

**Three Valleys Municipal Water District
2016 WATER QUALITY REPORT TO TVMWD MEMBER AGENCIES**

WEYMOUTH refers to the Metropolitan Water District's Weymouth Water Treatment Plant in the City of La Verne.
MIRAMAR refers to the Three Valleys Municipal Water District's Miramar Water Treatment Plant in the City of Claremont

	WEYMOUTH EFFLUENT Range/Average	MIRAMAR PLANT Range/Average	MIRAMAR GROUNDWATER Range/Average	REGULATORY STANDARDS			Major Sources in Drinking Water
				State MCL [MRDL]	PHG (MCLG) [MRDLG]	State DLR	

SOURCE WATER

% of State Project Water	0 - 100 / 13	94.7	5.3	NA	NA	NA	
% of Groundwater	0						

PRIMARY STANDARDS - Mandatory Health-Related Standards

CLARITY

Combined Filter Effluent Turbidity (a)	NTU % ≤ 0.3	0.03 (highest) 100%	0.08 (highest) 100%	0.64 (highest) 100%	TT=1 TT (a)	NA	NA	Soil runoff
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MICROBIOLOGICAL

Total Coliform Bacteria (b)	%	ND - 0.3 / ND distribution system-wide	ND distribution system-wide	ND	5.0	(0)	NA	Naturally present in the environment
State Total Coliform Rule <i>E. coli</i> (c)	(c)	ND distribution system-wide	ND distribution system-wide	ND	(c)	(0)	NA	Human and animal fecal waste
State Total Coliform Rule Total Coliform Bacteria (d)	%	ND - 0.3 / 0.1 distribution system-wide	ND distribution system-wide	ND	(d)	NA	NA	Naturally present in the environment
Federal Revised Total Coliform Rule <i>E. Coli</i> (e)	(e)	ND distribution system-wide	ND distribution system-wide	ND	(e)	(0)	NA	Human and animal fecal waste
Federal Revised Total Coliform Rule Heterotrophic Plate Count (f)	CFU/ mL	TT	TT	TT	(f)	NA	NA	Naturally present in the environment
<i>Cryptosporidium</i>	Oocyst 200 L	ND	ND	ND	TT	(0)	NA	Human and animal fecal waste
<i>Giardia</i>	Cysts 200 L	ND	ND	ND	TT	(0)	NA	Human and animal fecal waste

ORGANIC CHEMICALS

Pesticides/PCBs

	Units	2015 (due again 2018)	2016	2016				
Alachlor	ppb	ND	ND	ND	2	4	1	Runoff from herbicide used on row crops
Atrazine	ppb	ND	ND	ND	1	0.15	0.5	Runoff from herbicide used on row crops and along highways
Bentazon	ppb	ND	ND	ND	18	200	2	Runoff/leaching from herbicide used on rice, alfalfa, grapes
Carbofuran	ppb	ND	ND	ND	18	0.7	5	Leaching of soil fumigant used on rice, alfalfa and grapes
Chlordane	ppt	ND	ND	ND	100	30	100	Residue of banned insecticide
2,4-D	ppb	ND	ND	ND	70	20	10	Runoff from herbicide used on row crops, range land, lawns and aquatic weeds
Dalapon	ppb	ND	ND	ND	200	790	10	Runoff from herbicide used on rights of way, crops and landscapes
Dibromochloropropane (DBCP)	ppt	ND	ND	ND	200	1.7	10	Banned nematocide that may still be present in soils due to runoff/leaching
Dinoseb	ppb	ND	ND	ND	7	14	2	Runoff from herbicide used on soybeans, vegetables and fruits
Diquat	ppb	ND	ND	ND	20	6	4	Runoff from herbicide used for terrestrial and aquatic weeds
Endothall	ppb	ND	ND	ND	100	94	45	Runoff from herbicide used for terrestrial and aquatic weeds
Endrin	ppb	ND	ND	ND	2	0.3	0.1	Residue of banned insecticide and rodenticide
Ethylene dibromide (EDB)	ppt	ND	ND	ND	50	10	20	Discharge from petroleum refineries; underground gas tank leaks
Glyphosate	ppb	ND	ND	ND	700	900	25	Runoff from herbicide use
Heptachlor	ppt	ND	ND	ND	10	8	10	Residue of banned insecticide
Heptachlor Epoxide	ppt	ND	ND	ND	10	6	10	Breakdown product of heptachlor
Lindane	ppt	ND	ND	ND	200	32	200	Runoff/leaching from insecticide used on cattle, lumber, gardens
Methoxychlor	ppb	ND	ND	ND	30	0.09	10	Runoff/leaching from insecticide uses
Molinate (Ordram)	ppb	ND	ND	ND	20	1	2	Runoff/leaching from herbicide used on rice
Oxamyl (Vydate)	ppb	ND	ND	ND	50	26	20	Runoff/leaching from insecticide uses
Pentachlorophenol (PCP)	ppb	ND	ND	ND	1	0.3	0.2	Discharge from wood preserving factories, other insecticidal and herbicidal uses
Picloram	ppb	ND	ND	ND	500	166	1	Herbicide runoff
Polychlorinated Biphenyls (PCBs)	ppt	ND	ND	ND	500	90	500	Runoff from landfills; discharge of waste chemicals
Simazine	ppb	ND	ND	ND	4	4	1	Herbicide runoff
2,4,5-TP (Silvex)	ppb	ND	ND	ND	50	3	1	Residue of banned herbicide
Thiobencarb	ppb	ND	ND	ND	70	42	1	Runoff/leaching from herbicide used on rice
Toxaphene	ppb	ND	ND	ND	3	0.03	1	Runoff/leaching from insecticide used on cotton and cattle

