

**Appendix 5.12 - Summary of Raw Water Quality
Otay Water Treatment Plant Influent 2011-2015**

Parameters	Units	DLR*/MDL	Drinking Water Standards ¹		No. of Samples	Raw Water Quality**			
			MCL	SMCL		Min	Max	Mean	Median
General Physical									
Alkalinity, (Total) (as CaCO ₃ equivalents)	MG/L	10			296	77.1	187	130	126
Calcium Hardness (CaCO ₃)	MG/L	10			60	96.7	187	135	127
Color, Apparent (Unfiltered)	COLOR	1		15	57	ND	22	4.82	5
Corrosivity ²	.				56	-0.32	0.81	0.355	0.395
Hydroxide Alkalinity	MG/L				56	0	0	0	0
MBAS (Foaming Agents)	MG/L	0.1		0.5	4	ND	ND	ND	ND
pH	PH				1754	6.06	8.8	8.05	8.05
Specific Conductance (E.C.)	UMHO/CM			1600	62	575	1140	862	893
Total Filterable Residue @ 180 C (TDS)	MG/L	10		1000	59	373	679	540	554
Total Hardness (CaCO ₃)	MG/L	10			60	172	308	241	241
Total Suspended Solids (TSS)	MG/L	2			58	<1	1.1	<1	<1
Turbidity, Laboratory	NTU	0.07		5	1892	0.09	2.7	0.558	0.48
Microbiological									
			MCL	SMCL		Min	Max	Mean	Median
Escherichia Coli	/100 ML	1.8			59	1	100	9	2
Fecal Coliform	/100 ML	1.8			1664	<1.8	130	1.64	<1.8
Heterotrophic Bacteria (HPC)	CFU/ML				237	1	3200	219	11
Total Coliform	/100 ML	1.8			1723	<1	>2400	71.8	<1.8
Total Crypto Oocyst Count	/L	0.1	2 log removal		58	ND	ND	ND	ND
Total Giardia Cyst Count	/L	0.1	3 log removal		58	ND	0.1	ND	ND
Metals									
			MCL	SMCL		Min	Max	Mean	Median
Aluminum (Al)	UG/L	50	1000	200	58	ND	51.8	ND	ND
Antimony	UG/L	6	6		20	ND	ND	ND	ND
Arsenic	UG/L	2	10		31	ND	3.48	ND	2.18
Barium (Ba)	UG/L	100	1000		20	ND	135	ND	ND
Beryllium	UG/L	1	4		19	ND	ND	ND	ND
Boron	UG/L	100			19	109	171	128	127
Cadmium (Cd)	UG/L	1	5		20	ND	ND	ND	ND
Calcium	MG/L				59	38.7	74.8	54.2	51.2
Chromium (Total Cr)	UG/L	10	50		20	ND	ND	ND	ND
Chromium, Hexavalent	UG/L	1			5	ND	ND	ND	ND
Copper (Cu)	UG/L	50	1300	1000	58	ND	ND	ND	ND
Iron (Fe)	UG/L	100		300	56	ND	104	ND	ND
Lead (Pb)	UG/L	5	15		58	ND	ND	ND	ND
Magnesium (Mg)	MG/L	3			62	17	37.6	25.5	26.1
