

Appendix 5.6 - Summary of San Vicente Reservoir Source Water Constituents 2016 - 2020

CSD

			Federal/California Drinking Water Standards ¹			Basin Plan Inland Surface Waters Quality ²		2016 - 2020 Source Water Quality at Surface			
Group/Constituents	Units	CSD MDL	DLR	Primary MCL	Secondary SMCL	Criteria	Objectives	No. of Samples	Min	Max	Mean
General Physical											
Alkalinity, (Total) (as CaCO3 equivalents)	MG/L	20						58	95.2	138	121
Calcium Hardness (CaCO3)	MG/L	10						57	102	170	142
Color, Apparent (Unfiltered)	COLOR	1			15	20	20	19	2	7	3.95
Corrosivity ³	-							52	0.01	1.11	0.643
Hydroxide Alkalinity	MG/L							19	0	0	0
MBAS (Foaming Agents)	MG/L	0.05		0.5		0.5	0.5	5	ND	ND	ND
Odor Threshold @ 60 C (TON)	ODOR	1	1		3		none	2	6	17	11.5
pH	PH					6.5-8.5 ⁶		19	7.58	8.78	8.25
Specific Conductance (E.C.)	UMHO/CM				1600			58	761	1010	885
Total Filterable Residue @ 180 C (TDS)	MG/L	10			1000	300	300	57	469	623	547
Total Hardness (CaCO3)	MG/L	10						57	202	296	252
Turbidity, Laboratory	NTU	0.07	0.1		5	20	20	20	0.17	0.67	0.363
Microbiological											
Enterococcus	/100 ML	1				60 ⁷		253	< 1	25	1.97
Escherichia Coli	/100 ML	1		Present		190 ⁷		253	< 10	10	< 10
Total Coliform	/100 ML	1		Present				253	< 10	> 24000	2660
Total Crypto Oocyst Count	/ L	0.1		1				10	ND	ND	ND
Total Giardia Cyst Count	/ L	0.1		1				10	ND	ND	ND
Radiologicals											
Gross Alpha	PCI/L		3	15				2	ND	3	1.5
Gross Beta	PCI/L		4	50 ⁸				2	4.68	4.80	4.74
Uranium	PCI/L		1	20				1	1.9	1.9	1.9

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Group/Constituents	Units	CSD MDL				Criteria	Objectives	No. of Samples			
			DLR	Primary MCL	Secondary SMCL				Min	Max	Mean
Metals ⁴											
Aluminum (Al)	UG/L	5	50	1000	200			59	ND	52.3	10.4
Antimony	UG/L	1	6	6				19	ND	ND	ND
Arsenic	UG/L	1	2	10				20	ND	2.57	1.16
Barium (Ba)	UG/L	2	100	1000				20	71	122	97.5
Beryllium	UG/L	0.5	1	4				20	ND	ND	ND
Boron	UG/L	5	100			500	1000	19	125	173	138
Cadmium (Cd)	UG/L	0.5	1	5				20	ND	ND	ND
Calcium (Ca)	MG/L	5						61	40.8	68	57.1
Chromium (Total Cr)	UG/L	1	10	50				20	ND	ND	ND
Chromium, Hexavalent	UG/L	1						5	ND	0.026	ND
Copper (Cu) ⁵	UG/L	1	50	1300	1000			60	ND	6.43	1.03
Iron (Fe)	UG/L	100	100		300	300	300	60	ND	62.6	ND
Lead (Pb) ⁵	UG/L	0.5	5	15				60	ND	1.49	ND
Magnesium (Mg)	MG/L	3						107	15.6	33.8	25.4
Manganese (Mn)	UG/L	0.5	20		50	50	50	60	ND	21	4.84
Mercury (Hg)	UG/L	0.2	1	2				20	ND	ND	ND
Nickel	UG/L	1	10	100				20	ND	2.37	ND
Potassium (K)	MG/L	0.5						17	4.29	5.86	5.29
Selenium (Se)	UG/L	2	5	50				20	ND	ND	ND
Silver	UG/L	1	10	50				20	ND	ND	ND
Sodium (Na)	MG/L	20				60%	60%	60	79.1	100	90.3
Thallium	UG/L	0.5	1	2				20	ND	ND	ND
Vanadium	UG/L	1	3					20	ND	2.66	ND
Zinc (Zn)	UG/L	5	50		5000			58	ND	ND	ND