Semi-Volatile Organic Chemicals

	2015 (due again 2018)	2016	2016					
Acrylamide	NA	TT	TT	TT	(0)	NA	Water treatment chemical impurities	
Benzo(a)pyrene	ppt	ND	ND	ND	200	7	100	Leaching from linings of water storage tanks and distribution mains
Di(2-ethylhexyl) adipate	ppb	ND	ND	ND	400	200	5	Discharge from chemical factories
Di(2-ethylhexyl) phthalate	ppb	ND	ND	ND	4	12	3	Discharge from chemical factories; inert ingredient in pesticides
Epichlorohydrin	NA	ND	TT	TT	TT	(0)	NA	Water treatment chemical impurities
Hexachlorobenzene	ppb	ND	ND	ND	1	0.03	0.5	Discharge from metal refineries & agricultural factories; wastewater chlorination reaction by-
Hexachlorocyclopentadiene	ppb	ND	ND	ND	50	2	1	Discharge from chemical factories
2,3,7,8-TCDD (Dioxin)	ppq	ND	ND	ND	30	0.05	5	Emissions from waste incineration; discharge from chemical factories

Volatile Organic Chemicals

	2016	2016	2016					
Benzene	ppb	ND	ND	ND	1	0.15	0.5	Plastic factory discharge; gas tanks and landfill leaching
Carbon Tetrachloride	ppt	ND	ND	ND	500	100	500	Discharge from chemical plants and other industrial activities
1,2-Dichlorobenzene	ppb	ND	ND	ND	600	600	0.5	Discharge from industrial chemical factories
1,4-Dichlorobenzene	ppb	ND	ND	ND	5	6	0.5	Discharge from industrial chemical factories
1,1-Dichloroethane	ppb	ND	ND	ND	5	3	0.5	Extraction & degreasing solvent; fumigant
1,2-Dichloroethane	ppt	ND	ND	ND	500	400	500	Discharge from industrial chemical factories
1,1-Dichloroethylene	ppb	ND	ND	ND	6	10	0.5	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene	ppb	ND	ND	ND	6	100	0.5	Industrial chemical factory discharge; biodegradation byproduct of TCE/PCE
trans-1,2-Dichloroethylene	ppb	ND	ND	ND	10	60	0.5	Industrial chemical factory discharge; biodegradation byproduct of TCE/PCE
Dichloromethane (methylene chloride)	ppb	ND	ND	ND	5	4	0.5	Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane	ppb	ND	ND	ND	5	0.5	0.5	Discharge from industrial chemical factories; primary component of some fumigants
1,3-Dichloropropene	ppt	ND	ND	ND	500	200	500	Runoff/leaching from nematocide used on croplands
Ethylbenzene	ppb	ND	ND	ND	300	300	0.5	Discharge from petroleum refineries; industrial chemical factories
Methyl-tert-butyl-ether (MTBE)	ppb	ND	ND	ND	13	13	3	Gasoline discharge from watercraft engines
Monochlorobenzene	ppb	ND	ND	ND	70	70	0.5	Discharge from industrial, agricultural chemical factories and dry-cleaning facilities
Styrene	ppb	ND	ND	ND	100	0.5	0.5	Rubber and plastics factories discharge, landfill leaching
1,1,2,2-Tetrachloroethane	ppb	ND	ND	ND	1	0.1	0.5	Discharge from industrial, agricultural chemical factories; solvent uses
Tetrachloroethylene (PCE)	ppb	ND	ND	ND	5	0.06	0.5	Discharge from factories, dry cleaners and auto shops
Toluene	ppb	ND	ND	ND	150	150	0.5	Discharge from petroleum and chemical refineries
1,2,4-Trichlorobenzene	ppb	ND	ND	ND	5	5	0.5	Discharge from textile-finishing factories
1,1,1-Trichloroethane	ppb	ND	ND	ND	200	1000	0.5	Discharge from metal degreasing sites; manufacture of food wrappings
