PADRE DAM
Municipal Water District

2018 Water Quality Report

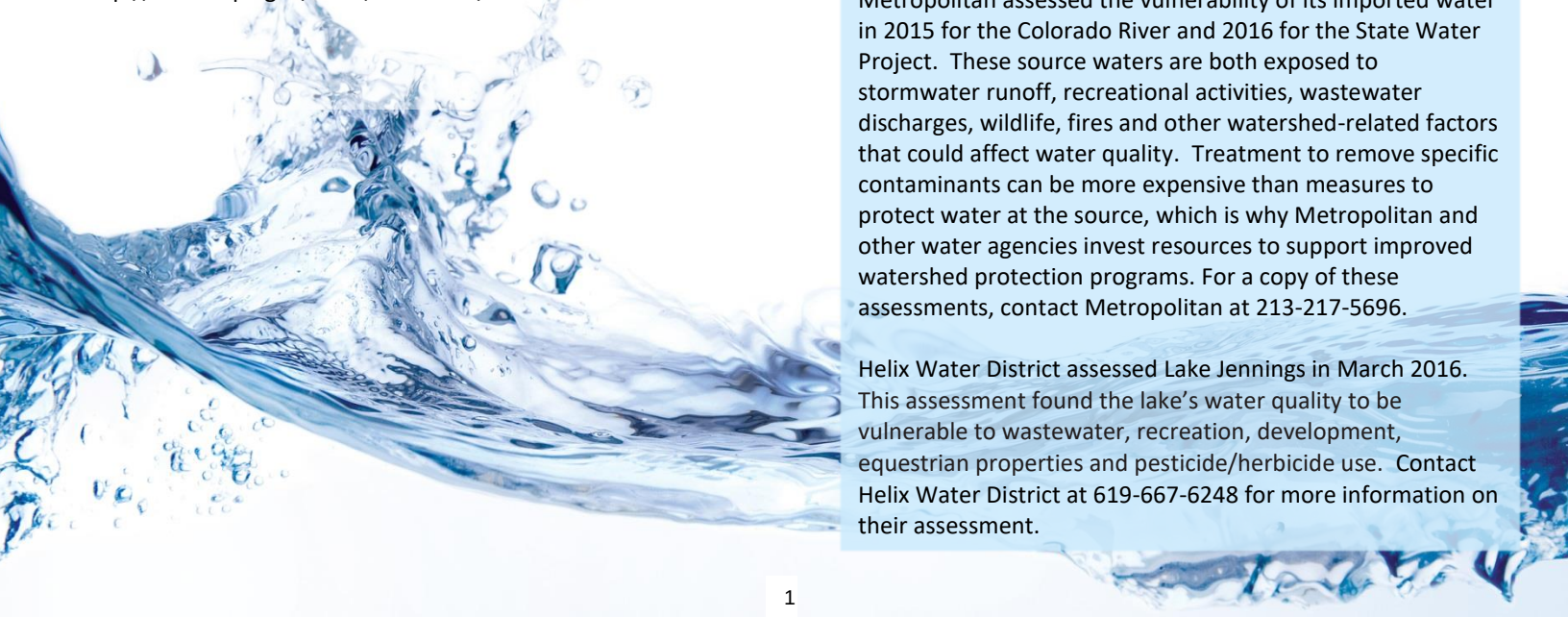
Published June 2019

Important Information

In 2018, Padre Dam Municipal Water District's drinking water met or surpassed every public health requirement set by the State Water Resources Control Board Division of Drinking Water (State Board) and the United States Environmental Protection Agency (USEPA).

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA Safe Drinking Water Hotline at 1-800-426-4791, or online at: http://water.epa.gov/drink/standards/hascience.cfm.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, persons with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA and Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available online at: http://water.epa.gov/drink/standards/hascience.cfm.



Your Water Quality in 2018

Padre Dam is proud to report that our water system meets all USEPA and California Drinking Water Health Standards. This report is a snapshot of last year's water quality (2018). Included are details about where your water comes from, what it contains, and how it compares to State and Federal standards.

Water Sources

Padre Dam imports 100 percent of its potable water supply from the Metropolitan Water District of Southern California (Metropolitan) and the San Diego County Water Authority (SDCWA). The water is treated at Metropolitan's Skinner Treatment Plant near Temecula, the SDCWA's Twin Oaks Valley Treatment Plant in San Marcos, Claude "Bud" Lewis Carlsbad Desalination Plant and Helix Water District's Levy Treatment Plant in Lakeside. Metropolitan, SDCWA, Helix and Padre Dam coordinate annually to assess water quality levels and produce this Water Quality Report.