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Group/Constituents	Units	CSD MDL				Criteria	Objectives	No. of Samples			
			DLR	Primary MCL	Secondary SMCL				Min	Max	Mean
Inorganic Constituents											
Ammonia-N	MG/L	0.031				0.025		55	ND	0.143	ND
Asbestos Chrysotile Fibers >10 microns	MFL	0.2	0.2	7				1	ND	ND	ND
Bicarbonate (as HCO3)	MG/L							60	107	165	144
Bromide	MG/L	0.1						59	ND	0.323	ND
Carbonate (as CO3)	MG/L							60	ND	9.32	1.34
Chloride	MG/L	0.5			500	250	50	58	65.5	119	97.6
Cyanide	UG/L		100	150				5	ND	ND	ND
Fluoride	MG/L	0.02	0.1	2		1	1	59	0.23	0.378	0.286
Nitrate (as NO3)	MG/L		2	45		5		62	ND	0.882	ND
Nitrite (NO2)	MG/L	0.0156	0.131	0.328				60	ND	0.031	ND
Perchlorate	UG/L	4	4	6				40	ND	ND	ND
Phosphate, Ortho (as PO4)	MG/L	0.2						55	ND	0.253	ND
Phosphorus	MG/L	0.078				0.025 ⁹	0.025 ⁹	17	ND	0.073	ND
Silica	MG/L	0.625						20	4.76	8.94	7.06
Sulfate (SO4)	MG/L	0.5	0.5		500	65	65	58	137	249	188
Total Nitrogen	MG/L	0.156					0.25 ⁹	19	0.159	1.78	0.386

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Group/Constituents	Units	CSD MDL	Water Standards			Waters Quality		Source Water Quality at Surface			
			DLR	Primary MCL	Secondary SMCL	Criteria	Objectives	No. of Samples	Min	Max	Mean
Organic Constituents, Regulated											
1,1,1-Trichloroethane (1,1,1-TCA)	UG/L	0.4	0.5	200		200		22	ND	ND	ND
1,1,2,2-Tetrachloroethane	UG/L	0.4	0.5	1		1		22	ND	ND	ND
1,1,2-Trichloroethane (1,1,2-TCA)	UG/L	0.4	0.5	5		32		22	ND	ND	ND
1,1-Dichloroethane (1,1-DCA)	UG/L	0.4	0.5	5		5		22	ND	ND	ND
1,1-Dichloroethylene (1,1-DCE)	UG/L	0.4	0.5	6		6		22	ND	ND	ND
1,2,4-Trichlorobenzene	UG/L	0.4	0.5	5				22	ND	ND	ND
1,2-Dichlorobenzene (o-DCB)	UG/L	0.4	0.5	600				22	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)	UG/L	0.4	0.5	0.5		0.5		22	ND	ND	ND
1,2-Dichloropropane	UG/L	0.4	0.5	5		5		22	ND	ND	ND
1,4-Dichlorobenzene (p-DCB)	UG/L	0.4	0.5	5		5		22	ND	ND	ND
2,3,7,8-tetra CDD	UG/L		5E-06	0.00003				2	ND	ND	ND
2,4,5-TP (SILVEX)	UG/L	1	1	50		10		20	ND	ND	ND
2,4-D	UG/L	3	10	70		100		20	ND	ND	ND
Alachlor (ALANEX)	UG/L	0.5	1	2				9	ND	ND	ND
Atrazine (AATREX)	UG/L	0.4	0.5	1		3		9	ND	ND	ND
Bentazon (BASAGRAN)	UG/L	2	2	18		18		20	ND	ND	ND
Benzene	UG/L	0.4	0.5	1		1		22	ND	ND	ND
Benzo(a)pyrene	UG/L	0.1	0.1	0.2				9	ND	ND	ND
Bromodichloromethane	UG/L	0.4	1			100		22	ND	ND	ND
Bromoform	UG/L	0.4	1			100		22	ND	ND	ND
Carbofuran (FURADAN)	UG/L	0.4	5	18		18		20	ND	ND	ND
Carbon Tetrachloride	UG/L	0.4	0.5	0.5		0.5		22	ND	ND	ND
Chlordane	UG/L	0.1	0.1	0.1		0.1		2	ND	ND	ND
Chlorodibromomethane	UG/L	0.4	1					22	ND	ND	ND
Chloroform (Trichloromethane)	UG/L	1	1			100		22	ND	ND	ND
cis-1,2-Dichloroethylene (c-1,2-DCE)	UG/L	0.4	0.5	6		6		22	ND	ND	ND
Dalapon	UG/L	2	10	200				2	ND	ND	ND
Di(2-ethylhexyl) Adipate	UG/L	2	5	400				9	ND	ND	ND
Di(2-ethylhexyl)phthalate (DEHP)	UG/L	3	3	4		4		9	ND	ND	ND
Dibromoacetic Acid (DBAA)	UG/L	1	1					2	ND	ND	ND
Dibromochloropropane (DBCP)	UG/L	0.01	0.01	0.2		0.2		24	ND	ND	ND
Dichloroacetic Acid (DCAA)	UG/L	1	1					2	ND	ND	ND
Dichloromethane (Methylene Chloride)	UG/L	0.4	0.5	5				22	ND	ND	ND
Dinoseb (DNBP)	UG/L	2	2	7				20	ND	ND	ND
Diquat	UG/L	3	4	20				2	ND	ND	ND
Endothall	UG/L	15	45	100				2	ND	ND	ND