Manganese (Mn)	UG/L	20		50	58	ND	108	ND	ND
Mercury (Hg)	UG/L	1	2		19	ND	ND	ND	ND
Nickel	UG/L	10	100		20	ND	ND	ND	ND
Potassium (K)	MG/L	0.5			56	3.21	6.44	4.64	4.77
Selenium (Se)	UG/L	5	50		20	ND	ND	ND	ND
Silver	UG/L	10		100	20	ND	ND	ND	ND
Sodium (Na)	MG/L	20			56	62.5	118	90.3	93.2
Thallium	UG/L	1	2		20	ND	ND	ND	ND
Vanadium	UG/L	3			20	ND	ND	ND	ND
Zinc (Zn)	UG/L	50		5000	58	ND	176	ND	ND
Inorganic Constituents									
			MCL	SMCL		Min	Max	Mean	Median
Ammonia-N	MG/L	0.031			225	ND	0.66	ND	ND
Asbestos Chrysotile Fibers >10 microns	MFL	0.2	7		1	ND	ND	ND	ND
Bicarbonate (as HCO ₃)	MG/L				58	106	213	156	153
Bromide	MG/L	0.1			59	ND	0.408	0.123	ND
Carbonate (as CO ₃)	MG/L				58	0	7.09	0.493	0
Chloride	MG/L	0.5		500	59	75.1	148	111	97.5
Cyanide	MG/L	100	0.15		5	ND	ND	ND	ND
Fluoride	MG/L	0.1	2		59	0.143	0.571	0.324	0.301
Nitrate (as NO ₃)	MG/L	2	45		283	ND	ND	ND	ND
Nitrite (NO ₂)	MG/L	1.31	3.28		228	ND	ND	ND	ND
Perchlorate	UG/L	4	6		16	ND	ND	ND	ND
Phosphate, Ortho (as PO ₄)	MG/L	0.2			57	ND	ND	ND	ND
Phosphorus	MG/L	0.078			58	ND	0.094	ND	ND
Silica	MG/L	0.625			59	4.64	10	7.94	7.97
Sulfate (SO ₄)	MG/L	0.5		500	59	93.5	268	149	128
Total Nitrogen	MG/L	0.156			58	ND	0.467	0.181	0.207
Organic Constituents, Regulated									
			MCL	SMCL		Min	Max	Mean	Median
1,1,1-Trichloroethane (1,1,1-TCA)	UG/L	0.5	200		19	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	UG/L	0.5	1		19	ND	ND	ND	ND
1,1,2-Trichloroethane (1,1,2-TCA)	UG/L	0.5	5		19	ND	ND	ND	ND
1,1-Dichloroethane (1,1-DCA)	UG/L	0.5	5		19	ND	ND	ND	ND
1,1-Dichloroethylene (1,1-DCE)	UG/L	0.5	6		19	ND	ND	ND	ND
1,2,4-Trichlorobenzene	UG/L	0.5	5		19	ND	ND	ND	ND
1,2-Dichlorobenzene (o-DCB)	UG/L	0.5	600		19	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)	UG/L	0.5	0.5		19	ND	ND	ND	ND
1,2-Dichloropropane	UG/L	0.5	5		19	ND	ND	ND	ND
1,4-Dichlorobenzene (p-DCB)	UG/L	0.5	5		19	ND	ND	ND	ND
2,4,5-TP (SILVEX)	UG/L	1	50		18	ND	ND	ND	ND
2,4-D	UG/L	10	70		18	ND	ND	ND	ND

