Summary of Water Quality
Miramar Water Treatment Plant Effluent 2006-2010

Parameters	Units	DLR*/MDL	Drinking Water Standards[1]		No. of Samples	Raw Water Quality			
			MCL	SMCL		Min	Max	Mean	Median
General Physical									
Calcium Hardness (CaCO3)	mg/L	20			59	107	222	150	151
Color	Color	1		15	59	0	3	0	0
Conductivity	µmho/cm			1600	56	657	1090	894	900
Corrosivity[2]	--			non-corrosive	55	-0.15	0.85	0.415	0.45
Threshold odor number	Odor	1		3	1788	1	2	1	1
Total Alkalinity	mg/L	20			55	82.1	125	107	106
Total Dissolved Solids	mg/L	10		1000	66	397	757	539	539
Total Hardness (CaCO3)	mg/L	20			59	182	325	236	234
Total Suspended Solids (TSS)	mg/L	1			53	1	7	1.11	1
Turbidity[3]	ntu	0.07	0.5		1496	nd	0.4	0.082	0.08
pH	pH			6.5-8.5	1817	6.35	8.74	8.11	8.15
Pathogens and Indicator Organisms									
E. Coli	/100 mL				2370	a	a	a	a
Heterotrophic Bacteria (HPC)	cfu/mL				488	1	7	1.09	1
Total Coliform	/100 mL		(4)		2370	nd	1	nd	nd
Total Crypto Oocust Count	/ L				1	nd	nd	nd	nd
Total Giardia Cyst Count	/ L				1	nd	nd	nd	nd
Metals									
Aluminum	µg/L	50	1000	200	53	nd	nd	nd	nd
Antimony	µg/L	6	6		21	nd	nd	nd	nd
Arsenic	µg/L	2	10		21	nd	nd	nd	nd
Barium	µg/L	100	1000		21	nd	131	101	104
Beryllium	µg/L	1	4		20	nd	nd	nd	nd
Boron	µg/L	100			21	nd	155	126	129
Cadmium	µg/L	1	5		22	nd	nd	nd	nd
Chromium	µg/L	10	50		22	nd	nd	nd	nd
Copper	µg/L	50	1300 [7]	1000	36	nd	92.7	8.04	nd
Iron	µg/L	50		300	53	nd	65.2	5.87	nd
Lead	µg/L	5	15 [7]		53	nd	nd	nd	nd
Magnesium	mg/L				59	3.1	30.7	20.7	20.8
Manganese	µg/L	20		50	54	nd	nd	nd	nd
Mercury	µg/L	1	2		16	nd	nd	nd	nd
Nickel	µg/L	10	100		22	nd	nd	nd	nd
Selenium	µg/L	5	50		21	nd	nd	nd	nd
Silver	µg/L	10		100	21	nd	nd	nd	nd
Sodium	mg/L	20			54	66.9	98.4	83.3	83.9
Thallium	µg/L	1	2		21	nd	nd	nd	nd
Vanadium	µg/L	3			21	nd	nd	nd	nd
Zinc	µg/L	50		5000	55	nd	268	nd	nd
Radiological									
Gross *Alpha*	pCi/L	3	15		4	nd	nd	nd	nd
Gross *Beta*	pCi/L	4	50		5	nd	nd	nd	nd
Combined Radium-226 & Radium-228	pCi/L		5		4	nd	0.8	0.449	nd
Strontium 90	pCi/L	2	8		1	nd	nd	nd	nd
Tritium	pCi/L	1000	20000		1	nd	nd	nd	nd
Uranium	pCi/L	1	20		5	1.6	2.85	2.16	2.12
Inorganic Constituents									
Ammonia-N	mg/L	0.031			482	nd	1.01	0.502	0.51
Bicarbonate	mg/L				58	86	150	128	128
Bromate	µg/L	5	10		40	nd	nd	nd	nd
Bromide	mg/L	0.1			105	nd	0.27	nd	nd
Calcium	mg/L				59	42.8	88.8	60	60.4
Carbonate	mg/L				58	nd	16.8	nd	nd
Chloride	mg/L	0.5		500	64	66.2	107	90.9	92.9
Cyanide, Total	mg/L	0.1	0.15		8	nd	nd	nd	nd
