

2024 Water Quality Report to SDCWA member agencies -- San Diego County Water Authority

Parameter	Units	State or Federal MCL [MRDL]	PHG (MCLG) [MRDLG]	State DLR	Range Average	Treatment Plant Effluent	Major Sources in Drinking Water
						Twin Oaks Valley Water Treatment Plant	
PRIMARY STANDARDS--Mandatory Health-Related Standards							
CLARITY							
Combined Filter	NTU	0.1	NA	NA	Range	0.02-0.087	
Effluent Turbidity	NTU	0.1	NA	NA	Average	0.03	Soil runoff
	%	95 (a)	NA	NA	%≤ 0.1	100.0%	
MICROBIOLOGICAL							
Total Coliform					Range	ND	
Bacteria in Distribution System	%	5.0 (b)	0	NA	Average	ND	Naturally present in the environment
Total Coliform					Range	ND	
Bacteria in Treatment Plant effluent	%	5.0 (b)	0	NA	Average	ND	Naturally present in the environment
E. coli					Range	ND	
Bacteria in Treatment Plant effluent	(c)	(c)	0	NA	Average	ND	Human and animal fecal waste
ORGANIC CHEMICALS							
Pesticides/PCBs							
Alachlor	ppb	2	4	1	Range	ND	
					Average	ND	Runoff from herbicide used on row crops
Atrazine	ppb	1	0.15	0.5	Range	ND	Runoff from herbicide used on row crops and along highways
					Average	ND	
Bentazon	ppb	18	200	2	Range	ND	Runoff/leaching from herbicide used on rice, alfalfa, and grapes
					Average	ND	
Carbofuran	ppb	18	0.7	5	Range	ND	Leaching of soil fumigant used on rice, alfalfa, and grapes
					Average	ND	
Chlordane	ppt	100	30	100	Range	ND	Residue of banned insecticide
					Average	ND	
2,4-D	ppb	70	20	10	Range	ND	Runoff from herbicide used on row crops, range land, lawns and aquatic weeds
					Average	ND	
Dalapon	ppb	200	790	10	Range	ND	Runoff from herbicide used on rights-of-way, crops, and landscapes
					Average	ND	
Dinoseb	ppb	7	14	2	Range	ND	Runoff from herbicide used on soybeans, vegetables, and fruits
					Average	ND	
Diquat	ppb	20	6	4	Range	ND	Runoff from herbicide used for terrestrial and aquatic weeds
					Average	ND	
Endothall	ppb	100	94	45	Range	ND	Runoff from herbicide used for terrestrial and aquatic weeds
					Average	ND	
Endrin	ppb	2	0.3	0.1	Range	ND	Residue of banned insecticide and rodenticide
					Average	ND	
Glyphosate	ppb	700	900	25	Range	ND	Runoff from herbicide use
					Average	ND	
Heptachlor	ppt	10	8	10	Range	ND	Residue of banned insecticide
					Average	ND	
Heptachlor Epoxide	ppt	10	6	10	Range	ND	Breakdown product of heptachlor
					Average	ND	
Lindane	ppt	200	32	200	Range	ND	Runoff/leaching from insecticide used on cattle, lumber, and gardens
					Average	ND	
Methoxychlor	ppb	30	0.09	10	Range	ND	Runoff/leaching from insecticide uses
					Average	ND	

