms per liter (pg/L)	µS/cm	microSiemen per centimeter; or micromho per centimeter
MCL	Maximum Contaminant Level	ppt	parts per trillion or nanograms per liter (ng/L)		(µmho/cm)
MCLG	Maximum Contaminant Level Goal	PWS ID	Public Water System Identification		

Footnotes

- (a) Metropolitan monitors turbidity at the CFE locations using continuous and grab samples. Turbidity, a measure of cloudiness of the water, is an indicator of treatment performance. Turbidity was in compliance with the treatment technique of primary drinking water standard and the secondary drinking water standard of less than 5 NTU.
- (b) Per the Surface Water Treatment Rule, treatment techniques that remove or inactivate *Giardia* cysts will also remove HPC bacteria, *Legionella*, and viruses. *Legionella* and virus monitoring are not required.
- (c) Compliance is based on monthly samples from the distribution system. No Level 1 Assessments occurred and no *E. coli* was detected.
- (d) Metropolitan analyzes HPC bacteria in plant effluent to monitor treatment process efficacy.
- (e) Samples collected in 2024 and reported once every three-year compliance cycle until the next required triennial monitoring in 2027.
- (f) Metropolitan uses acrylamide for water treatment processes and was in compliance with the treatment technique requirements regarding its use when treating drinking water. Metropolitan does not use any epichlorohydrins.
- (g) Compliance with the State MCL for aluminum is based on RAA.
- (h) Samples collected in 2020 for the required 9-year monitoring cycle (2020-2028).
- (i) As a wholesaler, Metropolitan has no retail customers and is not required to collect samples at consumer taps. Compliance monitoring under Title 22 is required at the treatment plant effluents.
- (j) Metropolitan was in compliance with all provisions of the State's fluoridation requirements. When fluoride feed systems were temporarily out of service during treatment plant shutdowns and/or maintenance work, an occasional fluoride level was measured below 0.7 mg/L.
- (k) Samples are collected quarterly for gross beta particle activity, and annually for tritium and strontium-90. Gross alpha particle activity, radium, and uranium data are from samples collected quarterly in 2023 for the required triennial monitoring (2023-2025). Radon is monitored voluntarily with the triennial radionuclides.
- (l) Compliance with the State and Federal MCLs is based on RAA or LRAA, as appropriate. Plant core locations for TTHM and HAA5 are service connections specific to each of the treatment plant effluents.
- (m) Metropolitan's TDS compliance data are based on flow-weighted monthly composite samples collected twice per year (April and October). The 12-month statistical summary of flow-weighted data is reported in the "Other Parameters" section.
- (n) CCRDL is based on the EPA UCMR5 MRLs for the 29 constituents detected by EPA Methods 533 and 537.1. Results below CCRDLs are considered "ND".
- (o) Average of the results from the two analytical methods.

**2024 Water Quality Report to Member Agencies – The Metropolitan Water District of Southern California
Treatment Plant Effluents and Distribution System (PWS ID: 1910087)**

Parameter	Units	State MCL	PHG	State DLR/ CCRDL (RL)	Range Average	Treatment Plant Effluent *					Distribution System	Major Sources in Drinking Water
						Diemer Plant	Jensen Plant	Mills Plant	Skinner Plant	Weymouth Plant		

- (p) Voluntary monitoring of constituents provided for informational purposes.
- (q) Positive CCPP indicates non-corrosive; tendency to precipitate and/or deposit scale on pipes. Negative CCPP indicates corrosive; tendency to dissolve calcium carbonate. Reference: Standard Method 2330
- (r) AI ≥ 12.0 indicates non-aggressive water; AI 10.0 - 11.9 indicates moderately aggressive water; AI ≤ 10.0 indicates highly aggressive water. Reference: ANSI/AWWA Standard C400-93 (R98)
- (s) Positive SI indicates non-corrosive; tendency to precipitate and/or deposit scale on pipes. Negative SI indicates corrosive; tendency to dissolve calcium carbonate. Reference: Standard Method 2330
- (t) Statistical summary represents 12 months of flow-weighted data and values may be different than the TDS reported to meet compliance with secondary drinking water standards. Metropolitan's calculated TDS goal is 500 mg/L.