Fluoride	mg/L	0.1	2		61	0.17	0.367	0.236	0.235
MBAS (Detergents)	mg/L	0.05		0.5	5	nd	0.1	nd	nd
Nitrate (as NO3)	mg/L	2	45		541	nd	2.44	nd	1.04
Nitrite (as NO2)	mg/L	1.31	3.29		487	nd	nd	nd	nd
Phosphate, Ortho (as PO4)	mg/L	0.2			64	nd	nd	nd	nd
Perchlorate	µg/L	4	6		12	nd	nd	nd	nd
Phosphorus	mg/L	0.078			59	nd	nd	nd	nd
Potassium	mg/L	0.5			54	3.23	5.01	4.13	4.11
Silica	mg/L	0.5			59	6.38	10.6	8.24	8.26
Sulfate	mg/L	0.5		500	64	116	242	180	176
Total Nitrogen	mg/L	0.156			58	nd	2.45	0.754	0.704
Organic Constituents Regulated									
1,1,1-Trichloroethane (1,1,1-TCA)	µg/L	0.5	200		19	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	µg/L	0.5	1		19	nd	nd	nd	nd
1,1,2-Trichloroethane (1,1,2-TCA)	µg/L	0.5	5		19	nd	nd	nd	nd
1,1-Dichloroethane (1,1-DCA)	µg/L	0.5	5		19	nd	nd	nd	nd

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1,1-Dichloroethene (1,1-DCE)	µg/L	0.5	6		19	nd	nd	nd	nd
1,2,4-Trichlorobenzene	µg/L	0.5	5		19	nd	nd	nd	nd
1,2-Dichlorobenzene (*o*-DCB)	µg/L	0.5	600		19	nd	nd	nd	nd
1,2-Dichloroethane (1,2-DCA)	µg/L	0.5	0.5		19	nd	nd	nd	nd
1,2-Dichloropropane	µg/L	0.5	5		19	nd	nd	nd	nd
1,4-Dichlorobenzene (*p*-DCB)	µg/L	0.5	5		19	nd	nd	nd	nd
2,4,5-TP (SILVEX)	µg/L	1	50		17	nd	nd	nd	nd
2,4-D	µg/L	10	70		17	nd	nd	nd	nd
Alachlor (ALANEX)	µg/L	1	2		22	nd	nd	nd	nd
Atrazine (AATREX)	µg/L	0.5	1		18	nd	nd	nd	nd
Bentazon (BASAGRAN)	µg/L	2	18		17	nd	nd	nd	nd
Benzene	µg/L	0.5	1		19	nd	nd	nd	nd
Benzo(a)pyrene	µg/L	0.1	0.2		18	nd	nd	nd	nd
Bromodichloromethane	µg/L	1			302	8.59	28.7	15.8	15.2
Bromoform	µg/L	1			302	nd	21	6.04	5.79
Carbofuran (FURADAN)	µg/L	5	18		17	nd	nd	nd	nd
Carbon Tetrachloride	µg/L	0.5	0.5		19	nd	nd	nd	nd
Chlordane	µg/L	0.1	0.1		8	nd	nd	nd	nd
Chloroform (Trichloromethane)	µg/L	1			302	3.73	33.3	12.7	11.4
cis-1,2-Dichloroethylene (*c*-1,2-DCE)	µg/L	0.5	6		19	nd	nd	nd	nd
Dalapon	µg/L	10	200		56	nd	nd	nd	nd
Di(2-ethylhexyl) Adipate	µg/L	5	400		17	nd	nd	nd	nd
Dibromoacetic acid (DBAA)	µg/L	1			56	2.28	6.98	4.12	4.06
Dibromochloromethane	µg/L	1			302	9.45	30.9	18.4	17.8
Dibromochloropropane (DBCP)	µg/L	0.01	0.2		26	nd	nd	nd	nd
Dichloroacetic acid (DCAA)	µg/L	1			55	4.24	14	8.25	7.94
Dichloromethane (Methylene Chloride)	µg/L	0.5	5		19	nd	nd	nd	nd
Diethylhexylphthalate (DEHP)	µg/L	3	4		16	nd	nd	nd	nd
Dinoseb (DNBP)	µg/L	2	7		17	nd	nd	nd	nd
Diquat	µg/L	4	20		17	nd	nd	nd	nd
Endothall	µg/L	45	100		21	nd	nd	nd	nd
Endrin	µg/L	0.1	2		25	nd	nd	nd	nd
Ethyl Benzene	µg/L	0.5	300		19	nd	nd	nd	nd
