Water Quality Report 2016

Carlsbad Municipal Water District

A subsidiary district of the City of Carlsbad

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

Water provided by the Carlsbad Municipal Water District meets all 2016 State and Federal drinking water standards. This report provides detailed water quality test results and explains where Carlsbad's water comes from.

Where our water comes from

The Carlsbad Municipal Water District currently imports all of its drinking water supply. The imported water supply begins hundreds of miles away as snow melt or rainfall that flows into rivers. The two main sources of water are from the Colorado River, transported through the Colorado River Aqueduct and from Northern California, transported through the California Aqueduct (also known as the State Water Project.)

Water from these sources is imported and treated by the Metropolitan Water District of Southern California at its Lake Skinner Treatment Plant in Riverside County and by the San Diego County Water Authority. After rigorous treatment, the water travels through San Diego County Water Authority owned pipelines and is purchased and distributed by the Carlsbad Municipal Water District to its customers. The Claude "Bud" Lewis Carlsbad Desalination Plant, owned and operated by Poseidon Water, delivers water to the San Diego County Water Authority, which blends the water with the region's imported water supply and delivers it to water agencies throughout San Diego County.

California Aqueduct

Sources

We encourage residents and businesses to continue making water conservation an ongoing way of life. For more information on water use rules and recommended conservation measures, please visit **www.carlsbadca.gov/water**.

The sources of drinking water (both tap water and bottled water) include oceans, 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 can pick up substances resulting from the presence of animals or from human activity.

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 U.S. Environmental Protection Agency's Safe Drinking Water Hotline at **800-426-4791**.

Contaminants that might be present in source water include:

- Microbial contaminants, such as viruses and bacteria that can come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