2024 Water Quality Report to Member Agencies—The Metropolitan Water District of Southern California Source Waters (PWS ID: 1910087)

Parameter	Units	Range Average	Source Water *							Major Sources in Drinking Water
			Diamond Valley Lake	Lake Skinner	Lake Havasu	Lake Mathews	Castaic Lake	Lake Perris	Silverwood Lake	
Pentachlorophenol	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from wood preserving factories other insecticidal and herbicidal uses
Picloram	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Herbicide runoff
Polychlorinated Biphenyls (PCBs)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	Runoff from landfills; discharge of waste chemicals
Simazine	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Herbicide runoff
Thiobencarb	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Runoff/leaching from herbicide used on rice
Toxaphene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Runoff/leaching from insecticide used on cotton and cattle
Volatile Organic Compounds										
1,1,1-Trichloroethane	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Metal degreasing site discharge; manufacture of food wrappings
1,1,2,2-Tetrachloroethane	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from industrial and agricultural factories; solvent used in production of TCE, pesticides, varnish, and lacquers
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	ppm	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from metal degreasing sites and other factories; dry cleaning solvent; refrigerant
1,1,2-Trichloroethane	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from industrial chemical factories
1,1-Dichloroethane	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Extraction and degreasing solvent; fumigant
1,1-Dichloroethylene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from industrial chemical factories
1,2,4-Trichlorobenzene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from textile-finishing factories
1,2-Dichlorobenzene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from industrial chemical factories
1,2-Dichloroethane	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from industrial chemical factories
1,2-Dichloropropane	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial chemical factory discharge; primary component of some fumigants
1,3-Dichloropropene	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	Runoff/leaching from nematocide used on croplands
1,4-Dichlorobenzene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from industrial chemical factories
Benzene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Plastics factory discharge; gas tanks and landfill leaching
Carbon Tetrachloride	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from chemical plants and other industrial waste
cis -1,2-Dichloroethylene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial chemical factory discharge; byproduct of TCE and PCE biodegradation
Dichloromethane (Methylene Chloride)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from pharmaceutical and chemical factories
Ethylbenzene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Petroleum refinery discharge; industrial chemical factories
Methyl-tert-butyl ether (MTBE)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Gasoline discharge from watercraft engines
Monochlorobenzene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from industrial and agricultural factories, and dry cleaners
Styrene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Rubber and plastics factories discharge; landfill leaching
Tetrachloroethylene (PCE)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from factories, dry cleaners, and auto shops
Toluene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from petroleum and chemical refineries
trans -1,2-Dichloroethylene	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial chemical factory discharge; byproduct of TCE and PCE biodegradation
Trichloroethylene (TCE)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from metal degreasing sites and other factories

2024 Water Quality Report to Member Agencies—The Metropolitan Water District of Southern California Source Waters (PWS ID: 1910087)