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Molinate (Ordram)	ppb	20	1	2	Average	ND	Runoff/leaching from herbicide used on rice
					Range	ND	
Oxamyl (Vydate)	ppb	50	26	20	Average	ND	Runoff/leaching from insecticide uses
					Range	ND	Discharge from wood preserving factories
Pentachlorophenol	ppb	1	0.3	0.2	Average	ND	other insecticidal and herbicidal uses
					Range	ND	
Picloram	ppb	500	166	1	Average	ND	Herbicide runoff
					Range	ND	
Polychlorinated Biphenyls (PCBs)	ppt	500	90	500	Average	ND	Runoff from landfills; discharge of waste chemicals
					Range	ND	
Simazine	ppb	4	4	1	Average	ND	Herbicide runoff
					Range	ND	
Thiobencarb (d)	ppb	70	42	1	Average	ND	Runoff leaching from rice herbicide
					Range	ND	
2,4,5-TP (Silvex)	ppb	50	3	1	Average	ND	Residue of banned herbicide
					Range	ND	Runoff/leaching from insecticide used on
Toxaphene	ppb	3	0.03	1	Average	ND	cotton and cattle
Semi-Volatile Organic Compounds							
					Range	ND	
Acrylamide	NA	TT	(0)	NA	Average	ND	Water treatment chemical impurities
					Range	ND	Leaching from water storage tank linings
Benzo(a)pyrene	ppt	200	7	100	Average	ND	and distribution lines
					Range	ND	
Di(2-ethylhexyl)adipate	ppb	400	200	5	Average	ND	Discharge from chemical factories
					Range	ND	Chemical factory discharge; inert ingredient
Di(2-ethylhexyl)phthalate	ppb	4	12	3	Average	ND	in pesticides
					Range	ND	
Epichlorohydrin	NA	TT	(0)	NA	Average	ND	Water treatment chemical impurities
					Range	ND	Discharge from metal refineries & agrichemicals
Hexachlorobenzene	ppb	1	0.03	0.5	Average	ND	factories; wastewater chlorination reaction by-product
					Range	ND	
Hexachlorocyclopentadiene	ppb	50	2	1	Average	ND	Discharge from chemical factories
					Range	ND	Waste incineration emissions; chemical factory
2,3,7,8-TCDD (Dioxin)	ppg	30	0.05	5	Average	ND	discharge
Volatile Organic Compounds							
					Range	ND	
Benzene	ppb	1	0.15	0.5	Average	ND	Plastics factory discharge; gas tanks
					Range	ND	and landfill leaching
Carbon Tetrachloride	ppt	500	100	500	Average	ND	Discharge from chemical plants and other industrial
					Range	ND	waste
1,2-Dichlorobenzene	ppb	600	600	0.5	Average	ND	Discharge from industrial chemical factories
					Range	ND	
1,4-Dichlorobenzene	ppb	5	6	0.5	Average	ND	Discharge from industrial chemical factories
					Range	ND	
1,1-Dichloroethane	ppb	5	3	0.5	Average	ND	Extraction and degreasing solvent; fumigant
					Range	ND	
1,2-Dichloroethane	ppt	500	400	500	Average	ND	Discharge from industrial chemical factories
					Range	ND	

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1,1-Dichloroethylene	ppb	6	10	0.5	Average	ND	Discharge from industrial chemical factories
					Range	ND	Industrial chemical factory discharge;
<i>cis</i> -1,2-Dichloroethylene	ppb	6	13	0.5	Average	ND	by-product of TCE and PCE biodegradation
					Range	ND	Industrial chemical factory discharge;
<i>trans</i> -1,2-Dichloroethylene	ppb	10	50	0.5	Average	ND	by-product of TCE and PCE biodegradation
Dichloromethane (Methylene Chloride)	ppb	5	4	0.5	Average	ND	Discharge from pharmaceutical and chemical factories
					Range	ND	Industrial chemical factory discharge;
1,2-Dichloropropane	ppb	5	0.5	0.5	Average	ND	primary component of some fumigants
					Range	ND	Runoff/leaching from nematocide used on
1,3-Dichloropropene	ppt	500	200	500	Average	ND	croplands
					Range	ND	Petroleum refinery discharge; industrial
Ethylbenzene	ppb	300	300	0.5	Average	ND	chemical factories
					Range	ND	
Methyl <i>tert</i> -butyl ether (MTBE) (d)	ppb	13	13	3	Average	ND	Gasoline discharge from watercraft engines
					Range	ND	Discharge from industrial, agricultural, and chemical
Monochlorobenzene	ppb	70	70	0.5	Average	ND	factories, and dry cleaners
					Range	ND	Rubber and plastics factories discharge;
Styrene	ppb	100	0.5	0.5	Average	ND	landfill leaching
					Range	ND	Discharge from industrial, agricultural, and chemical
1,1,2,2-Tetrachloroethane	ppb	1	0.1	0.5	Average	ND	factories; solvent uses
					Range	ND	Discharge from factories, dry cleaners,
Tetrachloroethylene (PCE)	ppb	5	0.06	0.5	Average	ND	and auto shops
					Range	ND	
Toluene	ppb	150	150	0.5	Average	ND	Discharge from petroleum and chemical refineries
					Range	ND	
1,2,4-Trichlorobenzene	ppb	5	5	0.5	Average	ND	Discharge from textile-finishing factories
					Range	ND	Metal degreasing site discharge; manufacture
1,1,1-Trichloroethane	ppb	200	1000	0.5	Average	ND	of food wrappings
					Range	ND	
1,1,2-Trichloroethane	ppb	5	0.3	0.5	Average	ND	Discharge from industrial chemical factories
					Range	ND	Cleaning and degreasing solvent,
1,2,3-Trichloropropane	ppt	5	0.7	5	Average	ND	also associated with pesticide products
					Range	ND	Discharge from metal degreasing sites and
Trichloroethylene (TCE)	ppb	5	1.7	0.5	Average	ND	other factories
					Range	ND	Industrial factory discharge; degreasing solvent;
Trichlorofluoromethane (Freon-11)	ppb	150	1300	5	Average	ND	propellant
					Range	ND	Discharge from metal degreasing sites and other
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	ppm	1.2	4	0.01	Average	ND	factories; dry cleaning solvent; refrigerant
					Range	ND	Leaching from PVC piping; plastic factory
Vinyl Chloride	ppt	500	50	500	Average	ND	discharge; by-product of TCE and PCE biodegradation
					Range	ND	Discharge from petroleum and chemical refineries;
Xylenes	ppm	1.750	1.8	0.0005	Average	ND	fuel solvent

