

**Three Valleys Municipal Water District
2015 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 EFFLUENT Range/Average	REGULATORY STANDARDS			Major Sources in Drinking Water
			State MCL [MRDL]	PHG (MCLG) [MRDLG]	State DLR	

SOURCE WATER

% of State Project Water	0	92.57	NA	NA	NA	
% of Groundwater		7.43				

PRIMARY STANDARDS - Mandatory Health-Related Standards

CLARITY

Combined Filter Effluent Turbidity	NTU % ≤ 0.3	(highest) 0.5 100%	(highest) 0.1 100%	TT=1 TT (a)	NA	NA	Soil runoff
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MICROBIOLOGICAL

Total Coliform Bacteria (b)	%	ND - 0.2 / ND distribution system-wide	ND distribution system-wide	5.0	(0)	NA	Naturally present in the environment
<i>E. coli</i> (c)	(c)	ND distribution system-wide	ND distribution system-wide	(C)	(0)	NA	Human and animal fecal waste
Heterotrophic Plate Count (d)	CFU/ mL	TT	TT	TT	NA	NA	Naturally present in the environment
<i>Cryptosporidium</i>	Oocyst 200 L	ND	ND	TT	(0)	NA	Human and animal fecal waste
<i>Giardia</i>	Cysts 200 L	ND	ND	TT	(0)	NA	Human and animal fecal waste

ORGANIC CHEMICALS

Pesticides/PCBs

	Units	WEYMOUTH	MIRAMAR	State MCL	PHG	State DLR	Major Sources
Alachlor	ppb	ND	ND	2	4	1	Runoff from herbicide used on row crops
Atrazine	ppb	ND	ND	1	0.15	0.5	Runoff from herbicide used on row crops and along highways
Bentazon	ppb	ND	ND	18	200	2	Runoff/leaching from herbicide used on rice, alfalfa, grapes
Carbofuran	ppb	ND	ND	18	1.7	5	Leaching of soil fumigant used on rice, alfalfa and grapes
Chlordane	ppt	ND	ND	100	30	100	Residue of banned insecticide
2,4-D	ppb	ND	ND	70	20	10	Runoff from herbicide used on row crops, range land, lawns and aquatic weeds
Dalapon	ppb	ND	ND	200	790	10	Runoff from herbicide used on rights of way, crops and landscapes
Dibromochloropropane (DBCP)	ppt	ND	ND	200	1.7	10	Banned nematocide that may still be present in soils due to runoff/leaching
Dinoseb	ppb	ND	ND	7	14	2	Runoff from herbicide used on soybeans, vegetables and fruits
Diquat	ppb	ND	ND	20	15	4	Runoff from herbicide used for terrestrial and aquatic weeds
Endothal	ppb	ND	ND	100	94	45	Runoff from herbicide used for terrestrial and aquatic weeds
Endrin	ppb	ND	ND	2	1.8	0.1	Residue of banned insecticide and rodenticide
Ethylene dibromide (EDB)	ppt	ND	ND	50	10	20	Discharge from petroleum refineries; underground gas tank leaks
Glyphosate	ppb	ND	ND	700	900	25	Runoff from herbicide use
Heptachlor	ppt	ND	ND	10	8	10	Residue of banned insecticide
Heptachlor Epoxide	ppt	ND	ND	10	6	10	Breakdown product of heptachlor
Lindane	ppt	ND	ND	200	32	200	Runoff/leaching from insecticide used on cattle, lumber, gardens
Methoxychlor	ppb	ND	ND	30	0.09	10	Runoff/leaching from insecticide uses
Molinate (Ordram)	ppb	ND	ND	20	1	2	Runoff/leaching from herbicide used on rice
Oxamyl (Vydate)	ppb	ND	ND	50	26	20	Runoff/leaching from insecticide uses
Pentachlorophenol (PCP)	ppb	ND	ND	1	0.3	0.2	Discharge from wood preserving factories, other insecticidal and herbicidal uses
Picloram	ppb	ND	ND	500	500	1	Herbicide runoff
Polychlorinated Biphenyls (PCBs)	ppt	ND	ND	500	90	500	Runoff from landfills; discharge of waste chemicals
Simazine	ppb	ND	ND	4	4	1	Herbicide runoff
2,4,5-TP (Silvex)	ppb	ND	ND	50	3	1	Residue of banned herbicide
Thiobencarb	ppb	ND	ND	70	70	1	Runoff/leaching from herbicide used on rice
Toxaphene	ppb	ND	ND	3	0.03	1	Runoff/leaching from insecticide used on cotton and cattle

