

**2022 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 (Federal) 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 - 7	100	100	0 - 43	0 - 100		NA	
PRIMARY STANDARDS—Mandatory Health-Related Standards													
CLARITY													
Combined Filter Effluent (CFE) Turbidity	(a)	NTU	TT	NA	NA	Highest	0.03	0.05	0.06	0.05	0.04		Soil runoff
		%				% ≤ 0.3	100	100	100	100	100		
MICROBIOLOGICAL													
Total Coliform Bacteria	(c)	% Positive Monthly Samples	5.0	MCLG = 0	NA	Range	0	0	0	0	0	0 - 0.3	Naturally present in the environment
						Average						0.04	
<i>Escherichia coli</i> (<i>E. coli</i>)	(d)	Number	0	MCLG = 0	NA	Number of Positive Samples	0	0	0	0	0	0	Human and animal fecal waste
Heterotrophic Plate Count (HPC) Bacteria	(e)	CFU/mL	TT	NA	(1)	Median Range	ND - 1	ND	ND	ND	ND		Naturally present in the environment
						Median	ND						
<i>Cryptosporidium</i>		oocysts/200 L	TT	MCLG = 0	(1)	Range	ND	ND	ND	ND	ND		Human and animal fecal waste
						Average							
<i>Giardia</i>		cysts/200 L	TT	MCLG = 0	(1)	Range	ND	ND	ND	ND	ND		Human and animal fecal waste
						Average							
ORGANIC CHEMICALS													
Synthetic Organic Compounds													
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	(g)	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	1.7	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							

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Endrin	ppb	2	0.3	0.1	Range Average	ND	ND	ND	ND	ND		Residue of banned insecticide and rodenticide
Epichlorohydrin (g)	ppm	TT	MCLG = 0	NA	Range Average	NA	NA	NA	NA	NA		Water treatment chemical impurities
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
Glyphosate	ppb	700	900	25	Range Average	ND	ND	ND	ND	ND		Runoff from herbicide use
Heptachlor	ppt	10	8	10	Range Average	ND	ND	ND	ND	ND		Residue of banned insecticide
Heptachlor Epoxide	ppt	10	6	10	Range Average	ND	ND	ND	ND	ND		Breakdown product of heptachlor
Hexachlorobenzene	ppb	1	0.03	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from metal refineries and agrichemicals factories; wastewater chlorination reaction byproduct
Hexachlorocyclopentadiene	ppb	50	2	1	Range Average	ND	ND	ND	ND	ND		Discharge from chemical factories
Lindane	ppt	200	32	200	Range Average	ND	ND	ND	ND	ND		Runoff/leaching from insecticide used on cattle, lumber, and gardens
Methoxychlor	ppb	30	0.09	10	Range Average	ND	ND	ND	ND	ND		Runoff/leaching from insecticide uses on fruits, vegetables, alfalfa, and livestock
Molinate (Ordram)	ppb	20	1	2	Range Average	ND	ND	ND	ND	ND		Runoff/leaching from herbicide used on rice
Oxamyl (Vydate)	ppb	50	26	20	Range Average	ND	ND	ND	ND	ND		Runoff/leaching from insecticide uses
Pentachlorophenol	ppb	1	0.3	0.2	Range Average	ND	ND	ND	ND	ND		Discharge from wood preserving factories, and other insecticidal and herbicidal uses
Picloram	ppb	500	166	1	Range Average	ND	ND	ND	ND	ND		Herbicide runoff
Polychlorinated Biphenyls (PCBs)	ppt	500	90	500	Range Average	ND	ND	ND	ND	ND		Runoff from landfills; discharge of waste chemicals
Simazine	ppb	4	4	1	Range Average	ND	ND	ND	ND	ND		Herbicide runoff
Thiobencarb	ppb	70	42	1	Range Average	ND	ND	ND	ND	ND		Runoff/leaching from herbicide used on rice
Toxaphene	ppb	3	0.03	1	Range Average	ND	ND	ND	ND	ND		Runoff/leaching from insecticide used on cotton and cattle
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
1,1,1,2,2-Tetrachloroethane	ppb	1	0.1	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from industrial and agrichemical factories; solvent used in production of TCE, pesticides, varnish, and lacquers