The tap water you received from Padre Dam in 2018 was blended water from the Colorado River System, the California State Water Project, ocean water from the desalination plant and local watersheds within San Diego County.

Source Water Assessment

Metropolitan assessed the vulnerability of its imported water in 2015 for the Colorado River and 2016 for the State Water Project. These source waters are both exposed to stormwater runoff, recreational activities, wastewater discharges, wildlife, fires and other watershed-related factors that could affect water quality. Treatment to remove specific contaminants can be more expensive than measures to protect water at the source, which is why Metropolitan and other water agencies invest resources to support improved watershed protection programs. For a copy of these assessments, contact Metropolitan at 213-217-5696.

Helix Water District assessed Lake Jennings in March 2016. This assessment found the lake's water quality to be vulnerable to wastewater, recreation, development, equestrian properties and pesticide/herbicide use. Contact Helix Water District at 619-667-6248 for more information on their assessment.

How to Read the Following Tables

The tables on the following pages are a summary of the testing performed on your water in 2018. To read the table, compare the health standards for organic and inorganic constituents in your water with the levels recorded at the Skinner Treatment Plant, Twin Oaks Valley Treatment Plant, Claude "Bud" Lewis Carlsbad Desalination Plant and Levy Treatment Plant. The terms used in the table are explained below.

Primary Drinking Water Standards (PDWS) MCLs and MRDLs for contaminants that affect health along with their monitoring, reporting and treatment requirements.

Maximum Contaminant Level Goal (MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the USEPA.

Public Health Goal (PHG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Office of Environmental Health Hazard Assessment.

Maximum Contaminant Level (MCL) is the highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Maximum Residual Disinfectant Level (MRDL) is the level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG) is the level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the USEPA.

Secondary Standards are set by the State Board for constituents that affect the aesthetic quality of water, such as taste, odor and color.

PPM is the abbreviation for parts per million, or in volume terms, milligrams per liter (mg/L). For example, one part per million is one cent in $10,000, or one minute in 2 years.

PPB is the abbreviation for parts per billion, or in volume terms, micrograms per liter (ug/L). For example, one part per billion is one cent in $10,000,000, or one minute in 2,000 years.

Treatment Technique (TT) is a required process intended to reduce the level of a contaminant in drinking water.

Questions

This report follows the State Board Guidance for Consumer Confidence Reports dated January 2019. It is our intent to provide this report to all of our consumers. Additional copies may be obtained by calling Padre Dam at 619-448-3111.

If you have any questions or concerns about this Water Quality Report, please contact Kyle Swanson, Director of Operations (AWP), at 619-258-4673 or kswanson@padre.org.

We always welcome public participation and comments during our regularly scheduled board meetings. Meetings are held the first and third Wednesday of each month at 3:30 pm at Padre Dam's Customer Service Center, 9300 Fanita Parkway, Santee, CA.

Este informe contiene informacion muy importante sobre su agua potable. Traduzcalo o hable con alguien que lo entienda bien.

Other abbreviations used

AI	Aggressiveness index
AL	Action level
CFU	Colony-forming units
DBP	Disinfection by-products
DLR	Detection limits for reporting purposes
GPG	Grains per gallon
HPC	Heterotrophic plate count
N	Nitrogen
NA	Not applicable
ND	Not detected
NL	Notification level
NTU	Nephelometric turbidity units
pCi/L	Picocuries per liter
ppq	Parts per quadrillion
pg/L	Picograms per liter
ppt	Parts per trillion
ng/L	Nanograms per liter
RAA	Running annual average
SI	Saturation index (Langelier)
SS	Single sample
TOC	Total organic compound
TON	Threshold odor number
uS/cm	MicroSiemen per centimeter

Potential Source Water Contaminants

The sources of drinking water in San Diego County (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land, or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and may pick up substances resulting from the presence of animals or human activity. Contaminants that may be present in source water include:

- **Microbial contaminants**, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- **Inorganic contaminants**, such as salt and metals, that can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining and farming.
- **Pesticides and herbicides**, which may come from a variety of sources, such as agriculture, urban stormwater runoff and residential uses.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff and septic systems.
- **Radioactive contaminants**, can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the USEPA and the State Board prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health.