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Endrin	UG/L	0.1	0.1	2		0.2		11	ND	ND	ND
Ethyl Benzene	UG/L	0.4	0.5	300		680		22	ND	ND	ND
Ethylene Dibromide (EDB)	UG/L	0.02	0.02	0.05		0.02		24	ND	ND	ND
Glyphosate	UG/L	10	25	700		700		19	ND	ND	ND
Haloacetic Acids (five) (HAA5) ¹⁰	UG/L	1		60				2	ND	ND	ND
Heptachlor	UG/L	0.01	0.01	0.01		0.01		2	ND	ND	ND
Heptachlor Epoxide	UG/L	0.01	0.01	0.01		0.01		2	ND	ND	ND
Hexachlorobenzene	UG/L	0.5	0.5	1				11	ND	ND	ND
Hexachlorocyclopentadiene	UG/L	0.211	1	50				10	ND	ND	ND
Lindane (gamma-BHC)	UG/L	0.2	0.2	0.2		4		2	ND	ND	ND
meta,para xylenes	UG/L	0.4	0.5			1750		22	ND	ND	ND
Methoxychlor	UG/L	0.5	10	30		100		11	ND	ND	ND
Methyl tert-Butyl Ether (MTBE)	UG/L	0.4	3	13	5			22	ND	ND	ND
Molinate (ORDRAM)	UG/L	0.5	2	20		20		8	ND	ND	ND
Monobromoacetic Acid (MBAA)	UG/L	1	1					2	ND	ND	ND
Monochloroacetic Acid (MCAA)	UG/L	2	2					2	ND	ND	ND
Monochlorobenzene (Chlorobenzene)	UG/L	0.4	0.5	70				22	ND	ND	ND
Oxamyl (Vydate)	UG/L	0.4	20	50				20	ND	ND	ND
o-Xylene	UG/L	0.4	0.5					22	ND	ND	ND
Pentachlorophenol (PCP)	UG/L	0.2	0.2	1		1		20	ND	ND	ND
Picloram	UG/L	1	1	500				20	ND	ND	ND
Polychlorinated Biphenyls, Total, as DCB	UG/L	0.5		0.5				8	ND	ND	ND
Simazine (PRINCEP)	UG/L	0.5	1	4		10		9	ND	ND	ND
Styrene	UG/L	0.4	0.5	100				22	ND	ND	ND
Tetrachloroethylene (PCE)	UG/L	0.4	0.5	5		5		22	ND	ND	ND
Thiobencarb (BOLERO)	UG/L	0.5	1	70	1	70		9	ND	ND	ND
Toluene	UG/L	0.4	0.5	150				22	ND	ND	ND
Total Organic Carbon (TOC)	MG/L	0.3						235	2.92	4.56	3.71
Total Toxaphene	UG/L	1	1	3		5		2	ND	ND	ND
Total Trihalomethanes (TTHMs) ¹⁰	UG/L	0.4		80				22	ND	ND	ND
trans-1,2-Dichloroethylene (t-1,2-DCE)	UG/L	0.4	0.5	10		10		22	ND	ND	ND
Trichloroacetic Acid (TCAA)	UG/L	1	1					2	ND	ND	ND
Trichloroethylene (TCE)	UG/L	0.4	0.5	5		5		22	ND	ND	ND
Trichlorofluoromethane (FREON 11)	UG/L	0.4	5	150		150		22	ND	ND	ND
Trichlorotrifluoroethane (FREON 113)	UG/L	0.4	10	1200				22	ND	ND	ND
Vinyl Chloride (VC)	UG/L	0.4	0.5	0.5		0.5		22	ND	ND	ND