2016 Carlsbad Water Quality Analysis

Parameter	Units	State or Federal MCL [MRDL]	PHG (MCLG) [MRDL]	State DLR	Range Average	Skinner Plant Effluent	Twin Oaks Plant	CMWD System Samples	Carlsbad Desal Plant	Major Sources in Drinking Water
Percent State Project Water	%	NA	NA	NA	Range	0-31	NA	NA	NA	
					Average	8	NA	NA	NA	
PRIMARY STANDARDS--Mandatory Health-Related Standards										
CLARITY										
Combined Filter	NTU	TT=1			Highest	0.09	0.01-0.02	NA	NA	
Effluent Turbidity (a)	%	TT (a)	NA	NA	% ≤ 0.3	100%	100%	NA	100%	Soil runoff
MICROBIOLOGICAL										
Total Coliform Bacteria (b)	%	5.0	MCLG=0	NA	Range	ND-0.3	ND	NA	ND	
					Average	ND	ND	NA	ND	Naturally present in the environment
E. coli (c)	(c)	(c)	MCLG=0	NA	Range	ND	ND	NA	ND	Human and animal fecal waste
					Average	ND	ND	ND	ND	
INORGANIC CHEMICALS										
Arsenic	ppb	10	0.004	2	Single	ND	NA	NA	ND	Natural deposits erosion, glass and electronics, production wastes
					Sample	ND	2.4	NA	ND	
36 Residential Sampled in 2015 Copper CMWD 2015 Samples (e)	ppm	AL = 1.3	0.3	0.05	No.>AL	NA	NA	ND	NA	Internal corrosion of household pipes natural deposits erosion
					90%ile	NA	NA	0.26	NA	
Fluoride (f)	Control Range					0.6 - 1.2	0.6-1.2	NA	0.67-0.96	
	Optimal Fluoride Level					0.7	0.7	NA	0.812	
Treatment-related Fluoride	ppm	2.0	1	0.1	Range	0.6-0.9	0.5-0.9	NA	0.0-1.45	Erosion of natural deposits water additive that promotes strong teeth
					Average	0.7	0.7	NA	0.7	
36 Residential Sampled in 2015 Lead CMWD 2015 Samples	ppb	15 ppb	0.2	5	No.>AL	NA	NA	0	NA	House pipes internal corrosion; erosion of natural deposits
					90%ile	NA	NA	0.0016	NA	
Nitrate	ppm	10	10	0.4	Range	ND	ND-0.6	NA	ND	Runoff and leaching from fertilizer use, septic tank and sewage; natural deposits erosion
					Average	ND	ND	NA	ND	
RADIOLOGICALS										
Uranium	pCi/L	20	0.43	1	Range	1-2	2.7-3.1	NA	2.189-2.189	Erosion of natural deposits
					Average	2	2.9	NA	2.189	
DISINFECTION BY-PRODUCTS, DISINFECTANT RESIDUALS, AND DISINFECTION BY-PRODUCT PRECURSORS (o)										
Total Trihalomethanes (g) (TTHM) CMWD 2016 Samples	ppb	80	NA	1.0	Range	14-19	14-45	10.0-33.0	ND	By-product of drinking water chlorination
					Highest LRAA	17	26	22	ND	
(HAA5) CMWD 2016 Samples	ppb	60	NA	1.0	Range	1.6-7.2	ND-0.7	2.3-14.0	ND	By-product of drinking water chlorination
					Highest LRAA	6.2	0.4	8	ND	
Total Chlorine Residual	ppm	[4.0]	[4.0]	NA	Range	0.9-3.1	1.3-3.8	0.3-3.4	1.37-3.15	Drinking water disinfectant added for treatment
					Highest RAA	2.4	2.9	2.1	3.0	
Bromate (d)	ppb	10	0.1	1.0	Range	ND-9.1	3.0-8.2	NA	NA	By-product of drinking water ozonation
					Highest RAA	4.2	5.9	NA	NA	
SECONDARY STANDARDS--Aesthetic Standards										
Chloride	ppm	500	NA	NA	Range	102-104	NA	NA	35.8-105	Runoff leaching from natural deposits seawater influence
					Average	103	110	NA	63.83	
Color	Units	15	NA	NA	Range	1-2	ND	NA	ND	Naturally-occurring organic materials
					Average	2	ND	NA	ND	
Odor Threshold	TON	3	NA	1	Range	3	NA	NA	ND	Naturally-occurring organic materials
					Average	3	2	NA	ND	
Specific Conductance	µS/cm	1600	NA	NA	Range	965-1030	NA	NA	195.-481	Substances that form ions in water seawater influence
					Average	998	1000	NA	347.19	
Sulfate	ppm	500	NA	0.5	Range	229-238	NA	NA	10.7-27.4	Runoff leaching from natural deposits Industrial wastes
					Average	234	240	NA	17.3	
Total Dissolved Solids (TDS)	ppm	1000	NA	NA	Range	615-632	NA	NA	0-482	Runoff leaching from natural deposits seawater influence
					Average	624	650	NA	182	
OTHER PARAMETERS										
CHEMICAL										
Alkalinity	ppm	NA	NA	NA	Range	118-125	NA	NA	0-110	
					Sample	122	120	NA	56.22	
Boron	ppb	NL=1,000	NA	100	Range	140	NA	NA	0.29-0.78	Runoff leaching from natural deposits Industrial wastes
					Average	140	130	NA	0.49	
Calcium	ppm	NA	NA	NA	Range	70-74	NA	NA	13.5-40.5	
					Sample	72	67	NA	24.1	
Chlorate	ppb	NL=800	NA	20	Range	51	170-450	NA	NA	By-product of drinking water chlorination Industrial processes
					Range	26-60	283	NA	NA	
Chromium VI (h)	ppb	10	0.02	1	Range	ND	ND-0.09	NA	NA	Runoff leaching from natural deposits; discharge from industrial waste factories
					Average	ND	0.06	NA	NA	
Corrosivity (i) (as Aggressiveness Index)	AI	NA	NA	NA	Range	12.4-12-5	NA	NA	11.36-11.9	Elemental balance in water; affected by temperature, other factors
					Average	12.5	13	NA	11.62	
Corrosivity (j) (as Saturation Index)	SI	NA	NA	NA	Range	0.62-0.66	NA	NA	0.04-0.053	Elemental balance in water affected by temperature & other factors
					Average	0.64	0.67	NA	0.28	
Hardness	ppm	NA	NA	NA	Range	274-294	NA	NA	43.5-104	
					Sample	284	270	NA	59.8	
Lead Sampling in (8) schools (k)	ppm	AL=0.015	0.2	5	No.>AL	NA	NA	ND-0.0057	NA	Internal, erosion of natural deposits.
					90%ile	NA	NA	0.0012	NA	
Magnesium	ppm	NA	NA	NA	Range	24-25	NA	NA	0.33-4.81	
					Sample	25	25	NA	0.592	
pH	pH	NA	NA	NA	Range	8.1-8.2	7.4-8.6	NA	6.68-8.69	
					Average	8.1	8.1	NA	8.49	
Potassium	ppm	NA	NA	NA	Range	4.8-4.9	NA	NA	0.84-2.94	
					Sample	4.9	4.6	NA	1.93	
Sodium	ppm	NA	NA	NA	Range	101-104	NA	NA	25.8-74.5	
					Sample	102	99	NA	47.14	
TOC	ppm	TT	NA	0.30	Range	2.2-2.7	1.7-2.4	NA	ND	Various natural and man-made sources
N-Nitrosodimethylamine (NDMA)	ppt	NL = 10	3	2	Range	ND-2.3	NA	NA	NA	By-product of drinking water
					D.Wide	ND-5.1	ND	NA	NA	

How to read this report

As you read the water quality tables in this report, compare the level of contaminants found in Carlsbad Municipal Water District's water in the "Skinner Plant" and "Twin Oaks Valley Plant" columns with the standards set for them in the MCL and PHG columns. The Carlsbad Municipal Water District met all drinking water standards in 2016.