1,1,2-Trichloroethane	ppb	ND	ND	ND	5	0.3	0.5	Discharge from industrial chemical factories
Trichloroethylene (TCE)	ppb	ND	ND	ND	5	1.7	0.5	Discharge from metal degreasing sites and other factories
Trichlorofluoromethane (Freon 11)	ppb	ND	ND	ND	150	1300	5	Discharge from industrial factories; degreasing solvent; propellant
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ppm	ND	ND	ND	1.2	4	0.01	Discharge from metal degreasing sites and other factories; dry-cleaning solvent;
Vinyl chloride	ppt	ND	ND	ND	500	50	500	Leaching from PVC piping; plastics factory discharge; biodegradation byproduct of
Xylenes	ppm	ND	ND	ND	1.75	1.8	0.0005	Discharge from petroleum and chemical refineries; fuel solvent

INORGANIC CHEMICALS

	2016	2016	2016				
Aluminum	ppb 77 - 220/159	ND	ND	1000	600	50	Residue from water treatment process; erosion of natural deposits
Antimony	ppb ND	ND	ND	6	1	6	Discharge from petroleum refineries; fire retardant; solder; electronics
Arsenic	ppb ND	ND - 2.4/1.47	ND	10	0.004	2	Erosion of natural deposits; glass & electronics production wastes
Asbestos	MFL ND	ND	NR	7	7	0.2	Internal corrosion of asbestos cement pipes; erosion of natural deposits
Barium	ppb 144	ND	ND	1000	2000	100	Discharge of oil drilling wastes and from metal refineries; erosion of natural deposits
Beryllium	ppb ND	ND	ND	4	1	1	Discharge from metal refineries; aerospace and defense industries
Cadmium	ppb ND	ND	ND	5	0.04	1	Internal corrosion of galvanized pipes; erosion of natural deposits
Chromium	ppb ND	ND	ND	50	(100)	10	Discharge from steel and pulp mills; erosion of natural deposits
Chromium VI (g)	ppb ND	ND	ND - 1.1 / 0.55	10	0.02	1	Runoff/leaching from natural deposits; discharge from industrial waste factories
Copper	ppm ND	ND	ND	AL=1.3	0.3	0.05	Internal corrosion of household pipes; erosion of natural deposits
Cyanide	ppb ND	ND	ND	150	150	100	Discharge from steel/metal, plastic and fertilizer factories
Fluoride	ppm 0.6 - 1.0 / 0.7 (treatment related)	0.24 (naturally occurring)	0.59 (naturally occurring)	2	1	0.1	Erosion of natural deposits; water additive that promotes strong teeth
Lead (h)	ppb ND	ND	ND	AL=15	0.2	5	Internal corrosion of household pipes; erosion of natural deposits
Mercury	ppb ND	ND	ND	2	1.2	1	Erosion of natural deposits; discharge from factories; runoff from landfills
Nickel	ppb ND	ND	ND	100	12	10	Erosion of natural deposits; discharge from metal factories
Nitrate (as Nitrogen) (i)	ppm ND	ND - 1.2 / 0.52	2.4 - 3.0 / 2.65	10	10	0.4	Runoff & leaching from fertilizer use; septic tank and sewage; erosion of natural deposits
Nitrite (as Nitrogen)	ppm ND	ND	ND	1	1	0.4	Runoff & leaching from fertilizer use; septic tank and sewage; erosion of natural deposits
Perchlorate (j)	ppb ND	ND	ND	6	1	4	Industrial waste discharge
Selenium	ppb ND	ND	ND	50	30	5	Refineries, mines and chemical waste discharge; runoff from livestock lots
Thallium	ppb ND	ND	ND	2	0.1	1	Leaching from ore-processing sites; factory discharge