Semi-Volatile Organic Chemicals

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

Volatile Organic Chemicals

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

INORGANIC CHEMICALS

Aluminum	ppb	88 - 200 / 156	ND	1000	600	50	Residue from water treatment process; erosion of natural deposits
Antimony	ppb	ND	ND	6	20	6	Discharge from petroleum refineries; fire retardant; solder; electronics
Arsenic	ppb	2.1	ND	10	0.004	2	Erosion of natural deposits; glass & electronics production wastes
Asbestos (e)	MFL	ND	ND	7	7	0.2	Internal corrosion of asbestos cement pipes; erosion of natural deposits
Barium	ppb	ND	ND	1000	2000	100	Discharge of oil drilling wastes and from metal refineries; erosion of natural deposits
Beryllium	ppb	ND	ND	4	1	1	Discharge from metal refineries; aerospace and defense industries
Cadmium	ppb	ND	ND	5	0.04	1	Internal corrosion of galvanized pipes; erosion of natural deposits
Chromium	ppb	ND	ND	50	(100)	10	Discharge from steel and pulp mills; erosion of natural deposits
Chromium VI (f)	ppb	ND	1	10	0.02	1	Runoff/leaching from natural deposits; discharge from industrial waste factories
Copper (g)	ppm	ND	ND	AL=1.3	0.3	0.05	Internal corrosion of household pipes; erosion of natural deposits
Cyanide	ppb	ND	ND	150	150	100	Discharge from steel/metal, plastic and fertilizer factories
Fluoride (h)	ppm	0.6 - 1.0 / 0.8 (treatment related)	0.21 (naturally occurring)	2	1	0.1	Erosion of natural deposits; water additive that promotes strong teeth
Lead (g)	ppb	ND	ND	AL=15	0.2	5	Internal corrosion of household pipes; erosion of natural deposits
Mercury	ppb	ND	ND	2	1.2	1	Erosion of natural deposits; discharge from factories; runoff from landfills
Nickel	ppb	ND	ND	100	12	10	Erosion of natural deposits; discharge from metal factories
Nitrate (as Nitrogen) (i)	ppm	ND	0.67	10	10	0.4	Runoff & leaching from fertilizer use; septic tank and sewage; erosion of natural deposits
Nitrite (as Nitrogen)	ppm	ND	ND	1	1	0.4	Runoff & leaching from fertilizer use; septic tank and sewage; erosion of natural deposits
Perchlorate (j)	ppb	ND	ND	6	1	4	Industrial waste discharge
Selenium	ppb	ND	ND	50	30	5	Refineries, mines and chemical waste discharge; runoff from livestock lots
Thallium	ppb	ND	ND	2	0.1	1	Leaching from ore-processing sites; factory discharge

RADIOLOGICALS

		2014 (k)	2015				
Gross Alpha Particle Activity	pCi/L	ND - 4 / ND	ND (p)	15	(0)	3	Erosion of natural deposits
Gross Beta Particle Activity	pCi/L	4 - 6 / 5	ND - 4.4 / 1.1	50 (l)	(0)	4	Decay of natural and man-made deposits
Combined Radium (i)	pCi/L	ND	ND (p)	5	(0)	NA	Erosion of natural deposits
Radium 226	pCi/L	ND	ND (p)	NA	0.05	1	Erosion of natural deposits
Radium 228	pCi/L	ND	ND (p)	NA	0.019	1	Erosion of natural deposits
Strontium-90	pCi/L	ND	0.680	8	0.35	2	Decay of natural and man-made deposits
Tritium	pCi/L	ND	40.4	20,000	400	1,000	Decay of natural and man-made deposits
Uranium	pCi/L	2 - 3 / 3	ND (p)	20	0.43	1	Erosion of natural deposits