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Alachlor (ALANEX)	UG/L	1	2	17	ND	ND	ND	ND
Atrazine (AATREX)	UG/L	0.5	1	17	ND	ND	ND	ND
Bentazon (BASAGRAN)	UG/L	2	18	18	ND	ND	ND	ND
Benzene	UG/L	0.5	1	19	ND	ND	ND	ND
Benzo(a)pyrene	UG/L	0.1	0.2	17	ND	ND	ND	ND
Bromodichloromethane	UG/L	1		247	ND	22.1	5.77	5.84
Bromoform	UG/L	1		247	ND	12.9	1.98	1.62
Carbofuran (FURADAN)	UG/L	5	18	18	ND	ND	ND	ND
Carbon Tetrachloride	UG/L	0.5	0.5	19	ND	ND	ND	ND
Chlordane	UG/L	0.1	0.1	11	ND	ND	ND	ND
Chlorodibromomethane	UG/L	1		247	ND	24.7	5.68	4.77
Chloroform (Trichloromethane)	UG/L	1		247	ND	22.4	4.22	3.59
cis-1,2-Dichloroethylene (c-1,2-DCE)	UG/L	0.5	6	19	ND	ND	ND	ND
Dalapon	UG/L	10	200	48	ND	ND	ND	ND
Di(2-ethylhexyl) Adipate	UG/L	5	400	17	ND	ND	ND	ND
Di(2-ethylhexyl)phthalate (DEHP)	UG/L	3	4	17	ND	ND	ND	ND
Dibromoacetic Acid (DBAA)	UG/L	1		47	ND	2.84	ND	ND
Dibromochloropropane (DBCP)	UG/L	0.01	0.2	29	ND	ND	ND	ND
Dichloroacetic Acid (DCAA)	UG/L	1		49	ND	3.87	ND	1.09
Dichloromethane (Methylene Chloride)	UG/L	0.5	5	19	ND	ND	ND	ND
Dinoseb (DNBP)	UG/L	2	7	18	ND	ND	ND	ND
Diquat	UG/L	4	20	15	ND	ND	ND	ND
Endothall	UG/L	45	100	13	ND	ND	ND	ND
Endrin	UG/L	0.1	2	28	ND	ND	ND	ND
Ethyl Benzene	UG/L	0.5	300	19	ND	ND	ND	ND
Ethylene Dibromide (EDB)	UG/L	0.02	0.05	29	ND	ND	ND	ND
Glyphosate	UG/L	25	700	17	ND	ND	ND	ND
Haloacetic Acids (five) (HAA5)	UG/L	1	60	48	ND	8.3	2.1	1.64
Heptachlor	UG/L	0.01	0.01	11	ND	ND	ND	ND
Heptachlor Epoxide	UG/L	0.01	0.01	11	ND	ND	ND	ND
Hexachlorobenzene	UG/L	0.5	1	28	ND	ND	ND	ND
Hexachlorocyclopentadiene	UG/L	1	50	28	ND	ND	ND	ND
Lindane (gamma-BHC)	UG/L	0.2	0.2	11	ND	ND	ND	ND
meta,para xylenes	UG/L	0.5		19	ND	ND	ND	ND
Methoxychlor	UG/L	10	30	28	ND	ND	ND	ND
Methyl tert-Butyl Ether (MTBE)	UG/L	3	13	5	19	ND	ND	ND
Molinate (ORDRAM)	UG/L	2	20	17	ND	ND	ND	ND
Monobromoacetic Acid (MBAA)	UG/L	1		49	ND	1.27	ND	ND