Parameter	Units	Range Average	Source Water *							Major Sources in Drinking Water
			Diamond Valley Lake	Lake Skinner	Lake Havasu	Lake Mathews	Castaic Lake	Lake Perris	Silverwood Lake	
Trichlorofluoromethane (Freon-11)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial factory discharge; degreasing solvent; propellant
Vinyl Chloride	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	Leaching from PVC piping; plastic factory discharge; byproduct of TCE and PCE biodegradation
Xylenes, Total	ppm	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from petroleum and chemical refineries; fuel solvent
INORGANIC CHEMICALS										
Aluminum	ppb	Range Average	ND	58	ND	ND	120	ND	71	Natural deposits erosion
Antimony	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Petroleum refinery discharges; fire retardants; solder; electronics
Arsenic	ppb	Range Average	ND	ND	2	2	ND	ND	ND	Natural deposits erosion, glass and electronics production wastes
Asbestos (b)	MFL	Range Average	ND	ND	ND	ND	ND	ND	ND	Natural deposits erosion
Barium	ppb	Range Average	ND	ND	143	133	ND	ND	ND	Oil and metal refineries discharge; natural deposits erosion
Beryllium	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from metal refineries, aerospace, and defense industries
Cadmium	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from electroplating, industrial factories, and metal refineries; runoff from waste batteries and paints; natural deposits erosion
Chromium	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from steel and pulp mills; natural deposits erosion
Chromium VI	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Runoff/leaching from natural deposits; discharge from industrial waste factories
Copper	ppm	Range Average	ND	ND	ND	ND	ND	ND	ND	Natural deposits erosion; leaching from wood preservatives
Cyanide	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Discharge from steel/metal, plastic, and fertilizer factories
Fluoride	ppm	Range Average	0.1	0.2 - 0.3 0.2	0.3 - 0.4 0.3	0.3 - 0.4 0.3	0.3	0.1	ND	Erosion of natural deposits; discharge from fertilizer and aluminum factories
Lead	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial manufacturers' discharge; erosion of natural deposits
Mercury	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Erosion of natural deposits; factory discharge; landfill runoff
Nickel	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Erosion of natural deposits; discharge from metal factories
Nitrate (as Nitrogen)	ppm	Range Average	ND	ND	0.6	ND	0.5	ND	0.5	Runoff and leaching from fertilizer use; leaching from septic tank and sewage; natural deposits erosion
Nitrite (as Nitrogen)	ppm	Range Average	ND	ND	ND	ND	ND	ND	ND	Runoff and leaching from fertilizer use; septic tank and sewage; natural deposits erosion
Perchlorate	ppb	Range Average	ND	ND	1.8	ND	ND	ND	ND	Industrial waste discharge
Selenium	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Refineries, mines, and chemical waste discharge; runoff from livestock lots
Thallium	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Leaching from ore processing; discharge from electronics, glass, and pharmaceutical factories
RADIOLOGICALS (c)										
Gross Alpha Particle Activity	pCi/L	Range Average	ND - 6.1 ND	ND - 3.6 ND	ND - 6.2 ND	ND - 3.2 ND	ND - 3.1 ND	ND - 3.2 ND	ND - 5 ND	Erosion of natural deposits
Gross Beta Particle Activity	pCi/L	Range Average	ND	ND - 5 ND	ND - 5.8 4.1	4.4 - 6.1 5.2	ND	ND	ND	Decay of natural and man-made deposits
Radium-226	pCi/L	Range Average	ND	ND	ND	ND	ND	ND	ND	Erosion of natural deposits
Radium-228	pCi/L	Range Average	ND	ND	ND	ND	ND - 1 ND	ND	ND	
Combined Radium-226 + 228	pCi/L	Range Average	ND	ND	ND	ND	ND - 1 ND	ND	ND	
Strontium-90	pCi/L	Range Average	ND	ND	ND	ND	ND	ND	ND	Decay of natural and man-made deposits

2024 Water Quality Report to Member Agencies—The Metropolitan Water District of Southern California Source Waters (PWS ID: 1910087)