Ethylene Dibromide (EDB)	µg/L	0.02	0.05		26	nd	nd	nd	nd
Glyphosate	µg/L	10	700		16	nd	nd	nd	nd
Haloacetic acids (five) (HAA5)[5]	µg/L	1	60		53	10.8	27.5	17.7	16.8
Heptachlor	µg/L	0.01	0.01		8	nd	nd	nd	nd
Heptachlor epoxide	µg/L	0.01	0.01		8	nd	nd	nd	nd
Hexachlorobenzene	µg/L	0.5	1		26	nd	nd	nd	nd
Hexachlorocyclopentadiene	µg/L	1	50		21	nd	nd	nd	nd
Lindane(*gamma*-BHC)	µg/L	0.2	0.2		8	nd	nd	nd	nd
m,p-Xylene	µg/L	0.5			38	nd	nd	nd	nd
Methoxychlor	µg/L	10	30		26	nd	nd	nd	nd
Methyl-*tert*-butyl ether (MTBE)	µg/L	3	13	5	19	nd	nd	nd	nd
Molinate (ORDRAM)	µg/L	2	20		14	nd	nd	nd	nd
Monobromoacetic Acid (MBAA)	µg/L	1			54	nd	2.13	nd	nd
Monochloroacetic Acid (MCAA)	µg/L	2			56	nd	nd	nd	nd
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	70		19	nd	nd	nd	nd
Oxamyl (Vydate)	µg/L	20	50		17	nd	nd	nd	nd
o-Xylene	µg/L	0.5			38	nd	nd	nd	nd
Pentachlorophenol (PCP)	µg/L	0.2	1		17	nd	nd	nd	nd
Picloram	µg/L	1	500		17	nd	nd	nd	nd
Polychlorinated Biphenyls, Total, as DCB	µg/L	0.5	0.5		9	nd	nd	nd	nd
Simazine (PRINCEP)	µg/L	1	4		17	nd	nd	nd	nd
Styrene	µg/L	0.5	100		19	nd	nd	nd	nd
Tetrachloroethylene (PCE)	µg/L	0.5	5		19	nd	nd	nd	nd
Thiobencarb (BOLERO)	µg/L	1	70	1	19	nd	nd	nd	nd
Toluene	µg/L	0.5	150		19	nd	nd	nd	nd
Total Organic Carbon (TOC)	mg/L	0.3			429	1.57	2.86	2.34	2.31
Total Trihalomethanes (TTHMs)[6]	µg/L	1	80		243	29	88	51.7	49.5
Total Xylenes (*m,p & o*)	µg/L		1750		38	nd	nd	nd	nd
Toxaphene	µg/L	1	3		7	nd	nd	nd	nd
trans-1,2-Dichloroethene (*t*-1,2-DCE)	µg/L	0.5	10		19	nd	nd	nd	nd
Trichloroacetic Acid (TCAA)	µg/L	1			56	2.49	10.8	5.1	4.64
Trichloroethylene (TCE)	µg/L	0.5	5		19	nd	nd	nd	nd
Trichlorofluoromethane (FREON 11)	µg/L	5	150		19	nd	nd	nd	nd
Trichlorotrifluoroethane (FREON 113)	µg/L	10	1200		19	nd	nd	nd	nd
Vinyl Chloride (VC)	µg/L	0.5	0.5		19	nd	nd	nd	nd
Organic Constituents Unregulated									
1,1,1,2-Tetrachloroethane	µg/L	0.5			19	nd	nd	nd	nd
1,1-Dichloropropene	µg/L	0.5			19	nd	nd	nd	nd
1,2,3-Trichlorobenzene	µg/L	0.5			19	nd	nd	nd	nd
1,2,3-Trichloropropane	ng/L	5			17	nd	nd	nd	nd
1,2,4-Trimethylbenzene	µg/L	0.4			19	nd	nd	nd	nd
1,3,5-Trimethylbenzene	µg/L	0.5			19	nd	nd	nd	nd
1,3-Dichlorobenzene (m-DCB)	µg/L	0.5			19	nd	nd	nd	nd

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1,3-Dichloropropane	µg/L	0.5			19	nd	nd	nd	nd
1,3-Dinitrobenzene	µg/L	0.8			4	nd	nd	nd	nd
2,2',4,4',5,5'-Hexabromodiphenyl ether	µg/L	0.8			4	nd	nd	nd	nd
2,2',4,4',5-Pentabromodiphenyl ether	µg/L	0.9			4	nd	nd	nd	nd
2,2',4,4',6-Pentabromodiphenyl ether	µg/L	0.5			4	nd	nd	nd	nd