DISINFECTION BY-PRODUCTS, DISINFECTANT RESIDUALS, AND DISINFECTION BY-PRODUCTS PRECURSORS

Total Trihalomethanes (TTHM)	ppb	17 - 66 / 39 Distribution system-wide (m)	26.2 - 68.6 Distribution system-wide (m)	80	NA	1	By-product of drinking water disinfection
Haloacetic Acids (HAA5)	ppb	1.7 - 20 / 17 Distribution system-wide (m)	5.36 - 17.40 Distribution system-wide (m)	60	NA	1	By-product of drinking water disinfection
Total Chlorine Residual	ppm	1.1 - 3.0 / 2.4 Distribution system-wide	2.32 - 2.97 Distribution system-wide	[4.0]	[4.0]	NA	Drinking water disinfectant added for treatment
DBP Precursor Control (TOC)	ppm	TT	TT	TT	NA	0.30	Various natural and man-made sources; TOC as a medium for the formation of disinfection byproducts

SECONDARY STANDARDS - Aesthetic Standards

Aluminum	ppb	88 - 200 / 156	ND	200	600	50	Residue from water treatment processes; natural deposits erosion
Chloride	ppm	98 - 102 / 100	75	500	NA	NA	Runoff/leaching from natural deposits; seawater influence
Color	units	1	ND	15	NA	NA	Naturally occurring organic materials
Copper (g)	ppm	ND	ND	1	0.3	0.05	Internal corrosion of household pipes; natural deposits erosion; wood preservatives leaching
Foaming Agents-MBAS	ppb	ND	ND	500	NA	NA	Municipal and industrial waste discharges
Iron	ppb	ND	ND	300	NA	100	Leaching from natural deposits; industrial wastes
Manganese	ppb	ND	ND	50	NL=500	20	Leaching from natural deposits
Methyl tert-butyl-ether (MTBE) (e,f)	ppb	ND	ND	5	13	3	Gasoline discharges from watercraft engines
Odor Threshold	TON	2	1	3	NA	1	Naturally occurring organic materials
Silver	ppb	ND	ND	100	NA	10	Industrial discharges
Specific Conductance	µS/cm	1,030 - 1,060 / 1,040	560	1,600	NA	NA	Substances that form ions when in water; seawater influence
Sulfate	ppm	252 - 261 / 257	75	500	NA	0.5	Runoff/leaching from natural deposits; industrial wastes
Thiobencarb (e)	ppb	ND	ND	1	70	1	Runoff/leaching from rice herbicide
Total Dissolved Solids	ppm	654 - 665 / 660	320	1,000	NA	NA	Runoff/leaching from natural deposits; seawater influence
Turbidity (a)	NTU	ND	ND	5	NA	NA	Soil runoff
Zinc	ppm	ND	ND	5.0	NA	0.05	Runoff/leaching from natural deposits; industrial wastes

OTHER PARAMETERS

Alkalinity	ppm	123 - 129 / 126	81 - 88 / 84.5	NA	NA	NA	Measure of water quality
Boron	ppb	120	210	NL=1,000	NA	100	Runoff/leaching from natural deposits; industrial wastes
Calcium	ppm	77 - 78 / 78	30	NA	NA	NA	Measure of water quality
Chlorate	ppb	104	ND	NL=800	NA	20	By-product of drinking water chlorination; industrial processes
Corrosivity (o) (as Aggressiveness Index)	AI	12.5	11.83	NA	NA	NA	Elemental balance in water; affected by temperature, other factors
Corrosivity (n) (as Saturation Index)	SI	0.57	0.01	NA	NA	NA	Elemental balance in water; affected by temperature, other factors
Hardness (as CaCO ₃)	ppm	296 - 304 / 300	100	NA	NA	NA	Measure of water quality
Magnesium	ppm	26 - 28 / 27	7.2	NA	NA	NA	Measure of water quality
pH	pH units	8.1	8.27 - 8.79 / 8.57	NA	NA	NA	Measure of water quality
Potassium	ppm	4.8 - 5.0 / 4.9	2.2	NA	NA	NA	Measure of water quality
Radon (k)	pCi/L	ND	NR	NA	NA	100	Naturally occurring, comes from decay of uranium in nearly all soils
Sodium	ppm	97 - 102 / 100	72	NA	NA	NA	Measure of water quality
Total organic carbon (TOC)	ppm	2.4 - 2.8 / 2.6	1.2	TT	NA	0.30	Various natural and man-made sources; TOC as the formation of disinfection byproducts
Vanadium	ppb	ND	5.4	NL=50	NA	3	Naturally occurring; industrial waste discharge
N-Nitrosodimethylamine (NDMA)	ppt	ND	ND	NL=10	3	2	By-product of drinking water chlorination; industrial processes
Dichlorodifluoromethane (Freon 12)	ppb	ND	ND	NL=1,000	NA	0.5	Industrial waste discharge
Ethyl-tert-butyl-ether (ETBE)	ppb	ND	ND	NA	NA	3	Used as gasoline additive
tert-Amyl-methyl-ether (TAME)	ppb	ND	ND	NA	NA	3	Used as gasoline additive
tert-Butyl alcohol (TBA)	ppb	ND	ND	NL=12	NA	2	MTBE breakdown product; used as gasoline additive
Trichloropropane (1,2,3-TCP)	ppb	NC	ND	NL=.005	0.0007	0.005	Industrial solvent and degreasing/ cleaning agent; found in