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	ppm	1.2	4	0.01	Range Average	ND	ND	ND	ND	ND		Discharge from metal degreasing sites and other factories; dry cleaning solvent; refrigerant
1,1,2-Trichloroethane	ppb	5	0.3	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from industrial chemical factories
1,1-Dichloroethane	ppb	5	3	0.5	Range Average	ND	ND	ND	ND	ND		Extraction and degreasing solvent; fumigant
1,1-Dichloroethylene	ppb	6	10	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from industrial chemical factories
1,2,4-Trichlorobenzene	ppb	5	5	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from textile-finishing factories
1,2-Dichlorobenzene	ppb	600	600	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from industrial chemical factories
1,2-Dichloroethane	ppt	500	400	500	Range Average	ND	ND	ND	ND	ND		Discharge from industrial chemical factories
1,2-Dichloropropane	ppb	5	0.5	0.5	Range Average	ND	ND	ND	ND	ND		Industrial chemical factory discharge; primary component of some fumigants

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1,3-Dichloropropene	ppt	500	200	500	Range Average	ND	ND	ND	ND	ND	Runoff/leaching from nematocide used on croplands	
1,4-Dichlorobenzene	ppb	5	6	0.5	Range Average	ND	ND	ND	ND	ND		Discharge from industrial chemical factories
Benzene	ppb	1	0.15	0.5	Range Average	ND	ND	ND	ND	ND		
Carbon Tetrachloride	ppt	500	100	500	Range Average	ND	ND	ND	ND	ND		Discharge from chemical plants and other industrial waste
cis-1,2-Dichloroethylene	ppb	6	100	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-tert-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	
trans-1,2-Dichloroethylene	ppb	10	60	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	(h) ppb	1,000	600	50	Range Highest RAA	85 - 210 140	ND - 81 62	ND - 150 60	ND - 230 113	58 - 240 156	Residue from water treatment process; runoff and leaching from 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	2.4	ND	ND	ND	Natural deposits erosion, glass and electronics production wastes	
Asbestos	(i) 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	107	ND	ND	ND	107	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	
Copper	(j) 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	(k) ppm	2.0	1	0.1	Range	0.7 - 0.8	0.4 - 0.8	0.6 - 0.8	0.6 - 0.8	0.6 - 0.8	0.4 - 0.9	Runoff and leaching from natural deposits; water additive that promotes

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Lead (j)	ppb	AL = 15	0.2	5	Average	0.7	0.7	0.7	0.7	0.7	0.7	strong teeth; discharge from fertilizer and aluminum factories	
					Range	ND	ND	ND	ND	ND	ND	Internal corrosion of household water plumbing systems; industrial manufacturers' discharge; runoff and leaching from natural deposits	
					Average	ND	ND	ND	ND	ND	ND		Erosion of natural deposits; factory discharge; landfill runoff
Mercury	ppb	2	1.2	1	Range	ND	ND	ND	ND	ND	ND	Erosion of natural deposits; discharge from metal factories	
					Average	ND	ND	ND	ND	ND	ND		Runoff and leaching from fertilizer use; septic tank and sewage; natural deposits erosion
Nickel	ppb	100	12	10	Range	ND	ND	ND	ND	ND	ND	Runoff and leaching from fertilizer use; septic tank and sewage; natural deposits erosion	
					Average	ND	0.9	ND	ND	ND	ND		Runoff and leaching from fertilizer use; septic tank and sewage; natural deposits erosion
Nitrate (as Nitrogen)	ppm	10	10	0.4	Range	ND	ND	ND	ND	ND	ND	Naturally occurring in arid regions; industrial waste discharge	
					Average	ND	ND	ND	ND	ND	ND		Refineries, mines, and chemical waste discharge; runoff from livestock lots