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INORGANIC CHEMICALS							
Aluminum (d)	ppm	1	0.6	0.05	Range Average	ND-0.16 0.05	Natural deposits erosion; Residue from water treatment process.
Asbestos	MFL	7	7	0.2	Single Sample	ND	Asbestos cement pipes internal corrosion; natural deposits erosion
Barium	ppb	1000	2000	100	Range Average	95 - 122 113	Natural deposits erosion; Oil and metal refineries discharge.
Chromium VI	ppb	NA	0.02	NA	Range Average	ND - 0.32 0.03	Runoff/leaching from natural deposits; discharge from industrial waste factories
Cyanide	ppb	150	150	100	Single Sample	ND	Discharge from steel/metal, plastic, and fertilizer factories
					Control Range Optimal Fluoride Level	0.6-1.2 0.7	
Fluoride (f) Treatment-related	ppm	2	1	0.1	Range Average	0.6-0.7 0.64	Erosion of natural deposits; water additive that promotes strong teeth
Nitrite (as N)	ppm	1	1	0.4	Range Average	ND ND	Runoff and leaching from fertilizer use; septic tank and sewage; natural deposits erosion
Perchlorate (g)	ppb	6	1	2	Single Sample	ND	Industrial waste discharge
RADIOLOGICALS							
Gross Alpha Particle Activity	pCi/L	15	(0)	3	Single Sample	ND	Erosion of natural deposits
Gross Beta Particle Activity (h)	pCi/L	50	(0)	4	Single Sample	4.23	Decay of natural and man-made deposits
Radium-226	pCi/L	NA	0.05	1	Range Average	ND ND	Erosion of natural deposits
Radium-228	pCi/L	NA	0.019	1	Range Average	ND ND	Erosion of natural deposits
Combined Radium-226 + 228 (i)	pCi/L	5	(0)	NA	Range Average	ND ND	Erosion of natural deposits
Strontium-90	pCi/L	8	0.35	2	Range Average	ND ND	Decay of natural and man-made deposits
Tritium	pCi/L	20000	400	1000	Range Average	ND ND	Decay of natural and man-made deposits
Uranium	pCi/L	20	0.43	1	Range Average	1.7-2.8 2.3	Erosion of natural deposits
DISINFECTION BY-PRODUCTS, DISINFECTANT RESIDUALS, AND DISINFECTION BY-PRODUCTS PRECURSORS (j)							
Total Trihalomethanes (TTHM) (k)	ppb	80	NA	1	Range Highest TTHM	14 - 42 42	By-product of drinking water chlorination
Haloacetic Acids (five) (HAA5) (l)	ppb	60	NA	1	Range Highest HAA5	ND - 2.8 2.8	By-product of drinking water chlorination
Bromate	ppb	10	0.1	1	Range Average	ND-8.5 1.7	By-product of drinking water ozonation
Total Chlorine Residual	ppm	[4.0]	[4.0]	NA	Range Average	2.0-3.9 3.1	Drinking water disinfectant added for treatment
Total Organic Carbon (TOC)	ppm	TT	NA	0.30	Range Average	2.0-2.4 2.2	Various natural and man-made sources; TOC is a precursor for the formation of disinfection byproducts
SECONDARY STANDARDS--Aesthetic Standards							