KEY TO ABBREVIATIONS

AI	Aggressiveness Index	ND	= None Detected
AL	= Action level	NL	= Notification Level
CFU/ml	= Colony Forming Units per milliliter	NR	= Not Required
DBP	= Disinfection By-Products	NTU	= Nephelometric Turbidity Units
DLR	= Detection Limits for Purposes of Reporting	pCi/L	= PicoCuries per liter
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	PHG	= Public Health Goal
MCL	= Maximum Contaminant Level	ppb	= parts per billion or micrograms per liter (ug/L)
MCLG	= Maximum Contaminant Level Goal	ppm	= parts per million or milligrams per liter (mg/L)
MFL	= million fibers per liter	ppq	= parts per quadrillion or picograms per liter (pg/L)
MRDL	= Maximum Residual Disinfectant Level	ppt	= parts per trillion or nanograms per liter (ng/L)
MRDLG	= Maximum Residual Disinfectant Level Goal	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.
MPN	= Most Probable Number	Si	= Saturation Index (Langelier)
NA	= Not Applicable	TON	= Threshold Odor Number
NC	= Not Collected	TT	= Treatment Technique is a required process intended to reduce the level of a contaminant in
		µS/cm	= microSiemen per centimeter; or micromho per centimeter (µS/cm)

- 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 5.0% of the monthly samples may be total coliform positive. Compliance is based on the combined distribution system. sampling. In 2015, 7,509 samples were analyzed from MWD (3 samples were positive for total coliforms) and samples were analyzed from TVMWD (0 samples were positive for *E. coli* MCL: The occurrence of two consecutive total coliform-positive samples, one of which contained *E. coli*, constitutes an acute MCL violation. The MCL was not
- c) 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
- d) Data are from samples collected in 2011 for MWD and are reported once every nine-year compliance cycle until the next samples are collected. Data for TVMWD is
- e) 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.
- f) 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
- g) MWD and TVMWD were in compliance with all provisions of the State's Fluoridation System Requirements. Starting June 1, 2015 the fluoride levels at the Weymouth Plant was adjusted to achieve an optimal fluoride level of 0.7 ppm and a control range of 0.6 ppm to 1.2 ppm to comply with the existing State's Water Fluoridation
- h) State MCL is 45 ppm as nitrate, which is the equivalent of 10 ppm as N.
- i) 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.
- j) 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.
- k) DDW considers 50 pCi/L to be the level of concern for beta particles.
- l) Compliance was based on the highest Locational Running Annual Average (LRAA) of all data collected at distribution system-wide monitoring locations. Results are
- m) SI measures the tendency for a water to precipitate or dissolve calcium carbonate (a natural mineral in water). Water with SI <-2.0 is highly corrosive and would be corrosive to almost all materials found in a typical water system. SI between -2.0 to 0 indicates a balanced water and SI >0.5 is scale forming.
- n) AI measures the aggressiveness of water transported through pipes. Water with AI <10.0 is highly aggressive and would be very corrosive to almost all materials found in a typical water system. AI ≥ 12.0 indicates non-aggressive water. AI between 10.0 and 11.9 indicates moderately aggressive water.
- o) TVMWD 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. Gross Beta, Strontium and Tritium are done annually.
- p)