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Organic Constituents, Unregulated											
1,1,1,2-Tetrachloroethane	UG/L	0.4	0.5					22	ND	ND	ND
1,1-Dichloropropene	UG/L	0.4	0.5					22	ND	ND	ND
1,2,3-Trichlorobenzene	UG/L	0.4	0.5					22	ND	ND	ND
1,2,3-Trichloropropane	NG/L	5	5					14	ND	ND	ND
1,2,4-Trimethylbenzene	UG/L	0.4	0.5					22	ND	ND	ND
1,3,5-Trimethylbenzene	UG/L	0.4	0.5					22	ND	ND	ND
1,3-Dichlorobenzene (m-DCB)	UG/L	0.4	0.5					22	ND	ND	ND
1,3-Dichloropropane	UG/L	0.4	0.5			0.5		22	ND	ND	ND
2,2-Dichloropropane	UG/L	0.4	0.5					22	ND	ND	ND
2,4,5-T	UG/L	3						20	ND	ND	ND
2,4-DB	UG/L	3						20	ND	ND	ND
2-Chlorotoluene	UG/L	0.4	0.5					22	ND	ND	ND
2-Methylisoborneol	NG/L	5						247	ND	32.7	ND
3,5-Dichlorobenzoic Acid	UG/L	3						20	ND	ND	ND
3-Hydroxycarbofuran	UG/L	0.4	3					20	ND	ND	ND
4-Chlorotoluene	UG/L	0.4	0.5					22	ND	ND	ND
4-Nitrophenol	UG/L	3	5			1		20	ND	ND	ND
Acenaphthylene	UG/L	0.5						7	ND	ND	ND
Acifluorfen	UG/L	3						20	ND	ND	ND
Aldicarb (TEMIK)	UG/L	0.4	3					20	ND	ND	ND
Aldicarb Sulfone	UG/L	0.4	4					20	ND	ND	ND
Aldicarb Sulfoxide	UG/L	0.4	3					19	ND	ND	ND
Aldrin	UG/L	0.1	0.075					2	ND	ND	ND
Anthracene	UG/L	0.5						8	ND	ND	ND
Baygon	UG/L	0.4						20	ND	ND	ND
Benzo (a) Anthracene	UG/L	0.5						8	ND	ND	ND
Benzo (b) Fluoranthene	UG/L	0.5						8	ND	ND	ND
Benzo (ghi) Perylene	UG/L	0.5						7	ND	ND	ND
Benzo (k) Fluoranthene	UG/L	0.5						8	ND	ND	ND
Benzyl Butyl Phthalate	UG/L	0.5						8	ND	ND	ND
Bromobenzene	UG/L	0.4	0.5					22	ND	ND	ND
Bromochloromethane	UG/L	0.4	0.5					22	ND	ND	ND
Bromomethane (Methyl Bromide)	UG/L	0.4	0.5					22	ND	ND	ND
Carbaryl (Sevin)	UG/L	0.4	5					20	ND	ND	ND
Chloramben	UG/L	3						20	ND	ND	ND
Chloroethane	UG/L	0.4	0.5					22	ND	ND	ND