Nitrite (as Nitrogen)	ppm	1	1	0.4	Range	ND	ND	ND	ND	ND	ND	Leaching from ore processing; discharge from electronics, glass, and pharmaceutical factories	
					Average	ND	ND	ND	ND	ND	ND		
Perchlorate	ppb	6	1	2	Range	ND	ND	ND	ND	ND	ND		
					Average	ND	ND	ND	ND	ND	ND		
Selenium	ppb	50	30	5	Range	ND	ND	ND	ND	ND	ND		
					Average	ND	ND	ND	ND	ND	ND		
Thallium	ppb	2	0.1	1	Range	ND	ND	ND	ND	ND	ND		
					Average	ND	ND	ND	ND	ND	ND		
RADIOLOGICALS (l)													
Gross Alpha Particle Activity	pCi/L	15	MCLG = 0	3	Range	ND - 3	ND	ND - 4	ND - 3	ND	ND	Runoff/leaching from natural deposits	
					Average	ND	ND	ND	ND	ND	ND		
Gross Beta Particle Activity	pCi/L	50	MCLG = 0	4	Range	ND - 9	ND - 5	ND - 6	5 - 8	4 - 7		Decay of natural and man-made deposits	
					Average	6	ND	4	7	6			
Radium-226	pCi/L	NA	0.05	1	Range	ND	ND	ND	ND	ND	ND	Erosion of natural deposits	
					Average	ND	ND	ND	ND	ND	ND		
Radium-228	pCi/L	NA	0.019	1	Range	ND	ND	ND	ND - 1	ND - 1		Erosion of natural deposits	
					Average	ND	ND	ND	ND	ND			
Combined Radium-226 + 228	pCi/L	5	MCLG = 0	2	Range	ND	ND	ND	ND	ND	ND	Erosion of natural deposits	
					Average	ND	ND	ND	ND	ND	ND		
Strontium-90	pCi/L	8	0.35	2	Range	ND	ND	ND	ND	ND	ND	Decay of natural and man-made deposits	
					Average	ND	ND	ND	ND	ND	ND		
Tritium	pCi/L	20,000	400	1,000	Range	ND	ND	ND	ND	ND	ND	Decay of natural and man-made deposits	
					Average	ND	ND	ND	ND	ND	ND		
Uranium	pCi/L	20	0.43	1	Range	1 - 3	ND - 3	ND - 2	ND - 2	1 - 3		Erosion of natural deposits	
					Average	2	ND	ND	2	2			
DISINFECTION BYPRODUCTS, DISINFECTANT RESIDUALS, AND DISINFECTION BYPRODUCT PRECURSORS (m)													
Total Trihalomethanes (TTHM) (Plant Core Locations and Distribution System) (n)	ppb	80	NA	4.0	Range	25 - 39	16 - 30	11 - 21	14 - 29	21 - 32	11 - 42	Byproducts of drinking water chlorination	
					Highest LRAA	34	27	22	20	29	34		
Bromodichloromethane			0.06	1.0								Byproducts of drinking water chlorination	
Bromoform			0.5	1.0									
Chloroform			0.4	1.0									
Dibromochloromethane			0.1	1.0									
Sum of Five Haloacetic Acids (HAA5) (Plant Core Locations and Distribution System)	ppb	60	NA	6.0	Range	ND - 13	ND - 9.6	ND	6.0 - 13	ND - 7.6	ND - 15	Byproduct of drinking water chlorination	
					Highest LRAA	9.6	ND	ND	9.0	ND	9.6		
Total Chlorine Residual (x)	ppm	MRDL = 4.0	MRDLG = 4.0	(0.05)	Range						0.4 - 2.9	Drinking water disinfectant added for treatment	
					Highest RAA						2.5		
Bromate	ppb	10	0.1	1.0	Range	ND	ND - 15	ND - 14	ND - 5.5	ND - 7.6		Byproduct of drinking water ozonation	
					Highest RAA	ND	7.2	5.5	1.2	ND			
Total Organic Carbon (TOC)	ppm	TT	NA	0.30	Range	2.3 - 2.6	1.0 - 1.4	1.7 - 2.2	2.3 - 2.6	1.7 - 2.6		Various natural and man-made sources; TOC is a precursor for the formation of disinfection byproducts	
					Highest RAA	2.5	1.5	1.9	2.5	2.4			
SECONDARY STANDARDS—Aesthetic Standards													
Aluminum (h)	ppb	200	600	50	Range	85 - 210	ND - 81	ND - 150	ND - 230	58 - 240		Residue from water treatment process; runoff and leaching from natural deposits	
					Highest RAA	140	62	60	113	156			
Chloride	nm	500	NA	(2)	Range	98 - 104	67 - 73	76 - 77	98 - 106	98 - 105		Runoff/leaching from natural deposits; seawater influence	

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Chloride	ppm	500	NA	100	Range Average	101 70	70 76	76 102	102 102	102 102	Runoff/leaching from natural deposits; seawater influence	
Color	Color Units	15	NA	(1)	Range Average	1 1	1 1	1 1	1 - 2 2	1 1	Naturally-occurring organic materials	
Copper (j)	ppm	1.0	0.3	0.05	Range Average	ND ND	ND ND	ND 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 ND	ND ND	ND ND	Municipal and industrial waste discharges	