Parameter	Units	Range Average	Source Water *							Major Sources in Drinking Water
			Diamond Valley Lake	Lake Skinner	Lake Havasu	Lake Mathews	Castaic Lake	Lake Perris	Silverwood Lake	
Tritium	pCi/L	Range Average	ND	ND	ND	ND	ND	ND	ND	Decay of natural and man-made deposits
Uranium	pCi/L	Range Average	ND	1.5 - 3.1 2.4	2.6 - 3.0 2.9	2.8 - 3.1 2.9	2.5 - 3.7 3.0	1.6 - 2.0 1.8	ND - 3.0 1.4	Erosion of natural deposits
AESTHETIC PARAMETERS (d)										
Aluminum	ppb	Range Average	ND	58	ND	ND	120	ND	71	Natural deposits erosion
Chloride	ppm	Range Average	57 - 58 58	78 - 87 82	95 - 106 100	108	36 - 37 36	68 - 72 70	35 - 61 48	Runoff/leaching from natural deposits; seawater influence
Color	Color Units	Range Average	5	5 - 10 8	3 - 5 4	3	5 - 10 8	5	5 - 15 10	Naturally-occurring organic materials
Copper	ppm	Range Average	ND	ND	ND	ND	ND	ND	ND	Natural deposits erosion; wood preservatives leaching
Foaming Agents - Methylene Blue Active Substances (MBAS)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Municipal and industrial waste discharges
Iron	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Leaching from natural deposits; industrial wastes
Manganese	ppb	Range Average	ND	ND	ND	ND	ND	ND	21	Leaching from natural deposits
Methyl- <i>tert</i> -butyl ether (MTBE)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Gasoline discharge from watercraft engines
Odor Threshold	TON	Range Average	7	9	6	5	4	6	5	Naturally-occurring organic materials
Silver	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial discharges
Specific Conductance	µS/cm	Range Average	431 - 439 435	668 - 867 768	1,000 - 1,060 1,030	1,040 - 1,050 1,040	467 - 488 478	480 - 516 498	275 - 430 352	Substances that form ions in water; seawater influence
Sulfate	ppm	Range Average	39 - 40 40	114 - 184 149	225 - 247 236	231 - 240 236	83 - 87 85	40 - 42 41	13 - 34 24	Runoff/leaching from natural deposits; industrial wastes
Thiobencarb	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Runoff/leaching from rice herbicide
Total Dissolved Solids (TDS)	ppm	Range Average	247 - 248 248	394 - 565 480	658 - 689 674	663 - 696 680	295 - 303 299	273 - 288 280	151 - 248 200	Runoff/leaching from natural deposits
Turbidity	NTU	Range Average	0.4 - 0.8 0.6	1.0 - 2.2 1.6	0.6	0.6 - 1.3 0.9	1.2 - 2.4 1.8	0.5 - 0.9 0.7	1.3 - 1.6 1.5	Soil runoff
Zinc	ppm	Range Average	ND	ND	ND	ND	ND	ND	ND	Runoff/leaching from natural deposits; industrial wastes
OTHER PARAMETERS										
Microbiological										
Total Coliform Bacteria	MPN/100 mL	Range Median	4 - 24,000 39	40 - 61,000 340	9 - 110,000 1,000	7 - 5,200 300	NA ^(e)	51 - 580 320	110 - 4,600 1,200	Naturally present in the environment
<i>Escherichia coli</i> (<i>E. coli</i>)	MPN/100 mL	Range Median	ND - 21 ND	ND - 5 2	ND - 3 ND	ND - 30 4	NA ^(e)	ND - 66 ND	ND - 50 4	Human and animal fecal waste
General Minerals										
Alkalinity, Total (as CaCO ₃)	ppm	Range Average	81 - 86 84	100 - 116 108	133 - 137 135	123 - 128 126	91 - 95 93	93 - 99 96	66 - 77 72	Runoff/leaching of natural deposits; carbonate, bicarbonate, hydroxide, and occasionally borate, silicate, and phosphate
Calcium	ppm	Range Average	23 - 25 24	43 - 60 52	76 - 81 78	72 - 75 74	36 - 38 37	26 - 27 26	14 - 21 18	Runoff/leaching from natural deposits
Hardness, Total (as CaCO ₃)	ppm	Range Average	104 - 105 104	172 - 245 208	293 - 319 306	291 - 296 294	143 - 149 146	117 - 120 118	68 - 99 84	Runoff/leaching from natural deposits; sum of polyvalent cations, generally magnesium and calcium present in the water
Magnesium	ppm	Range Average	11	17 - 22 20	26 - 28 27	28 - 29 28	12 - 14 13	13	8.2 - 11 9.6	Runoff/leaching from natural deposits
Potassium	ppm	Range Average	3.2 - 3.4 3.3	4 - 4.6 4.3	5.2 - 5.6 5.4	5.4	2.5 - 2.6 2.5	3.5 - 3.6 3.5	1.9 - 3.2 2.5	Salt present in the water; naturally-occurring
Sodium	ppm	Range Average	45 - 46 46	67 - 82 74	96 - 104 100	104 - 108 106	39 - 40 40	54 - 55 54	27 - 47 37	
Unregulated Contaminants										
Boron	ppb	Range Average	150	150	140	150	190	170	150	Runoff/leaching from natural deposits; industrial wastes
Lithium	ppb	Range Average	ND	21 - 36 28	45 - 47 46	47 - 49 48	10 - 11 10	ND	ND	Naturally-occurring; used in electrochemical cells, batteries, and organic syntheses and pharmaceuticals

2024 Water Quality Report to Member Agencies—The Metropolitan Water District of Southern California Source Waters (PWS ID: 1910087)