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Aluminum (d)	ppm	2	NA	0.05	Range Average	ND-0.16 0.05	Residue from water treatment process; natural deposits erosion
Color	Color Units	15	NA	NA	Range Average	ND-1 ND	Naturally occurring organic materials
Foaming Agents (MBAS)	ppb	500	NA	NA	Single Sample	ND	Municipal and industrial waste discharges
Iron	ppb	300	NA	100	Range Average	ND ND	Leaching from natural deposits; industrial wastes
Manganese	ppb	50	NL = 500	20	Range Average	ND ND	Leaching from natural deposits
MTBE (d,e)	ppb	5	NA	3	Range Average	ND ND	Gasoline discharge from watercraft engines
Odor Threshold	TON	3	NA	1	Single Sample	ND	Naturally-occurring organic materials
Specific Conductance	µS/cm	900	NA	NA	Single Sample	827	Substances that form ions in water; seawater influence
Sulfate	ppm	250	NA	0.5	Range Average	152-217 191	Runoff/leaching from natural deposits; industrial wastes
Thiobencarb (d)	ppb	1	NA	1	Range Average	ND ND	Runoff/leaching from rice herbicide
Total Dissolved Solids (TDS)	ppm	500	NA	NA	Range Average	474-614 545	Runoff/leaching from natural deposits; seawater influence
Turbidity (a)	NTU	5	NA	0.1	Range Average	0-0.25 ND	Soil runoff
OTHER PARAMETERS							
CHEMICAL							
					Range	ND	
Alachlor	ppb	NA	NA	2	Average	ND	Herbicide runoff
					Range	99-120	
Alkalinity (n)	ppm	NA	NA	NA	Average	112	
					Range	220-380	
Chlorate	ppb	NL = 800	NA	20	Average	291	By-product of drinking water chlorination; industrial processes
					Range	ND	
Dimethoate	ppb	NA	NA	0.7	Average	ND	Runoff from insecticide used on crops and residential uses
					Range	ND	
Metolachlor	ppb	NA	NA	1	Average	ND	Herbicide runoff
					Range	7.5-8.7	
pH	pH Units	NA	NA	NA	Average	8.4	
					Range	ND	
Radon (j)	pCi/L	NA	NA	100	Average	ND	
					Single Sample	ND	
Vanadium	ppb	NL = 50	NA	3	Single Sample	ND	Naturally-occurring; industrial waste discharge
					Range	ND	
N-Nitrosodiethylamine (NDEA)	ppt	NL=10	NA	5	Average	ND	By-product of drinking water chloramination; industrial processes
					Range	ND	
N-Nitrosodimethylamine (NDMA)	ppt	NL=10	3	2	Average	ND	By-product of drinking water chloramination; industrial processes
					Range	ND	
N-Nitroso-di-n-butylamine (NDBA)	ppt	NA	NA	4	Average	ND	By-product of drinking water chloramination; industrial processes