Primary Standards

	Water Quality Standards				Water Treatment Plants				
Parameter	Units	State or Federal MCL(MRDL)	PHG (MCLG) [MRDLG]	Range Average	Helix Levy Plant	MWD Skinner Plant	SDCWA Twin Oaks Valley Plant	Carlsbad Desalination Plant	Major Sources
PRIMARY STANDARDS - Mandatory Health-Related Standards									
CLARITY									
Combined Filter	NTU	TT=1	NA	Highest	0.12	0.08	0.01 - 0.02	0.15	Naturally present in the environment
Effluent Turbidity (a)	%	95% (a)	NA	% ≤ 0.3	100	100	100	98	Soil runoff
MICROBIOLOGICAL									
					PD Distribution System				
Total Coliform Bacteria (b)	%	5	0	Range	0				Naturally present in the environment
INORGANIC CHEMICALS									
Aluminum (c)	ppb	1,000	600	Range	63 - 440	ND-100	ND	ND	Residue from water treatment process;
				Average	225	51	ND	ND	erosion of natural deposits
Arsenic	ppb	10	0.004	Range	ND - 2.10	ND	3	ND	Erosion of natural deposits, glass and
				Average	ND	ND	SS	ND	electronics production wastes
					PD Distribution System				
Chromium-6	ppb	NA	0.02	Range Average	0				Industrial discharge; erosion of natural deposits
Fluoride (d)	ppm	2	1	Range	0.2 - 0.7	0.6 - 0.9	0.6 - 0.9	0.60 - 0.83	Control range: 0.7-1.2; Optimal Level 0.7
Treatment-related				Average	0.6	0.7	0.7	0.72	Additive for dental health
Nitrate (as N) (e)	ppm	10	10	Range	ND - 0.27	ND	ND - 0.6	ND	Runoff and leaching from fertilizer use;
				Average	ND	ND	0.4	ND	septic/sewage; natural deposits, erosion
Selenium	ppb	50	30	Range	ND	ND	ND	ND - 8.19	Refineries, mines and chemical waste
				Average	ND	ND	ND	ND	discharge; runoff from livestock lots
RADIOLOGICALS (f)									
Gross Alpha Particle Activity	pCi/L	15	0	Range	5.3 - 8	ND - 4	4 - 7	ND	
				Average	6.5	ND	5	ND	Erosion of natural deposits
Gross Beta Particle Activity (g)	pCi/L	50	0	Range	ND	ND - 5	4 - 6	ND	
				Average	ND	ND	5	ND	Decay of natural and man-made deposits
Combined Radium-226/228	pCi/L	5	0	Range	ND	ND	ND	0.18 - 0.7	
				Average	ND	ND	ND	0.44	Erosion of natural deposits
Uranium	pCi/L	20	0.43	Range	1.4 - 5.4	ND - 3	2.2	ND	
				Average	3.3	ND	SS	ND	Erosion of natural deposits
DISINFECTION BY-PRODUCTS, DISINFECTANT RESIDUALS, AND DISINFECTION BY-PRODUCT PRECURSORS									
					PD Distribution System				
Total Trihalomethanes (TTHM) (h)	ppb	80	NA	Range	ND-53				
				Highest RAA	38				
Haloacetic Acids (five) (HAA5) (i)	ppb	60	NA	Range	0 - 15				By-product of drinking water chlorination
				Highest RAA	11				
				Range	0.34 - 3.5				By-product of drinking water chlorination
Total Chloramine Residual (Cl2)	ppm	[4.0]	[4.0]	Highest RAA	1.96				Drinking water disinfectant added for treatment
Bromate (j)	ppb	10	0.1	Range	ND	ND - 5.9	1 - 15	NA	
				Highest RAA	ND	3.7	5	NA	By-product of drinking water ozonation