Iron	ppb	300	NA	100	Range Average	ND ND	ND ND	ND ND	ND ND	ND ND	Leaching from natural deposits; industrial wastes	
Manganese	ppb	50	NL = 500	20	Range Average	ND ND	ND ND	ND ND	ND ND	ND ND	Leaching from natural deposits	
MTBE	ppb	5	13	3	Range Average	ND ND	ND ND	ND ND	ND ND	ND ND	Gasoline discharge from watercraft engines	
Odor Threshold	TON	3	NA	1	Range Average	3 3	3 3	2 2	1 1	3 3	Naturally-occurring organic materials	
Silver	ppb	100	NA	10	Range Average	ND ND	ND ND	ND ND	ND ND	ND ND	Industrial discharges	
Specific Conductance	µS/cm	1,600	NA	NA	Range Average	965 - 1,010 988	557 - 572 564	522 - 546 534	944 - 1,030 987	964 - 1,020 992	Substances that form ions in water; seawater influence	
Sulfate	ppm	500	NA	0.5	Range Average	213 - 229 221	71 - 80 76	56 - 57 56	206 - 229 218	212 - 232 222	Runoff/leaching from natural deposits; industrial wastes	
Thiobencarb	ppb	1	42	1	Range Average	ND ND	ND ND	ND ND	ND ND	ND ND	Runoff/leaching from rice herbicide	
Total Dissolved Solids, Filterable (TDS) (o)	ppm	1,000	NA	(2)	Range Average	608 - 648 628	332 - 335 334	289 - 304 296	591 - 651 621	632 - 643 638	Runoff/leaching from natural deposits	
Turbidity	NTU	5	NA	0.1	Range Average	ND ND	ND ND	ND ND	ND ND	ND ND	Soil runoff	
Zinc	ppm	5.0	NA	0.05	Range Average	ND ND	ND ND	ND ND	ND ND	ND ND	Runoff/leaching from natural deposits; industrial wastes	
OTHER PARAMETERS												
General Minerals												
Alkalinity, Total (as CaCO ₃)	ppm	NA	NA	(1)	Range Average	125 - 127 126	84	83 - 89 86	119 - 128 124	126 - 128 127	Runoff/leaching of natural deposits; carbonate, bicarbonate, hydroxide, and occasionally borate, silicate, and phosphate	
Calcium	ppm	NA	NA	(0.1)	Range Average	66 - 70 68	32 - 34 33	25 - 28 26	63 - 71 67	68 - 71 70	Runoff/leaching from natural deposits	
Hardness, Total (as CaCO ₃)	ppm	NA	NA	(1)	Range Average	275 - 281 278	107 - 110 108	115 - 120 118	263 - 282 272	277 - 281 279	Runoff/leaching from natural deposits; sum of polyvalent cations, generally magnesium and calcium present in the water	
Magnesium	ppm	NA	NA	(0.01)	Range Average	24 - 26 25	6.2 - 7.5 6.8	12 - 13 12	24 - 26 25	25 - 26 26	Runoff/leaching from natural deposits	
Potassium	ppm	NA	NA	(0.2)	Range Average	4.4 - 4.8 4.6	2.0	3.6 - 3.8 3.7	4.4 - 4.8 4.6	4.5 - 4.8 4.6	Salt present in the water; naturally-occurring	
Sodium	ppm	NA	NA	(1)	Range Average	95 - 102 98	71 - 72 72	60 - 61 60	96 - 103 100	98 - 103 100	Salt present in the water; naturally-occurring	
Unregulated Contaminants												
Boron	ppb	NL = 1,000	NA	100	Range Average	130 130	220	160	130	140	Runoff/leaching from natural deposits; industrial wastes	
Chlorate	ppb	NL = 800	NA	20	Range Average	90 90	243	200	75	88	Byproduct of drinking water chlorination; industrial processes	
Chromium VI	ppb	NA	0.02	1	Range Average	ND ND	ND	ND	ND	ND	Runoff/leaching from natural deposits; discharge from industrial wastes	
Vanadium	ppb	NL = 50	NA	3	Range Average	ND ND	6.2	ND	ND	ND	Naturally-occurring; industrial waste discharge	
Dichlorodifluoromethane (Freon-12)	ppb	NL = 1,000	NA	0.5	Range Average	ND ND	ND	ND	ND	ND	Industrial waste discharge	
Ethyl-tert-butyl ether (ETBE)	ppb	NA	NA	3	Range Average	ND ND	ND	ND	ND	ND	Used as gasoline additive	
tert-Butyl-methyl ether (TAME)	ppb	NA	NA	3	Range	ND	ND	ND	ND	ND	Used as gasoline additive	

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						Diemer Plant	Jensen Plant	Mills Plant	Skinner Plant	Weymouth Plant		
<i>tert</i> -Butyl alcohol (TBA)	ppb	NL = 12	NA	2	Average	ND	ND	ND	ND	ND	ND	Used as gasoline additive