Parameter	Units	Range Average	Source Water *							Major Sources in Drinking Water
			Diamond Valley Lake	Lake Skinner	Lake Havasu	Lake Mathews	Castaic Lake	Lake Perris	Silverwood Lake	
Vanadium	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Naturally-occurring; industrial waste discharge
Dichlorodifluoromethane (Freon-12)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial waste discharge
Ethyl- <i>tert</i> -butyl ether (ETBE)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	Used as gasoline additive
<i>tert</i> -Amyl-methyl ether (TAME)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	
<i>tert</i> -Butyl alcohol (TBA)	ppb	Range Average	ND	ND	ND	ND	ND	ND	ND	MTBE breakdown product; used as gasoline additive
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Analyzed by EPA Methods 533 and 537.1 (f)										
Perfluorooctanoic Acid (PFOA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial chemical factory discharges; runoff/leaching from landfills; used in fire-retarding foams and various industrial processes
Perfluorooctanesulfonic Acid (PFOS)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluorobutanesulfonic acid (PFBS)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluorononanoic acid (PFNA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluorohexanesulfonic acid (PFHxS)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluoroheptanoic acid (PFHpA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluorodecanoic acid (PFDA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluorododecanoic acid (PFDoA)	ppt	Range Average	ND	ND	ND - 3.3 ND	ND	ND	ND	ND	
Perfluorohexanoic Acid (PFHxA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluoroundecanoic acid (PFUnA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
4,8-dioxa-3H-perfluorononanoate (ADONA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
F-53B Major (11Cl-PF3OUdS)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
F-53B Minor (9Cl-PF3ONS)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
GenX (HFPO-DA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Analyzed by EPA Method 537.1 Only										
Perfluorotetradecanoic acid (PFTA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial chemical factory discharges; runoff/leaching from landfills; used in fire-retarding foams and various industrial processes
Perfluorotridecanoic acid (PFTTrDA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
N-ethyl Perfluorooctanesulfonamidoacetic acid	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
N-methyl Perfluorooctanesulfonamidoacetic acid	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Analyzed by EPA Method 533 Only										
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial chemical factory discharges; runoff/leaching from landfills; used in fire-retarding foams and various industrial processes
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluoro-3-methoxypropanoic acid (PFMPA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluoro-4-methoxybutanoic acid (PFMBA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	

2024 Water Quality Report to Member Agencies—The Metropolitan Water District of Southern California Source Waters (PWS ID: 1910087)

Parameter	Units	Range Average	Source Water *							Major Sources in Drinking Water
			Diamond Valley Lake	Lake Skinner	Lake Havasu	Lake Mathews	Castaic Lake	Lake Perris	Silverwood Lake	
Perfluorobutanoic acid (PFBA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	Industrial chemical factory discharges; runoff/leaching from landfills; used in fire-retarding foams and various industrial processes
Perfluoroheptanesulfonic acid (PFHpS)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluoropentanesulfonic acid (PFPeS)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluoropentanoic acid (PFPeA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ppt	Range Average	ND	ND	ND	ND	ND	ND	ND	
Miscellaneous										
pH	pH Units	Range	7.6 - 8.2	8 - 8.4	8.0	8.1 - 8.2	7.5 - 7.8	7.7 - 7.9	7.7 - 7.9	Not applicable
		Average	7.9	8.2		8.1	7.7	7.8	7.8	
Radon (c)	pCi/L	Range	ND	ND	ND	ND - 130	ND	ND	ND	Gas produced by the decay of naturally-occurring uranium in soil and water
		Average				ND				
Total Organic Carbon (TOC)	ppm	Range	2.8 - 3.0	3.3 - 3.4	3.3 - 3.4	3.0 - 4.2	3.0 - 3.1	3.9 - 4.0	2.8 - 4.4	Various natural and man-made sources; TOC is a precursor for the formation of disinfection byproducts
		Average	2.9	3.3	3.3	3.6	3.1	4.0	3.6	

DEFINITION OF TERMS AND FOOTNOTES

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Definition of Terms

Average Arithmetic mean	pCi/L	picoCuries per Liter
CaCO ₃ Calcium Carbonate	PHG	Public Health Goal
CCRDL Consumer Confidence Report Detection Level	ppb	parts per billion or micrograms per liter (µg/L)
DLR Detection Limit for Purposes of Reporting	ppm	parts per million or milligrams per liter (mg/L)
MCL Maximum Contaminant Level	ppq	parts per quadrillion or picograms per liter (pg/L)
MFL Million Fibers per Liter	ppt	parts per trillion or nanograms per liter (ng/L)
MPN Most Probable Number	Range	Minimum and maximum values; range and average values
NA Not Applicable		are the same if a single value is reported for samples collected
ND Not Detected at or above DLR or RL		once or twice annually
NTU Nephelometric Turbidity Units	TON	Threshold Odor Number
PWS ID Public Water System Identification	µS/cm	microSiemen per centimeter; or micromho per centimeter (µmho/cm)