Secondary Standards

	Water Quality Standards				Water Treatment Plants				
Parameter	Units	State or Federal MCL(MRDL)	PHG (MCLG) [MRDLG]	Range Average	Helix Levy Plant	MWD Skinner Plant	SDCWA Twin Oaks Valley Plant	Carlsbad Desalination Plant	Major Sources
SECONDARY STANDARDS - Aesthetic Standards									
Aluminum (c)	ppb	200	600	Range Highest RAA	63 - 440 225	ND - 100 51	ND ND	ND ND	Residue from water treatment process; natural deposits erosion
Chloride	ppm	500	NA	Range Average	67 - 83 77	90 - 93 92	90 SS	55.2 - 118 73.7	Runoff/leaching from natural deposits; seawater influence
Color	Units	15	NA	Range Average	ND - 2 ND	ND - 1 ND	ND ND	ND ND	Naturally occurring organic materials
Odor Threshold (k)	TON	3	NA	Range Average	ND ND	3 3	ND SS	ND - 1 ND	Naturally occurring organic materials
Specific Conductance	µS/cm	1,600	NA	Range Average	580 - 908 769	841 - 851 846	810 SS	304 - 600 418	Substances that form ions in water; seawater influence
Sulfate	ppm	500	NA	Range Average	83-190 141	168 - 175 172	160 SS	8.5 - 17.2 12.2	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	ppm	1,000	NA	Range Average	560 - 560 560	510 - 526 518	510 SS	119 - 333 217	Runoff/leaching from natural deposits; seawater influence
OTHER PARAMETERS - Chemical									
Alkalinity as $CaCO_3$	ppm	NA	NA	Range Average	96 - 127 114	104 - 109 106	110 SS	42 - 80 63.4	Naturally occurring and adjusted during treatment processes
Boron	ppb	NL = 1,000	NA	Range Average	ND ND	120 120	130 SS	0.37 - 0.92 0.6	Runoff/leaching from natural deposits; industrial wastes
Calcium	ppm	NA	NA	Range Average	34 - 66 51	54 - 58 56	55 SS	17.36 - 34.96 22.8	Naturally occurring
Chlorate	ppb	NL = 800	NA	Range Average	ND - 26 ND	43 43	160 - 290 219	NA NA	By-product of drinking water chlorination; industrial processes
Corrosivity (l) (as Aggressiveness Index)	AI	NA	NA	Range Average	ND ND	12.3 - 12.4 12.4	12 SS	11.56 - 12.33 12.09	Elemental balance in water; affected by temperature, other factors
Corrosivity (m) (as Saturation Index)	SI	NA	NA	Range Average	ND ND	0.54 - 0.59 0.56	0.64 SS	0.05 - 0.53 0.29	Elemental balance in water; affected by temperature, other factors
Hardness as $CaCO_3$	ppm	NA	NA	Range Average	135 - 290 213	218 - 238 228	220 SS	42.2 - 70.9 54	Sum of polyvalent cations present in the water, usually naturally occurring
Magnesium	ppm	NA	NA	Range Average	17 - 23 21	21 - 22 22	20 SS	0.46 - 1.1 0.68	Naturally occurring
pH	pH Units	NA	NA	Range Average	8 - 8.3 8.1	8.1 - 8.2 8.2	7.1 - 8.5 8.2	8.01 - 8.66 8.54	Naturally occurring and adjusted during treatment processes
Potassium	ppm	NA	NA	Range Average	3.9 - 4.6 4.3	4.0 - 4.5 4.2	4 SS	1.04 - 3.70 2.44	Naturally occurring
Sodium	ppm	NA	NA	Range Average	54 - 82 72	85 - 92 88	82 SS	16.2 - 78.4 54.2	Naturally occurring salt present in the water
TOC	ppm	TT	NA	Range Highest RAA	ND ND	2.0 - 2.7 2.4	2.1 - 2.6 2.3	NA NA	Various natural and man-made sources
N-Nitrosodimethylamine (NDMA)	ppt	NL = 10	3	single sample	ND ND	4.1	2 SS	NA NA	By-product of drinking water chloramination; industrial processes
FEDERAL UNREGULATED CONTAMINANTS MONITORING RULE (UCMR3 List 1 and 2) (n)									
					PD Distribution System				
Bromochloromethane	ppb	NA	NA	Range Average	ND - 0.19 0.09				Fire-extinguishing fluid, explosive suppressant and as a solvent in the manufacturing of pesticides
Molybdenum	ppb	NA	NA	Range Average	2.4 - 3.9 3.4				Potential disinfection by-product
Strontium	ppb	NA	NA	Range Average	320 - 860 664				Naturally occurring
Chlorate	ppb	NL=800	NA	Range Average	ND - 190 84				Disinfection by-product
Vanadium	ppb	NL=50	NA	Range Average	ND - 2.2 1.5				Industrial discharge; naturally occurring

Padre Dam Lead and Copper Results

Padre Dam is required to test lead and copper levels within our service area every three years. Padre Dam last tested for lead and copper in 2016. Thirty-one locations were sampled. The results were well below regulatory action levels and are provided in the table below.