					Range							
					Average							MTBE breakdown product; used as gasoline additive
Nitrosamine Compounds												
N-Nitrosodimethylamine (NDMA)	ppt	NL = 10	3	(2)	Range	ND	ND	4.4	4.4	ND	ND - 3.3	Byproducts of drinking water chloramination; industrial processes
					Average						ND	
N-Nitrosodiethylamine (NDEA)	ppt	NL = 10	NA	(2)	Range	ND	ND	ND	ND	ND	ND	
					Average							
N-Nitrosodi-n-propylamine (NDPA)	ppt	NL = 10	NA	(2)	Range	ND	ND	ND	ND	ND	ND	
					Average							
N-Nitrosomethylethylamine (NMEA)	ppt	NA	NA	(2)	Range	ND	ND	ND	ND	ND	ND	
					Average							
N-Nitrosodi-n-butylamine (NDBA)	ppt	NA	NA	(2)	Range	ND	ND	ND	ND	ND	ND	
					Average							
N-Nitrosopyrrolidine (NPYR)	ppt	NA	NA	(2)	Range	ND	ND	ND	ND	ND	ND	
					Average							
N-Nitrosopiperidine (NPIP)	ppt	NA	NA	(2)	Range	ND	ND	ND	ND	ND	ND	
					Average							
N-Nitrosomorpholine (NMOR)	ppt	NA	NA	(2)	Range	ND	ND	ND	ND	ND	ND	Industrial processes
					Average							
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) (p)												
PFAS Analyzed by EPA Methods 533 and 537.1												
Perfluorooctanoic Acid (PFOA)	ppt	NL = 5.1	NA	4	Range	ND	ND	ND	ND	ND		Industrial chemical factory discharges; runoff/leaching from landfills; used in fire-retarding foams and various industrial processes
					Average							
Perfluorooctanesulfonic Acid (PFOS)	ppt	NL = 6.5	NA	4	Range	ND	ND	ND	ND	ND		
					Average							
Perfluorobutanesulfonic acid (PFBS)	ppt	NL = 500	NA	3	Range	ND	ND	ND	ND	ND		
					Average							
Perfluorononanoic acid (PFNA)	ppt	NA	NA	4	Range	ND	ND	ND	ND	ND		
					Average							
Perfluorohexanesulfonic acid (PFHxS)	ppt	NL = 3	NA	3	Range	ND	ND	ND	ND	ND		
					Average							
Perfluoroheptanoic acid (PFHpA)	ppt	NA	NA	3	Range	ND	ND	ND	ND	ND		
					Average							
Perfluorodecanoic acid (PFDA)	ppt	NA	NA	3	Range	ND	ND	ND	ND	ND		
					Average							
Perfluorododecanoic acid (PFDoA)	ppt	NA	NA	3	Range	ND	ND	ND	ND	ND		
					Average							
Perfluorohexanoic Acid (PFHxA)	ppt	NA	NA	3	Range	ND	ND	2.4	ND	ND		
					Average							
Perfluoroundecanoic acid (PFUnA)	ppt	NA	NA	2	Range	ND	ND	ND	ND	ND		
					Average							
4,8-dioxa-3H-perfluorononanoate (ADONA)	ppt	NA	NA	3	Range	ND	ND	ND	ND	ND		
					Average							
F-53B Major (11Cl-PF3OUdS)	ppt	NA	NA	5	Range	ND	ND	ND	ND	ND		
					Average							
F-53B Minor (9Cl-PF3ONS)	ppt	NA	NA	2	Range	ND	ND	ND	ND	ND		
					Average							
GenX (HFPO-DA)	ppt	NA	NA	5	Range	ND	ND	ND	ND	ND		
					Average							
PFAS Analyzed by EPA Method 533 Only (q)												
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ppt	NA	NA	3	Range	ND	ND	ND	ND	ND		
					Average							
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ppt	NA	NA	5	Range	ND	ND	ND	ND	ND		
					Average							
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ppt	NA	NA	5	Range	ND	ND	ND	ND	ND		

**2022 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 (Federal) 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		
Perfluoro-2-methoxypropanoic acid (PFMPA)	ppt	NA	NA	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	
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	2.0		
Nonafluoro-3,6-dioxiheptanoic acid (NFDHA)	ppt	NA	NA	20	Range Average	ND	ND	ND	ND	ND		
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ppt	NA	NA	3	Range Average	ND	ND	ND	ND	ND		
PFAS Analyzed by EPA Method 537.1 Only												
Perfluorotetradecanoic acid (PFTA)	ppt	NA	NA	(2)	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 (PFTDA)	ppt	NA	NA	(2)	Range Average	ND	ND	ND	ND	ND		
N-ethyl Perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ppt	NA	NA	(2)	Range Average	ND	ND	ND	ND	ND		