Footnotes

- (a) Samples collected in 2024 and reported once every three-year compliance cycle until the next required triennial monitoring in 2027.
- (b) Samples collected in 2020 for the required 9-year monitoring cycle (2020-2028).
- (c) Samples collected quarterly for gross beta particle activity, and annually for tritium and strontium-90. Gross alpha particle activity, radium, and uranium samples collected quarterly in 2023 for the required triennial monitoring (2023-2025). Radon monitored voluntarily with the triennial radionuclides.
- (d) Aesthetic parameters under the State Secondary Standards apply to water supplied to the public by community water systems; annual monitoring is required for approved surface water sources or distribution system entry points for treated water.
- (e) Jensen Treatment Plant influent is the compliance monitoring location that represents Castaic Lake source water. See Treatment Plant Influent table for results.
- (f) Average of results from two analytical methods.

2024 Water Quality Report to Member Agencies—The Metropolitan Water District of Southern California

Treatment Plant Influents (PWS ID: 1910087)

Parameter	Units	Range Average	Treatment Plant Influent *					Major Sources in Drinking Water
			Diemer Plant	Jensen Plant ^(a)	Mills Plant	Skinner Plant	Weymouth Plant	
Percent State Water Project	%	Range	0 - 98	100	100	0 - 64	0 - 100	Not applicable
COMPLIANCE MONITORING PARAMETERS								
Microbiological								
Total Coliform Bacteria	MPN/100 mL	Range	ND - 480	64 - 11,000	28 - 1,000	81 - 3,100	1 - 3,700	Naturally present in the environment
		Median	57	260	310	640	500	
<i>Escherichia coli</i> (<i>E. coli</i>)	MPN/100 mL	Range	ND - 2	ND - 1	ND - 1	ND - 6	ND - 4	Human and animal fecal waste
		Median	ND	ND	1	3	ND	
Chemical								
Alkalinity, Total (as CaCO ₃)	ppm	Range	92 - 130	88 - 97	62 - 77	100 - 135	84 - 130	Runoff/leaching of natural deposits; carbonate, bicarbonate, hydroxide, and occasionally borate, silicate, and phosphate
		Highest RAA	116	93	72	116	116	
Fluoride	ppm	Range	0.2 - 0.4	0.3	0.1	0.2 - 0.3	0.1 - 0.4	Erosion of natural deposits; discharge from fertilizer and aluminum factories
		Average	0.3			0.3	0.3	
Total Organic Carbon (TOC)	ppm	Range	2.5 - 3.7	2.7 - 3.3	2.4 - 4.2	3.0 - 3.7	2.6 - 3.8	Various natural and man-made sources
		Highest RAA	3.4	3.2	3.8	3.5	3.5	
OTHER PARAMETERS								
Aluminum	ppb	Range	ND	120	ND	58	ND	Natural deposits erosion
		Average						
Antimony	ppb	Range	ND	ND	ND	ND	ND	Petroleum refinery discharges; fire retardants; solder; electronics
		Average						
Arsenic	ppb	Range	ND	ND	ND	ND	ND	Natural deposits erosion, glass and electronics production wastes
		Average						
Barium	ppb	Range	132	ND	ND	ND	132	Oil and metal refineries discharges; natural deposits erosion
		Average						
Beryllium	ppb	Range	ND	ND	ND	ND	ND	Discharge from metal refineries, aerospace, and defense industries
		Average						
Boron	ppb	Range	160	190	150	150	160	Runoff/leaching from natural deposits; Industrial wastes
		Average						
Cadmium	ppb	Range	ND	ND	ND	ND	ND	Discharge from electroplating, industrial factories, and metal refineries; runoff from waste batteries and paints; natural deposits erosion
		Average						
Chromium	ppb	Range	ND	ND	ND	ND	ND	Discharge from steel and pulp mills; natural deposits erosion
		Average						
Chromium VI	ppb	Range	ND	ND	ND	ND	ND	Runoff/leaching from natural deposits; Industrial wastes
		Average						
Copper	ppm	Range	ND	ND	ND	ND	ND	Natural deposits erosion; leaching from wood preservatives
		Average						
<i>Cryptosporidium</i>	(b) oocysts/10 L	Range	ND - 1	ND	ND - 2	ND	ND - 2	Human and animal fecal waste
		Average	ND		ND		ND	
<i>Giardia</i>	(b) cysts/10 L	Range	ND - 9	ND	ND - 4	ND	ND - 5	Human and animal fecal waste
		Average	1		1		ND	
Hardness, Total (as CaCO ₃)	ppm	Range	96 - 306	135 - 158	60 - 96	166 - 308	91 - 304	Runoff/leaching from natural deposits; sum of polyvalent cations, generally magnesium and calcium present in the water
		Average	256	145	78	244	254	
Iron	ppb	Range	ND	ND	ND	ND	ND	Leaching from natural deposits; industrial wastes
		Average						
Lead	ppb	Range	ND	ND	ND	ND	ND	Internal corrosion of household water plumbing systems; industrial manufacturers' discharge; erosion of natural deposits
		Average						
Lithium	ppb	Range	35 - 50	10 - 11	ND	21 - 36	36 - 51	Naturally-occurring; used in electrochemical cells, batteries, and organic syntheses and pharmaceuticals
		Average	42	10		28	44	
Manganese	ppb	Range	ND	ND	ND	ND	ND	Leaching from natural deposits
		Average						
Mercury	ppb	Range	ND	ND	ND	ND	ND	Erosion of natural deposits; factory discharge; landfill runoff
		Average						