In response to new permitting requirements from the State Water Resources Control Board, Padre Dam contacted all public schools within our service area in 2017 and offered lead testing. All 21 public schools within Padre Dam's service area participated in testing in 2017. Please contact each school for individual site testing results.

90th percentile of all samples collected
Number of sample sites = **31 homes**
Most recent sampling: **2016**
Next sampling due: **2019**
Sites above action levels: **0 homes**
Number of Schools Requesting Lead sampling (2017): **21**

Parameter	Units	State or Federal MCL(MRDL)	PHG (MCLG) [MRDLG]	90% percentile of all samples
Copper	ppm	1.3	0.3	0.27
Lead	ppb	15	0.2	ND

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Padre Dam is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Padre Dam suggests you collect this flushed water with a bucket and use it to water plants or other non-consumable use. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline 1-800-426-4791 or online at: http://www.epa.gov/safewater/lead.

Sodium and Hardness

		Water Quality Standards			Water Treatment Plants			
Parameter	Unit of Measure	State or Federal MCL (MRDL)	PHG (MCLG) (MRDLG)	Range Average	Helix Levy Plant	MWD Skinner Plant	SDCWA Twin Oaks Valley Plant	Carlsbad Desalination Plant
Sodium	ppm	NA	NA	Range	54 - 82	85 - 92	82	16.2 – 78.4
				Average	72	88	SS	54.2
Hardness (parts per million)	ppm	NA	NA	Range	135 - 290	218 - 238	220	42.2 – 70.9
				Average	213	228	SS	54
Hardness (grains per gallon)	gpg	NA	NA	Range	7.9 – 17	12.7 – 13.9	12.9	2.5 – 4.1
				Average	12.5	13.3	SS	3.2

Footnotes to Tables

(a) The turbidity level of the combined filter effluent shall be less than or equal to 0.3 NTU (0.1 NTU at Twin Oaks Treatment Plant and Carlsbad Desalination Plant) in 95% of the measurements taken each month and shall not exceed 1 NTU at any time. Turbidity is a measure of the cloudiness of the water and is an 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. The MCL was not violated. **(c)** Aluminum has both primary and secondary standards. **(d)** All facilities were in compliance with all provisions of the State's Fluoridation System Requirements. Fluoride samples that were below target ranges were blended with other water supply sources to maintain compliance within water distributed to consumers. **(e)** State MCL is 45 mg/L as nitrate, which equals 10 mg/L as N. **(f)** Twin Oaks - Data collected (annually) from four consecutive quarters of monitoring in 2013 TOVWTP's required triennial monitoring (2016-2019) was performed in 2016. Skinner - Data reported once every nine-year compliance cycle until the next samples are collected. Current monitoring results are from 2011. **(g)** The gross beta particle activity MCL is 4 millirem/year annual dose equivalent to the total body or any internal organ. The screening level is 50pCi/L. **(h)** DLR = 0.5 ppb for each TTHM (bromoform, chloroform, dibromochloromethane, bromodichloromethane). **(i)** DLR = 1.0 ppb for each HAA5 analyte (dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid) except for monochloroacetic acid which has a DLR = 2.0 ppb. **(j)** Twin Oaks - Running annual average was calculated from quarterly results of monthly and daily samples. Bromate reporting level is 3 ppb. Skinner - Compliance with the State and Federal bromate MCL is based on RRA. **(k)** Compliance with odor threshold secondary MCL is based on RAA. Treatment plants begin quarterly monitoring if annual monitoring results are above 3. **(l)** AI ≥12.0 = Non-aggressive water. AI (10.0 - 11.9) = Moderately aggressive water. AI ≤10.0 = Highly aggressive and very corrosive water. **(m)** Positive SI index = non-corrosive; tendency to precipitate and/or deposit scale on pipes. Negative SI index = corrosive; tendency to dissolve calcium carbonate. **(n)** Unregulated contaminant monitoring helps USEPA and the State Board to determine where certain contaminants occur and whether the contaminants need to be regulated.