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Chloromethane (Methyl Chloride)	UG/L	0.4	0.5					22	ND	ND	ND
Chrysene	UG/L	0.5						8	ND	ND	ND
cis-1,3-dichloropropene	UG/L	0.4	0.5					22	ND	ND	ND
Dibenzo (a,h) anthracene	UG/L	0.5						7	ND	ND	ND
Dibromomethane	UG/L	0.4	0.5					21	ND	ND	ND
Dicamba (BANVEL)	UG/L	1.5	1.5					20	ND	ND	ND
Dichlorodifluoromethane (Freon 12)	UG/L	0.4	0.5					22	ND	ND	ND
Dichlorprop	UG/L	3						20	ND	ND	ND
Dieldrin	UG/L	0.02	0.02					2	ND	ND	ND
Diethylphthalate	UG/L	0.5						8	ND	ND	ND
Diisopropyl Ether (DIPE)	UG/L	0.4	3					21	ND	ND	ND
Dimethyl phthalate	UG/L	0.5						8	ND	ND	ND
di-n-Butylphthalate	UG/L	2						8	ND	ND	ND
Ethyl-tert-Butyl Ether (ETBE)	UG/L	0.4	3					22	ND	ND	ND
Fluorene	UG/L	0.5						8	ND	ND	ND
Geosmin	NG/L	5						247	ND	> 55	ND
Hexachlorobutadiene	UG/L	0.4	0.5					22	ND	ND	ND
Indeno (1,2,3-cd) Pyrene	UG/L	0.5						8	ND	ND	ND
Isopropylbenzene (Cumene)	UG/L	0.4	0.5					22	ND	ND	ND
MCPA	UG/L	3						20	ND	ND	ND
MCPP	UG/L	3						20	ND	ND	ND
Methiocarb	UG/L	0.4						20	ND	ND	ND
Methomyl	UG/L	0.4	2					20	ND	ND	ND
Naphthalene	UG/L	0.4	0.5					30	ND	ND	ND
n-Butylbenzene	UG/L	0.4	0.5					22	ND	ND	ND
n-Propylbenzene	UG/L	0.4	0.5					22	ND	ND	ND
Paraquat	UG/L	4	20					2	ND	ND	ND
PCB-1016 (as DCB)	UG/L	0.26	0.5	0.5				8	ND	ND	ND
PCB-1221 (as DCB)	UG/L	0.19	0.5	0.5				8	ND	ND	ND
PCB-1232 (as DCB)	UG/L	0.23	0.5	0.5				8	ND	ND	ND
PCB-1242 (as DCB)	UG/L	0.26	0.5	0.5				8	ND	ND	ND
PCB-1248 (as DCB)	UG/L	0.3	0.5	0.5				8	ND	ND	ND
PCB-1254 (as DCB)	UG/L	0.33	0.5	0.5				8	ND	ND	ND
PCB-1260 (as DCB)	UG/L	0.36	0.5	0.5				8	ND	ND	ND
Phenanthrene	UG/L	0.5				1		8	ND	ND	ND
p-Isopropyltoluene	UG/L	0.4						22	ND	ND	ND
Propachlor	UG/L	0.5	0.5					10	ND	ND	ND
Pyrene	UG/L	0.5						8	ND	ND	ND

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sec-Butylbenzene	UG/L	0.4	0.5					22	ND	ND	ND
tert-Amyl Methyl Ether (TAME)	UG/L	0.4	3					22	ND	ND	ND
tert-Butyl Alcohol (TBA)	UG/L	1	2					22	ND	ND	ND
tert-Butylbenzene	UG/L	0.4	0.5					22	ND	ND	ND
trans-1,3-dichloropropene	UG/L	0.4	0.5	0.5				22	ND	ND	ND
Trifluralin	UG/L	0.5						8	ND	ND	ND

End Notes:

CSD MDL: City of San Diego Water Quality Laboratory minimum detection level, DLR: detection level for reporting, MCL: maximum contaminant level, SMCL: Secondary MCL, ND: not detected. Calculated mean below CSD MDL reported as ND.

¹ DLR, MCL, SMCL are obtained from California OEHHA and SWRCB and apply to drinking water and are for reference only. California MCL and SMCL values may be more stringent than federal standards for drinking water.

² Water Quality Control Plan for the San Diego Basin (9) with amendments effective on or before May 17, 2016. Water Quality Objectives concentrations not to be exceeded more than 10% of the time during any one year period.

³ Based on the Langelier index. A positive value indicates non-corrosive tendencies. A negative value indicates corrosive tendencies.

⁴ Trace metal values were from filtered and unfiltered samples. Differences in values were negligible.

⁵ Values referred to as MCLs for Lead and Copper are actually called Action Levels under the Lead and Copper Rule.

⁶ Waters designated Fresh or Warm changes in normal ambient pH levels shall not exceed 0.5 units

⁷ Beach Action Values (BAV): Amendment to the Domestic Water Permit issued by SWRCB to CSD, August 27, 2018

⁸ DDW considers 50 pCi/L to be the level of concern for beta particles.

⁹ P= 0.025 mg/L in any standing body of water. Nitrogen threshold determined by monitoring or if data are lacking, ratio of N:P = 10:1 is used. These values not to be exceeded more than 10% of the time.

¹⁰ Total Trihalomethane and HAA5 compliance is based on quarterly Locational Running Annual Averages (LRAA)