2024 Water Quality Report to Member Agencies—The Metropolitan Water District of Southern California Treatment Plant Influent (PWS ID: 1910087)

Parameter	Units	Range Average	Treatment Plant Influent *					Major Sources in Drinking Water
			Diemer Plant	Jensen Plant ^(a)	Mills Plant	Skinner Plant	Weymouth Plant	
Nickel	ppb	Range Average	ND	ND	ND	ND	ND	Erosion of natural deposits; discharge from metal factories
Perchlorate	ppb	Range Average	ND	ND	ND	ND	ND	Industrial waste discharge
pH	pH Units	Range Average	7.9 - 8.4 8.2	7.5 - 8.0 7.7	7.6 - 8.2 7.9	7.7 - 8.7 8.2	7.9 - 8.3 8.1	Not applicable
Selenium	ppb	Range Average	ND	ND	ND	ND	ND	Refineries, mines, and chemical waste discharge; runoff from livestock lots
Specific Conductance	µS/cm	Range Average	667 - 1,080 921	452 - 495 475	256 - 456 361	788 - 1,057 857	530 - 1,065 914	Substances that form ions in water; seawater influence
Silver	ppb	Range Average	ND	ND	ND	ND	ND	Industrial discharges
Thallium	ppb	Range Average	ND	ND	ND	ND	ND	Leaching from ore processing; discharge from electronics, glass, and pharmaceutical factories
Turbidity	NTU	Range Average	0.2 - 4.5 1.0	0.5 - 16 2.0	0.5 - 6.1 1.1	0.7 - 3.2 1.4	0.1 - 5.4 0.7	Soil runoff
Vanadium	ppb	Range Average	ND	ND	ND	ND	ND	Naturally-occurring; industrial waste discharge
Zinc	ppm	Range Average	ND	ND	ND	ND	ND	Runoff/leaching from natural deposits; industrial wastes

DEFINITION OF TERMS AND FOOTNOTES

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Definition of Terms

Average	Arithmetic mean	ppm	parts per million or milligrams per liter (mg/L)
CaCO ₃	Calcium Carbonate	RAA	Running Annual Average; highest RAA is the highest of all
MPN	Most Probable Number		Running Annual Averages calculated as an average
DLR	Detection Limits for Purposes of Reporting		of the all samples collected within a 12-month period
MCL	Maximum Contaminant Level	Range	Results based on minimum and maximum values; range and average
ND	Not Detected at or above DLR or RL		values are the same if a single value is reported for sample collected
NTU	Nephelometric Turbidity Units		once or twice annually
PHG	Public Health Goal	µS/cm	microSiemen per centimeter; or micromho per centimeter (µmho/cm)
ppb	parts per billion or micrograms per liter (µg/L)		

Footnotes

- (a) Results reflect water quality of two supplies, which include Castaic Lake and the groundwater well located at the Jensen Treatment Plant facility. Based on a 10-year average, groundwater accounts for up to 0.19% of the overall Jensen treatment plant flow. Flow-weighted results are available upon request.
- (b) *Cryptosporidium* and/or *Giardia* were detected in raw water after heavy storm and runoff into Silverwood Lake.