

ADDITIONAL PHYSICAL, MINERAL, AND METAL CHARACTERISTICS – YEAR 2003 BY WATER TREATMENT PLANT

ANALYTE	ALVARADO PLANT EFFLUENT			MIRAMAR PLANT			OTAY PLANT			UNITS
	LOW	HIGH	AVG	LOW	HIGH	AVG	LOW	HIGH	AVG	
*Hardness (Total) as CaCO3	212	266	238	214	276	241	199	289	226	mg/L
Calcium (Ca)	50.4	84.4	66.4	56.0	85.2	66.3	39.8	88.4	63.9	mg/L
Magnesium (Mg)	6.2	27.3	17.1	7.9	27.3	17.6	4.0	32.8	16.1	mg/L
Sodium (Na)	71.8	91.6	80.1	61.8	87.6	75.5	69.9	89.0	78.7	mg/L
Potassium (K)	3.4	4.7	4.2	3.2	4.6	4.0	3.6	4.9	4.2	mg/L
Alkalinity (Total) as CaCO3	99.8	136	124	95.4	133	119	94.8	167	127	mg/L
Carbonate (CO3)	0	0	0	0	0	0	0	0	0	mg/L
Bicarbonate (HCO3)	121	165	151	116	162	144	115	203	154	mg/L
Sulfate (SO4)	145	207	174	154	205	179	112	209	164	mg/L
Chloride (Cl)	77.4	90.9	84.2	76.5	91.8	83.0	76.9	97.7	85.9	mg/L
Nitrate (as NO3)	0.33	1.3	0.8	< 0.2	1.3	0.7	<0.2	1.4	0.6	mg/L
Fluoride (F) Temp Dependent	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.4	0.3	mg/L
pH, Laboratory	8.3	8.7	8.4	8.1	8.6	8.4	7.8	8.4	8.2	
Specific Conductance (E.C.)	848	1140	952	838	1090	947	847	1160	945	µS/cm
Total Filterable Residue at 180 C (TDS)	497	573	537	498	581	525	477	621	521	mg/L
Color, Apparent (Unfiltered)	< 1	5	2.1	< 1	4	1.1	<1	8	2.3	COLOR
Odor Threshold at 60 C	< 1	< 1	< 1	< 1	< 1	< 1	1	1.4	1	TON
Aluminum (Al)	< 10	18.7	< 10	< 10	17.4	< 10	< 10	12.4	< 10	µg/L
Antimony (Sb)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	µg/L
Arsenic (As)	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	µg/L
Barium (Ba)	65.7	98.4	92.8	63.3	96.9	79.4	55.3	92.8	73	µg/L
Beryllium (Be)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	µg/L
Cadmium (Cd)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	µg/L
Chromium (Total Cr)	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	µg/L
Copper (Cu)	3	5.4	3.9	ND	8.1	5.7	ND	3.1	ND	µg/L
Iron (Fe)	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	µg/L
Lead (Pb)	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	µg/L
Manganese (Mn)	< 2	2.3	< 2	< 2	< 2	< 2	< 2	< 2	< 2	µg/L
Mercury (Hg)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	µg/L
Nickel (Ni)	< 2	4.2	3.3	< 2	4.4	3.3	< 2	4.1	3.2	µg/L
Selenium (Se)	< 3	3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	µg/L
Silver (Ag)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	µg/L
Thallium	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	µg/L
Zinc (Zn)	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	µg/L
Vanadium	< 3	3.3	< 3	< 3	3.7	< 3	< 3	3.5	< 3	µg/L
Langelier Index	0.7	1.2	0.9	0.5	1.1	0.8	0.2	0.9	0.7	
Aggressiveness Index	12.5	12.9	12.7	12.3	12.9	12.6	12	12.7	12.5	
Silica	6	10.7	8.6	6.4	9.3	8	7	12.1	8.9	mg/L
Phosphate	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	mg/L
Boron	35.8	169	95.3	35.3	146	90	34.4	168	99.9	µg/L
Nitrite as Nitrogen (N)	< 0.01	0.012	< 0.01	< 0.01	0.011	< 0.01	< 0.01	0.027	< 0.01	µg/L
Cyanide	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	mg/L
Bromide	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	mg/L
Perchlorate	< 4	< 4	< 4	< 4	< 4	< 4	< 4	4.2	< 4	µg/L

* These figures can be converted to grains per gallon (gpg) by dividing the number by a factor of 17.12.
 For example, Alvarado's average hardness of 235 mg/L can also be expressed as 13.73 gpg (235 divided by 17.12 =13.73)

Abbreviations

mg/L: Milligrams per liter or parts per million (ppm)
µg/L: Micrograms per liter or parts per billion (ppb)
ng/L: Nanograms per liter or parts per trillion (ppt)

µS: Micro siemens per centimeter (a measure of conductivity)
COLOR: Natural color Units
TON: Threshold Odor Number