RADIOLOGICALS

	2016	2016	2016				
Gross Alpha Particle Activity	pCi/L ND - 4 / ND	ND	ND	15	(0)	3	Erosion of natural deposits
Gross Beta Particle Activity (l)	pCi/L 4 - 6 / 5	ND	NR	50 (l)	(0)	4	Decay of natural and man-made deposits
Combined Radium Radium 226 + 228	pCi/L ND	due 2022	due 2019	5	(0)	NA	Erosion of natural deposits
Radium 226	pCi/L ND	due 2022	0.147	NA	0.05	1	Erosion of natural deposits
Radium 228	pCi/L ND	due 2022	0.001	NA	0.019	1	Erosion of natural deposits
Strontium-90	pCi/L ND	0.055	NR	8	0.35	2	Decay of natural and man-made deposits
Tritium	pCi/L ND	147	NR	20,000	400	1,000	Decay of natural and man-made deposits
Uranium	pCi/L 2 - 3 / 3	due 2019	1.4 - 2.1 / 1.92	20	0.43	1	Erosion of natural deposits

DISINFECTION BY-PRODUCTS, DISINFECTANT RESIDUALS, AND DISINFECTION BY-PRODUCTS PRECURSOR^s

	2016	2016	2016				
Total Trihalomethanes (TTHM) (m)	ppb 16 - 62 / 42 Distribution system-wide (m)	32.6 - 71.4 / 49.7 Distribution system-wide (m)	ND - 1 / 0.5	80	NA	1	By-product of drinking water disinfection
Haloacetic Acids (HAA5) (m)	ppb ND - 31 / 14 Distribution system-wide (m)	6.07 - 25.7 / 12.3 Distribution system-wide (m)	NR	60	NA	1	By-product of drinking water disinfection
Total Chlorine Residua	ppm 0.9 - 3.1 highest RAA 2.4 Distribution system-wide	2.32 - 2.97 highest RAA 2.51 Distribution system-wide	NR	[4.0]	[4.0]	NA	Drinking water disinfectant added for treatment
DBP Precursor Control (TOC)	ppm TT	TT	TT	TT	NA	0.30	Various natural and man-made sources; TOC as a medium for the formation of disinfection