N-methyl Perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ppt	NA	NA	(2)	Range Average	ND	ND	ND	ND	ND		
Miscellaneous (r)												
Calcium Carbonate Precipitation Potential (CCPP) (as CaCO ₃)	(s)	ppm	NA	NA	NA	Range Average	8.7 - 11 9.8	1.2 - 2.9 2.2	1.4 - 3.1 2.2	6.1 - 13 10	5.7 - 11 9.4	Measures of the balance between pH and calcium carbonate saturation in the water
Corrosivity (as Aggressiveness Index)	(t)	AI	NA	NA	NA	Range Average	12.4 - 12.5 12.4	12.1	12.0 - 12.1 12.0	12.4 - 12.5 12.4	12.5	
Corrosivity (as Saturation Index)	(u)	SI	NA	NA	NA	Range Average	0.56 - 0.65 0.60	0.27 - 0.32 0.30	0.28 - 0.34 0.31	0.58 - 0.75 0.66	0.56 - 0.63 0.60	
pH	pH Units		NA	NA	NA	Range Average	8.1	8.2 - 8.3 8.3	8.2 - 8.4 8.3	8.1 - 8.2 8.2	8.1	NA
Radon	(l)	pCi/L	NA	NA	100	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)	(v)	ppm	1,000	NA	NA	Range Average	587 - 625 607	319 - 332 326	285 - 305 295	529 - 631 601	522 - 633 602	Runoff/leaching from natural deposits
Sum of Five Haloacetic Acids (HAA5)	(w)	ppb	60	NA	6.0	Range Average	ND - 10 6.6	ND - 11 ND	ND	7.0 - 14 10	ND - 6.6 ND	Byproducts of drinking water chlorination
Total Trihalomethanes (TTHM)	(w)	ppb	80	NA	4.0	Range Average	21 - 34 26	6.0 - 80 21	9.9 - 42 17	11 - 31 20	18 - 44 24	

DEFINITION OF TERMS AND FOOTNOTES

* As a wholesale water system, Metropolitan provides its member agencies with relevant source water information and monitoring results that they may need for their annual water quality report. Metropolitan's 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 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 2022 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 (TTHMs, HAA5, and total chlorine residual), and NDMA. 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	MCL	Maximum Contaminant Level	ppt	parts per trillion or nanograms per liter (ng/L)
	AL	Action Level	MCLG	Maximum Contaminant Level Goal	PWS ID	Public Water System Identification
	Average	Arithmetic mean	MFL	Million Fibers per Liter	RAA	Running Annual Average; highest RAA is the highest of all Running Annual Averages calculated as an average of all the samples collected
	CaCO ₃	Calcium Carbonate	MRDL	Maximum Residual Disinfectant Level		

**2022 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 (Federal) MCL	PHG	State DLR/CCRDL (RL)	Range Average	Treatment Plant Effluent *					Major Sources in Drinking Water	
						Diemer Plant	Jensen Plant	Mills Plant	Skinner Plant	Weymouth Plant		Distribution System
CCPP	Calcium Carbonate Precipitation Potential				MRDLG							within a 12-month period
CCRDL	Consumer Confidence Report Detection Level for PFAS				MRL						Range	Results based on minimum and maximum values; range and average values are the same if a single value is reported for samples collected once or twice annually
CFE	Combined Filter Effluent				NA							
CFU	Colony-Forming Units				ND							
DLR	Detection Limit for Purposes of Reporting				NL						SI	Saturation Index (Langelier)
EPA	Environmental Protection Agency				NTU						SWRCB	State Water Resources Control Board
HAA5	Sum of five haloacetic acids				pCi/L						TDS	Total Dissolved Solids
HPC	Heterotrophic Plate Count				PFAS						TON	Threshold Odor Number
LRAA	Locational Running Annual Average; highest LRAA is the highest of all Locational Running Annual Averages calculated as an average of all samples collected within a 12-month period				PHG						TT	Treatment Technique is a required process intended to reduce the level of a contaminant in drinking water