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N-Nitroso-di-n-propylamine (NDPA)	ppt	NL=10	NA	7	Range Average	ND ND	By-product of drinking water chloramination; industrial processes
N-Nitrosomethylethylamine (NMEA)	ppt	NA	NA	3	Range Average	ND ND	By-product of drinking water chloramination; industrial processes
N-Nitrosopyrrolidine (NPYR)	ppt	NA	NA	2	Range Average	ND ND	By-product of drinking water chloramination; industrial processes
tert-Butyl alcohol (TBA)	ppb	NL = 12	NA	2	Single Sample	ND	MTBE breakdown product; used as gasoline additive
OTHER PARAMETERS - VOLUNTARY SAMPLING							
Perfluorooctanoic Acid (PFOA)	ppt	NL=5.1 4.0	0.007	NA	Single Sample	ND	
Perfluorooctanesulfonic Acid (PFOS)	ppt	NL=6.5 4.0	1	NA	Single Sample	ND	
Perfluorohexane sulfonic acid (PFHxS)	ppt	NL=3 10.0	NA	NA	Single Sample	ND	
Perfluorononanoic acid (PFNA)	ppt	10.0	NA	NA	Single Sample	ND	
Hexafluoropropylene oxide dimer acid (HFPO-DA (GenX))	ppt	10.0	NA	NA	Single Sample	ND	
Perfluorobutane sulfonic acid (PFBS)	ppt	NL=500	NA	NA	Single Sample	ND	

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ABBREVIATIONS AND FOOTNOTES

Abbreviations							
	AI	Aggressiveness Index		N	Nitrogen		
	AL	Action Level		NA	Not Applicable		
	CFE	Combined Filter Effluent		NL	Notification Level		
	CFU	Colony-Forming Units		ND	None Detect		
	LRAA	Locational Running Annual Average; highest LRAA is the highest of all Locational Running Annual Averages calculated as average of all samples collected within a 12-month period		NTU	Nephelometric Turbidity Units		
				pCi/L	picoCuries per Liter		
				PHG	Public Health Goal		
	DBP	Disinfection By-Products		ppb	parts per billion or micrograms per liter (µg/L)		
	DLR	Detection Limits for purposes of Reporting		ppm	parts per million or milligrams per liter (mg/L)		
	HPC	Heterotrophic Plate Count		ppq	parts per quadrillion or picograms per liter (pg/L)		
	MBAS	Methylene Blue Active Substances		ppt	parts per trillion or nanograms per liter (ng/L)		
	MCL	Maximum Contaminant Level		SI	Saturation Index (Langelier)		
	MCLG	Maximum Contaminant Level Goal		RAA	Running Annual Average		
	MFL	Million Fibers per Liter		TOC	Total Organic Carbon		
	MRDL	Maximum Residual Disinfectant Level		TON	Threshold Odor Number		
	MRDLG	Maximum Residual Disinfectant Level Goal		TT	Treatment Technique		
				µS/cm	microSiemen per centimeter; or micromho per centimeter (µmho/cm)		
				TOVWTP	Twin Oaks Valley Water Treatment Plant		
Footnotes							
	(a)	The turbidity level from the CFE of the membranes shall be less than or equal to 0.1 NTU in 95% of the measurements taken each month and shall not exceed 1.0 NTL at any time. Turbidity is a measure of the cloudiness of the water and is an indicator of treatment performance.		(g)	TOVWTP's perchlorate reporting level is 2 ppb, which is below the state DLR of 4 ppb.		
	(b)	Total coliform MCLs: No more than 5.0% of the monthly samples may be total coliform-positive. The MCL was not violated.		(h)	The gross beta particle activity MCL is 4 millirem/year annual dose equivalent to the total body or any internal organ. The screening level is 50 pCi/L.		
	(c)	<i>E. coli</i> MCLs: The occurrence of two (2) consecutive total coliform-positive samples, one of which contains <i>E. coli</i> , constitutes an acute MCL violation. The MCL was not violated.		(i)	State MCL is 5 pCi/L for combined Radium-226 and -228.		
	(d)	Aluminum, MTBE, and thiobencarb have both primary and secondary standards.		(j)	TOVWTP met all provisions of the Stage 2 Disinfectants/Disinfection By-Products (D/DBP) Rule. Compliance was based on the LRAA. Average and range for the treatment plant effluent were taken from daily and monthly samples for TTHM and HAA5.		
	(e)	MTBE reporting level is 0.5 ppb.		(k)	DLR = 1.0 ppb for each TTHM (bromoform, chloroform, dibromochloromethane, bromodichloromethane).		
	(f)	TOVWTP was in compliance with all provisions of the State's Fluoridation System Requirements.		(l)	DLR = 1.0 ppb for each HAA5 analyte (dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid) except for monochloroacetic acid which has a DLR = 2.0 ppb.		
				(n)	Alkalinity and hardness was based on CaCO ₃		