Monochloroacetic Acid (MCAA)	UG/L	2		49	ND	ND	ND	ND
Monochlorobenzene (Chlorobenzene)	UG/L	0.5	70	19	ND	ND	ND	ND
Oxamyl (Vydate)	UG/L	20	50	18	ND	ND	ND	ND
o-Xylene	UG/L	0.5		19	ND	ND	ND	ND
Pentachlorophenol (PCP)	UG/L	0.2	1	18	ND	ND	ND	ND
Picloram	UG/L	1	500	18	ND	ND	ND	ND
Polychlorinated Biphenyls, Total, as DCB	UG/L	0.5	0.5	15	ND	ND	ND	ND
Simazine (PRINCEP)	UG/L	1	4	17	ND	ND	ND	ND
Styrene	UG/L	0.5	100	19	ND	ND	ND	ND
Tetrachloroethylene (PCE)	UG/L	0.5	5	19	ND	ND	ND	ND
Thiobencarb (BOLERO)	UG/L	1	70	1	17	ND	ND	ND
Toluene	UG/L	0.5	150	19	ND	ND	ND	ND
Total Organic Carbon (TOC)	MG/L	0.3		309	1.83	7.31	4.44	3.85
Total Toxaphene	UG/L	1	3	11	ND	ND	ND	ND
Total Trihalomethanes (TTHMs)	UG/L	1	80	228	ND	66.1	18.1	18.4
trans-1,2-Dichloroethylene (t-1,2-DCE)	UG/L	0.5	10	19	ND	ND	ND	ND
Trichloroacetic Acid (TCAA)	UG/L	1		49	ND	3.33	ND	ND
Trichloroethylene (TCE)	UG/L	0.5	5	19	ND	ND	ND	ND
Trichlorofluoromethane (FREON 11)	UG/L	5	150	19	ND	ND	ND	ND
Trichlorotrifluoroethane (FREON 113)	UG/L	10	1200	19	ND	ND	ND	ND
Vinyl Chloride (VC)	UG/L	0.5	0.5	19	ND	ND	ND	ND
Organic Constituents, Unregulated			MCL	SMCL	Min	Max	Mean	Median
1,1,1,2-Tetrachloroethane	UG/L	0.5		19	ND	ND	ND	ND
1,1-Dichloropropene	UG/L	0.5		19	ND	ND	ND	ND
1,2,3-Trichlorobenzene	UG/L	0.5		19	ND	ND	ND	ND
1,2,3-Trichloropropane	NG/L	0.5		14	ND	ND	ND	ND
1,2,4-Trimethylbenzene	UG/L	0.4		19	ND	ND	ND	ND
1,3,5-Trimethylbenzene	UG/L	0.5		19	ND	ND	ND	ND
1,3-Dichlorobenzene (m-DCB)	UG/L	0.5		19	ND	ND	ND	ND
1,3-Dichloropropane	UG/L	0.5		19	ND	ND	ND	ND
2,2-Dichloropropane	UG/L	0.5		19	ND	ND	ND	ND
2,4,5-T	UG/L	3		18	ND	ND	ND	ND
2,4-DB	UG/L	3		18	ND	ND	ND	ND
2-Chlorotoluene	UG/L	0.5		19	ND	ND	ND	ND
2-Methylisoborneol	NG/L	5		231	ND	21.8	ND	ND
3,5-Dichlorobenzoic Acid	UG/L	3		18	ND	ND	ND	ND
3-Hydroxycarbofuran	UG/L	3		18	ND	ND	ND	ND