					ppb							
					ppm						TTHM	Total Trihalomethanes
					ppq						UCMR5	Fifth Unregulated Contaminant Monitoring Rule
											µS/cm	microSiemen per centimeter; or micromho per centimeter (µmho/cm)

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 TT primary drinking water standard and the secondary drinking water standard of less than 5 NTU.
- (b) Per the state's Surface Water Treatment Rule, treatment techniques that remove or inactivate Giardia cysts will also remove HPC bacteria, Legionella, and viruses. Legionella and virus monitoring is not required.
- (c) Compliance is based on monthly samples from treatment plant effluents and the distribution system.
- (d) The E. coli MCL is based on routine and repeat samples testing positive for coliforms and/or E. coli, or failure to analyze required repeat samples. No coliforms were found in the water treatment system and distribution system. No Level 1 assessment or MCL violations occurred.
- (e) Metropolitan analyzes HPC bacteria in plant effluent to monitor treatment process efficacy.
- (f) Data are from samples collected in 2021 for the required triennial monitoring period (2020-2022).
- (g) 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.
- (h) Compliance with the State MCL for aluminum is based on RAA. No secondary standard MCL exceedance occurred.
- (i) Data are from samples collected in 2020 for the required 9-year monitoring cycle (2020-2028).
- (j) As a wholesaler, Metropolitan has no retail customers and is not required to collect samples at consumers' taps. However, compliance monitoring under Title 22 is required at plant effluents.
- (k) Metropolitan was in compliance with all provisions of the State's fluoridation system requirements. Fluoride feed systems were temporarily out of service during treatment plant shutdowns and/or maintenance work in 2022, resulting in occasional fluoride levels below 0.7 mg/L.
- (l) Starting in 2021, 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 in 2020 for the required triennial monitoring (2020-2022). Radon is also monitored voluntarily with the triennial radionuclides.
- (m) 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. One core location from the Jensen treatment plant effluent's service connections was excluded in the RAA and LRAA calculations due to operational changes in the Jensen distribution system.
- (n) PHG assigned for each individual THM. Health risk varies with different combinations and ratios of the other THMs in a particular sample.
- (o) 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.
- (p) CCRDL is based on the EPA UCMR5 MRLs for the 25 EPA Method 533 constituents. Results below CCRDLs are considered "ND". PFAS results below the CCRDLs but above the RLs are included in this report.
- (q) Data are from the average result of the original and field duplicate samples collected from Weymouth plant effluent only.
- (r) Data are from voluntary monitoring of constituents and are provided for informational purposes.
- (s) 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 (SM2330)
- (t) 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)
- (u) 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 (SM2330)
- (v) 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 regulations. Metropolitan's calculated TDS goal is 500 mg/L.
- (w) HAA5 and TTHM noncompliance samples were collected at the treatment plant effluents.
- (x) One sample had no detectable chlorine residual but met regulatory requirements through an HPC result of less than 500 CFU/mL.