2,2',4,4'-Tetrabromodiphenyl ether	µg/L	0.3			4	nd	nd	nd	nd
2,2-Dichloropropane	µg/L	0.2			19	nd	nd	nd	nd
2,3-Dichlorobiphenyl	µg/L	0.5			3	nd	nd	nd	nd
2,4,5-T	µg/L	3			17	nd	nd	nd	nd
2,4,5-Trichlorobiphenyl	µg/L	0.5			3	nd	nd	nd	nd
2,4,6-Trinitrotoluene	µg/L	0.8			4	nd	nd	nd	nd
2,4-DB	µg/L	3			17	nd	nd	nd	nd
2-Chlorobiphenyl	µg/L	0.5			3	nd	nd	nd	nd
2-Chlorotoluene	µg/L	0.5			19	nd	nd	nd	nd
2-Methylisoborneol (MIB)	ng/L	5			232	nd	22.5	1.86	nd
3,5-Dichlorobenzoic acid	µg/L	3			17	nd	nd	nd	nd
3-Hydroxycarbofuran	µg/L	3			17	nd	nd	nd	nd
4-Chlorotoluene	µg/L	0.5			19	nd	nd	nd	nd
Acenaphthylene	µg/L	5			12	nd	nd	nd	nd
Acetochlor	µg/L	2			4	nd	nd	nd	nd
Acetochlor ethane sulfonic acid	µg/L	1			4	nd	nd	nd	nd
Acetochlor oxanilic acid	µg/L	2			4	nd	nd	nd	nd
Acifluorfen	µg/L	3			17	nd	nd	nd	nd
Alachlor ethane sulfonic acid	µg/L	1			4	nd	nd	nd	nd
Alachlor oxanilic acid	µg/L	2			4	nd	nd	nd	nd
Aldicarb	µg/L	3			17	nd	nd	nd	nd
Aldicarb sulfone	µg/L	4			17	nd	nd	nd	nd
Aldicarb sulfoxide	µg/L	3			17	nd	nd	nd	nd
Aldrin	µg/L	0.075			7	nd	nd	nd	nd
Anthracene	µg/L	5			17	nd	nd	nd	nd
Baygon	µg/L	0.4			17	nd	nd	nd	nd
Benzo (a) Anthracene	µg/L	10			18	nd	nd	nd	nd
Benzo (b) Fluoroanthene	µg/L	10			18	nd	nd	nd	nd
Benzo (g,h.i) Perylene	µg/L	10			18	nd	nd	nd	nd
Benzo (k) Fluoranthene	µg/L	10			18	nd	nd	nd	nd
Benzyl Butyl Phthalate	µg/L	10			18	nd	nd	nd	nd
Bromobenzene	µg/L	0.5			19	nd	nd	nd	nd
Bromochloromethane	µg/L	0.5			19	nd	nd	nd	nd
Bromomethane (Methyl Bromide)	µg/L	0.5			19	nd	nd	nd	nd
Carbaryl (Sevin)	µg/L	5			17	nd	nd	nd	nd
Chloramben	µg/L	3			17	nd	nd	nd	nd
Chloroethane	µg/L	0.5			19	nd	nd	nd	nd
Chloromethane (Methyl Chloride)	µg/L	0.5			19	nd	nd	nd	nd
Chrysene	µg/L	5			18	nd	nd	nd	nd
cis-1,3-Dichloropropene	µg/L	0.5			19	nd	nd	nd	nd
Dibenzo (a,h) anthracene	µg/L	5			18	nd	nd	nd	nd
Dibromomethane	µg/L	0.5			19	nd	nd	nd	nd
Dicamba (BANVEL)	µg/L	1.5			17	nd	nd	nd	nd
Dichlorodifluoromethane (Freon 12)	µg/L	0.5			19	nd	nd	nd	nd
Dichlorprop	µg/L	3			17	nd	nd	nd	nd
Dieldrin	µg/L	0.02			8	nd	nd	nd	nd
Diethylphthalate	µg/L	5			18	nd	nd	nd	nd
Diisopropyl Ether (DIPE)	µg/L	3			19	nd	nd	nd	nd
Dimethoate (CYGON)	µg/L	0.7			4	nd	nd	nd	nd
Dimethyl phthalate	µg/L	5			14	nd	nd	nd	nd
Di-*n*-Butylphthalate	µg/L	5			18	nd	nd	nd	nd
Dissolved Organic Carbon (DOC)	mg/L	0.3			1	2.16	2.16	2.16	2.16
Ethyl-*tert*-butyl ether (ETBE)	µg/L	3			19	nd	nd	nd	nd
Fluorene	µg/L	5			18	nd	nd	nd	nd
Geosmin	ng/L	5			230	nd	10.3	nd	nd