SECONDARY STANDARDS - Aesthetic Standards

Aluminum	ppb 77 - 220 / 159	ND	ND	200	600	50	Residue from water treatment processes; natural deposits erosion
Chloride	ppm 103	88	8.1	500	NA	NA	Runoff/leaching from natural deposits; seawater influence
Color	units 1	ND	ND	15	NA	NA	Naturally occurring organic materials
Copper	ppm ND	ND	ND	1	0.3	0.05	Internal corrosion of household pipes; natural deposits erosion; wood preservatives leaching
Foaming Agents-MBAS	ppb ND	0.2 - 0.28/0.22	ND	500	NA	NA	Municipal and industrial waste discharges
Iron	ppb ND	ND	ND	300	NA	100	Leaching from natural deposits; industrial wastes
Manganese	ppb ND	ND	ND	50	NL=500	20	Leaching from natural deposits
Methyl tert-butyl-ether (MTBE)	ppb ND	ND	ND	5	13	3	Gasoline discharges from watercraft engines
Odor Threshold	TON 2	1	1	3	NA	1	Naturally occurring organic materials
Silver	ppb ND	ND	ND	100	NA	10	Industrial discharges
Specific Conductance	µS/cm 1035	520 - 630/575	410	1,600	NA	NA	Substances that form ions when in water; seawater influence
Sulfate	ppm 256 - 259 / 258	80	28	500	NA	0.5	Runoff/leaching from natural deposits; industrial wastes
Thiobencarb	ppb ND	ND	ND	1	42	1	Runoff/leaching from rice herbicide
Total Dissolved Solids	ppm 650 - 659 / 655	360	344 - 451 / 395	1,000	NA	NA	Runoff/leaching from natural deposits; seawater influence
Turbidity (a)	NTU ND	ND	ND	5	NA	NA	Soil runoff
Zinc	ppm ND	ND	ND	5.0	NA	0.05	Runoff/leaching from natural deposits; industrial wastes

OTHER PARAMETERS

Alkalinity	ppm	113 - 124 / 118	61 - 92 / 78	160	NA	NA	NA	Measure of water quality
Boron	ppb	150	210 - 270 / 240	180	NL=1,000	NA	100	Runoff/leaching from natural deposits; industrial wastes
Calcium	ppm	75 - 79 / 77	26 - 31/28.5	50	NA	NA	NA	Measure of water quality
Chlorate	ppb	60	ND	NR	NL=800	NA	20	By-product of drinking water chlorination; industrial processes
Corrosivity (m) (as Aggressiveness Index)	AI	12.4 - 12.5 / 12.5	12.35	NR	NA	NA	NA	Elemental balance in water; affected by temperature, other factors
Corrosivity (o) (as Saturation Index)	SI	0.54 - 0.60 / 0.57	0.50	NR	NA	NA	NA	Elemental balance in water; affected by temperature, other factors
Hardness (as CaCO ₃)	ppm	293 - 306 / 300	120	160	NA	NA	NA	Measure of water quality
Magnesium	ppm	25 - 27 / 26	10	8.4	NA	NA	NA	Measure of water quality
pH	pH units	8.1	8.6 - 8.63/8.62	7.9	NA	NA	NA	Measure of water quality
Potassium	ppm	5.0 - 5.1 / 5.1	2.7	1.4	NA	NA	NA	Measure of water quality
Radon (k)	pCi/L	ND	NR	22	NA	NA	100	Naturally occurring, comes from decay of uranium in nearly all soils
Sodium	ppm	104 - 106 / 105	81	ND	NA	NA	NA	Measure of water quality
Total organic carbon (TOC)	ppm	1.7 - 2.8 / 2.5	1.6 - 2.8 / 2.2	ND	TT	NA	0.30	Various natural and man-made sources; TOC as the formation of disinfection byproducts
Vanadium	ppb	ND	7.1 - 9.6/8.35	NR	NL=50	NA	3	Naturally occurring; industrial waste discharge
N-Nitrosodimethylamine (NDMA)	ppt	ND	0.001	NR	NL=10	3	2	By-product of drinking water chlorination; industrial processes
Dichlorodifluoromethane (Freon 12)	ppb	ND	ND	NR	NL=1,000	NA	0.5	Industrial waste discharge
Ethyl-tert-butyl-ether (ETBE)	ppb	ND	ND	NR	NA	NA	3	Used as gasoline additive
tert-Amyl-methyl-ether (TAME)	ppb	ND	ND	NR	NA	NA	3	Used as gasoline additive
tert-Butyl alcohol (TBA)	ppb	ND	ND	NR	NL=12	NA	2	MTBE breakdown product; used as gasoline additive
Trichloropropane (1,2,3-TCP)	ppb	NT	ND	ND	NL=.005	0.0007	0.005	Industrial solvent and degreasing/ cleaning