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4-Chlorotoluene	UG/L	0.5		19	ND	ND	ND	ND
4-Nitrophenol	UG/L	5		18	ND	ND	ND	ND
Acenaphthylene	UG/L	5		16	ND	ND	ND	ND
Acifluorfen	UG/L	3		18	ND	ND	ND	ND
Aldicarb (TEMIK)	UG/L	3		18	ND	ND	ND	ND
Aldicarb Sulfone	UG/L	4		18	ND	ND	ND	ND
Aldicarb Sulfoxide	UG/L	3		18	ND	ND	ND	ND
Aldrin	UG/L	0.075		11	ND	ND	ND	ND
Anthracene	UG/L	5		17	ND	ND	ND	ND
Baygon	UG/L	0.4		18	ND	ND	ND	ND
Benzo (a) Anthracene	UG/L	10		17	ND	ND	ND	ND
Benzo (b) Fluoranthene	UG/L	10		17	ND	ND	ND	ND
Benzo (ghi) Perylene	UG/L	10		17	ND	ND	ND	ND
Benzo (k) Fluoranthene	UG/L	10		17	ND	ND	ND	ND
Benzyl Butyl Phthalate	UG/L	10		17	ND	ND	ND	ND
Bromobenzene	UG/L	0.5		19	ND	ND	ND	ND
Bromochloromethane	UG/L	0.5		19	ND	ND	ND	ND
Bromomethane (Methyl Bromide)	UG/L	0.5		19	ND	ND	ND	ND
Carbaryl (Sevin)	UG/L	5		18	ND	ND	ND	ND
Chloramben	UG/L	3		18	ND	ND	ND	ND
Chloroethane	UG/L	0.5		19	ND	ND	ND	ND
Chloromethane (Methyl Chloride)	UG/L	0.5		19	ND	ND	ND	ND
Chrysene	UG/L	5		17	ND	ND	ND	ND
cis-1,3-dichloropropene	UG/L	0.5		19	ND	ND	ND	ND
Dibenzo (a,h) anthracene	UG/L	5		17	ND	ND	ND	ND
Dibromomethane	UG/L	0.5		19	ND	ND	ND	ND
Dicamba (BANVEL)	UG/L	1.5		18	ND	ND	ND	ND
Dichlorodifluoromethane (Freon 12)	UG/L	0.5		19	ND	ND	ND	ND
Dichloroprop	UG/L	3		18	ND	ND	ND	ND
Dieldrin	UG/L	0.02		11	ND	ND	ND	ND
Diethylphthalate	UG/L	5		17	ND	ND	ND	ND
Diisopropyl Ether (DIPE)	UG/L	3		19	ND	ND	ND	ND
Dimethyl phthalate	UG/L	5		17	ND	ND	ND	ND
di-n-Butylphthalate	UG/L	5		17	ND	ND	ND	ND
Ethyl-tert-Butyl Ether (ETBE)	UG/L	3		19	ND	ND	ND	ND
Fluorene	UG/L	5		17	ND	ND	ND	ND
Geosmin	NG/L	5		231	ND	55	ND	ND
Hexachlorobutadiene	UG/L	0.5		19	ND	ND	ND	ND
Indeno (1,2,3-cd) Pyrene	UG/L	10		17	ND	ND	ND	ND
Isopropylbenzene (Cumene)	UG/L	0.5		19	ND	ND	ND	ND
MCPA	UG/L	3		18	ND	ND	ND	ND
MCPP	UG/L	3		18	ND	ND	ND	ND
Methiocarb	UG/L	0.4		18	ND	ND	ND	ND
Methomyl	UG/L	2		18	ND	ND	ND	ND
Naphthalene	UG/L	0.5		36	ND	ND	ND	ND
n-Butylbenzene	UG/L	0.5		19	ND	ND	ND	ND
n-Propylbenzene	UG/L	0.5		19	ND	ND	ND	ND
Paraquat	UG/L	20		15	ND	ND	ND	ND
PCB-1016 (as DCB)	UG/L	0.26	0.5	17	ND	ND	ND	ND
PCB-1221 (as DCB)	UG/L	0.19	0.5	17	ND	ND	ND	ND
PCB-1232 (as DCB)	UG/L	0.23	0.5	17	ND	ND	ND	ND
PCB-1242 (as DCB)	UG/L	0.26	0.5	17	ND	ND	ND	ND
PCB-1248 (as DCB)	UG/L	0.3	0.5	17	ND	ND	ND	ND
PCB-1254 (as DCB)	UG/L	0.33	0.5	17	ND	ND	ND	ND
PCB-1260 (as DCB)	UG/L	0.36	0.5	17	ND	ND	ND	ND
Phenanthrene	UG/L	5		17	ND	ND	ND	ND
p-Isopropyltoluene	UG/L	0.4		19	ND	ND	ND	ND
Propachlor	UG/L	0.5		28	ND	ND	ND	ND
Pyrene	UG/L	5		17	ND	ND	ND	ND
sec-Butylbenzene	UG/L	0.5		19	ND	ND	ND	ND
tert-Amyl Methyl Ether (TAME)	UG/L	3		19	ND	ND	ND	ND
tert-Butyl Alcohol (TBA)	UG/L	2		19	ND	ND	ND	ND
tert-Butylbenzene	UG/L	0.5		19	ND	ND	ND	ND
trans-1,3-dichloropropene	UG/L	0.5		19	ND	ND	ND	ND
Trifluralin	UG/L	0.5		17	ND	ND	ND	ND

NOTES:

* The State of California DLR values are used when available. Parameters without DLR values were reported as MDL levels.

** The acceptance criteria in this table apply to finished, potable water, and are for reference only.

(1) State MCL and MCLG values may be more stringent than federal standards for treated water.

(2) Based on the Langelier index. A positive value indicates non-corrosive tendencies. A negative value indicates corrosive tendencies.

ND: not detected