Hexachlorobutadiene	µg/L	0.5			19	nd	nd	nd	nd
Indeno(1,2,3-cd)pyrene	µg/L	10			18	nd	nd	nd	nd
Isopropylbenzene (Cumene)	µg/L	0.5			19	nd	nd	nd	nd
MCPA	µg/L	3			17	nd	nd	nd	nd
MCPP	µg/L	3			17	nd	nd	nd	nd
Methiocarb	µg/L	0.4			17	nd	nd	nd	nd
Methomyl	µg/L	2			17	nd	nd	nd	nd
Metolachlor	µg/L	1			4	nd	nd	nd	nd
Metolachlor ethane sulfonic acid	µg/L	1			4	nd	nd	nd	nd
Metolachlor oxanilic acid	µg/L	2			4	nd	nd	nd	nd
Naphthalene	µg/L	0.5			33	nd	nd	nd	nd
n-Butylbenzene	µg/L	0.5			19	nd	nd	nd	nd
n-Nitrosodiethylamine(NDEA)	µg/L	0.005			4	nd	nd	nd	nd
n-Nitrosodi-*n*-butylamine(NDBA)	µg/L	0.004			4	nd	nd	nd	nd
n-Nitrosomethylethylamline(NMEA)	µg/L	0.003			4	nd	nd	nd	nd
n-Nitrosopyrrolidine(NPYR)	µg/L	0.002			4	nd	nd	nd	nd
n-Propylbenzene	µg/L	0.5			19	nd	nd	nd	nd

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Paraquat	µg/L	4			17	nd	nd	nd	nd
PCB 1016 / 1242	µg/L	0.5			5	nd	nd	nd	nd
PCB-1016 (as DCB)	µg/L	0.5			5	nd	nd	nd	nd
PCB-1221 (as DCB)	µg/L	0.5			5	nd	nd	nd	nd
PCB-1232 (as DCB)	µg/L	0.5			9	nd	nd	nd	nd
PCB-1242 (as DCB)	µg/L	0.5			4	nd	nd	nd	nd
PCB-1248 (as DCB)	µg/L	0.5			9	nd	nd	nd	nd
PCB-1254 (as DCB)	µg/L	0.5			9	nd	nd	nd	nd
PCB-1260 (as DCB)	µg/L	0.5			9	nd	nd	nd	nd
Phenanthrene	µg/L	5			18	nd	nd	nd	nd
p-Isopropyltoluene	µg/L	0.2			19	nd	nd	nd	nd
Propachlor	µg/L	0.5			26	nd	nd	nd	nd
Pyrene	µg/L	0.5			18	nd	nd	nd	nd
RDX (Hexahydro-1,3,5-trinitro-1,3,5-trazine	µg/L	1			4	nd	nd	nd	nd
sec-Butylbenzene	µg/L	0.5			19	nd	nd	nd	nd
Terbufos Sulfone	µg/L	0.4			4	nd	nd	nd	nd
tert-Amyl Methyl Ether (TAME)	µg/L	3			19	nd	nd	nd	nd
tert-Butyl Alcohol (TBA)	µg/L	2			19	nd	nd	nd	nd
tert-Butylbenzene	µg/L	0.5			19	nd	nd	nd	nd
trans-1,3-Dichloropropene	µg/L	0.5			19	nd	nd	nd	nd
Trifluralin	µg/L	0.5			18	nd	nd	nd	nd

NOTES:

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

(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.
(3) Turbidity of treated water is not to exceed 0.3 NTU 95% of the time.
(4) No more than 5% of distribution system samples can be total coliform positive
(5) Haloacetic acids (five) is the sum of the concentrations of mono, di-, and trichloroacetic acids and mono- and dibromoacetic acids. MCL based on annual average.
(6) Total trihalomethanes is the sum of the concentrations of chloroform, bromodichloromethane, dibromochloromethane, and bromoform. MCL based on annual average.
(7) Lead and Copper Rule Action Level.

a: absent
nd: non-detected at State DLR or MDL if DLR not available