KEY TO ABBREVIATIONS

<p>AI = Aggressiveness Index AL = Action level CFU/ml = Colony Forming Units per milliliter DBP = Disinfection By-Products DLR = Detection Limits for Purposes of Reporting 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 MCL = Maximum Contaminant Level MCLG = Maximum Contaminant Level Goal MFL = million fibers per liter MRDL = Maximum Residual Disinfectant Level MRDLG = Maximum Residual Disinfectant Level Goal MPN = Most Probable Number NA = Not Applicable NC = Not Collected</p>	<p>ND = None Detected NL = Notification Level NR = Not Required NTU = Nephelometric Turbidity Units pCi/L = PicoCuries per liter PHG = Public Health Goal ppb = parts per billion or micrograms per liter (ug/L) ppm = parts per million or milligrams per liter (mg/L) ppq = parts per quadrillion or picograms per liter (pg/L) ppt = parts per trillion or nanograms per liter (ng/L) RAA = Running Annual Average; highest RAA is the highest of all Running Annual Averages calculated as average of all the samples collected within a twelve-month period. Si = Saturation Index (Langelier) TON = Threshold Odor Number TT = Treatment Technique is a required process intended to reduce the level of a contaminant in drinking water µS/cm = microSiemen per centimeter; or micromho per centimeter (µS/cm)</p>
a)	As a Primary Standard, the turbidity level of the filtered water were less than or equal to 0.3 NTU in 95% of the measurements taken each month and shall not exceed 1.0 NTU at anytime. Turbidity is a measure of the cloudiness of water and is a good indicator of treatment performance.
b)	Total coliform MCLs: No more than 5% of the monthly samples may be total coliform positive. Compliance is based on the combined distribution system. sampling. In 2016, 7,106 samples were analyzed from MWD (3 samples were positive for total coliforms) and 893 samples were analyzed from TVMWD (0 samples were positive for total coliform). The MCL was not violated.
c)	Acute total coliform <i>E. coli</i> MCL: The occurrence of two consecutive total coliform-positive samples, one of which contained <i>E. coli</i> , constitutes an acute MCL violation. The MCL was not violated.
d)	Total coliform TT trigger, Level 1 assessments and total coliform TT violations: More than 5% total coliform-positive samples in a month trigger Level 1 assessments. Failure to conduct assessments and correct findings within 30 days is a total coliform violation. No triggers, Level 1 assessments or violations occurred.
e)	<i>E. coli</i> MCL and Level 2 TT triggers for assessments: Routine and repeat samples are total coliform-positive and either sample is <i>E. coli</i> -positive or system fails to collect all repeat samples following an <i>E. coli</i> -positive sample, or fails to test for <i>E. coli</i> when the repeat sample is total coliform-positive. No samples were <i>E. coli</i> -positive. No MCLs violations or no assessments occurred.
f)	All distribution system samples collected had detectable total chlorine residuals and no HPC was required. HPC reporting level is 1 CFU/mL. Values are based on monthly median per State guidelines and recommendations.
g)	MWD's chromium VI reporting level is 0.03 ppb which is below the state DLR of 1 ppb. Data above MWD's reporting level and below the DLR are reported as ND in this report-available upon request.
h)	As a wholesaler, MWD and TVMWD are not required to collect samples at the consumers' tap under the Lead and Copper Rule. Lead and copper results are from annual compliance monitoring.
i)	State MCL is 45 ppm as nitrate, which is the equivalent of 10 ppm as N.
j)	MWD's perchlorate reporting level is 0.1 ppb which is below the state DLR of 4 ppb. Data above MWD's reporting level and below the DLR are reported as ND in this report-available upon request.
k)	MWD data are from samples collected (triennially) during four consecutive quarters of monitoring in 2014 and reported for three years until the next samples are collected.
l)	SWRCB considers 50 pCi/L to be the level of concern for beta particles.
m)	Compliance was based on the highest Locational Running Annual Average (LRAA) of all data collected at distribution system-wide monitoring locations. Results are based on approved DDW compliance monitoring plan.
n)	AI ≥ 12.0 = Non-aggressive water AI (10.0-11.9) = Moderately aggressive water AI ≤ 10.0 = Highly aggressive water Reference: ANSI/AWWA Standard C400-93 (R98)
o)	Positive SI index = non-corrosive; tendency to precipitate and/or deposit scale on pipes Negative SI index = corrosive; tendency to dissolve calcium carbonate