The following are key terms to help you understand the standards used to measure drinking water safety.

Maximum Contaminant Level (MCL) 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 Contaminant Level Goal (MCLG) The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

Public Health Goal (PHG) 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 Environmental Protection Agency.

Maximum Residual Disinfectant Level (MRDL) The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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

Treatment Technique A required process intended to reduce the level of a contaminant in drinking water.

Regulatory Action Level The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

This report can be downloaded from www.carlsbadca.gov/water-quality-report

Abbreviations

AI	Aggressiveness Index
AL	Action Level
CDPH	California Department of Public Health
CFE	Combined Filter Effluent
CFU	Colony-Forming Units
DBP	Disinfection By-Products
DLR	Detection Limits for purposes of Reporting
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
N	Nitrogen
NA	Not Applicable
ND	Not Detected
NL	Notification Level
NTU	Nephelometric Turbidity Units
pCi/L	picoCuries per Liter
PHG	Public Health Goal
ppb	parts per billion or micrograms per liter (µg/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 12-month period
SI	Saturation Index (Langelier)
TOC	Total Organic Carbon
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 (µmho/cm)

Required information for lead

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. Carlsbad Municipal Water District 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. 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 or at www.epa.gov/safewater/lead. Carlsbad Municipal Water District has complied and meets Lead and Copper standards.

Footnotes

(a) (Skinner) As a Primary Standard, the turbidity levels of the filtered water were ≤ 0.3 NTU in 95% of the online measurements taken each month and did not exceed 1 NTU for more than one hour. The turbidity levels for grab samples at these locations were in compliance with the Secondary Standard. (Twin Oaks) The turbidity level from the CFE of the membranes shall be ≤ 0.1 NTU in 95% of the measurements taken each month and shall not exceed 1.0 NTU at any time. Turbidity, a measure of the cloudiness of water, 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. In 2016, 1,560 samples were analyzed with no positive samples. The MCL was not violated.

(c) E. coli MCL: The occurrence of two consecutive total coliform-positive samples, one of which contains E. coli, constitutes an acute MCL violation. The MCL was not violated.

(d) Twin Oaks running annual average was calculated from quarterly results of monthly and daily samples. Bromate reporting level is 4.2 ppb.

(e) Lead and copper are regulated by Action Levels under the Lead and Copper Rule, which requires water samples to be collected at the consumers' tap. If action levels are exceeded in more than 10% of the samples, water systems must take steps to reduce these contaminants.

(f) Skinner and Twin Oaks were in compliance with all provisions of the State's Fluoridation System Requirements.

(g) Twin Oaks/ Skinner met all provisions of the Stage 1 Disinfectants/ Disinfection By-Products (D/DBP) Rule. Compliance was based on Locational RAA. Average and range for the treatment plant effluent were taken from daily and monthly samples for TTHM and HAA5.

(h) Chromium VI reporting level is 0.04 ppb, which is below the state DLR of 1 ppb.

(i) AI <10.0 = Highly aggressive and very corrosive water. AI ≥12.0 = Non-aggressive water. AI (0.14 – 13.0) = Moderately aggressive water.

(j) Positive SI index = non-corrosive; tendency to precipitate and/or deposit scale on pipes. Negative SI index = corrosive; tendency to dissolve calcium carbonate.

(k) A total of 8 schools submitted requests to be sampled for lead. Five samples were collected at each school. Additional information on this subject can be found at http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/leadsamplinginschools.shtml

Sources *continued*

Colorado River

- Pesticides and herbicides, that can 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 byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application and septic systems.
- Radioactive contaminants, that can be naturally occurring or be the result of oil and gas production and mining activities.

Drinking water regulations

To ensure tap water is safe to drink, the U.S. Environmental Protection Agency and the State Water Resources Control Board prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Water Resources Control Board regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Special note:

Some people might be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly persons, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. Environmental Protection Agency/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at **800-426-4791**.

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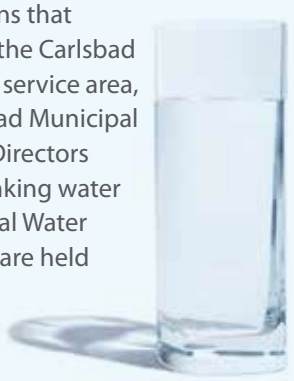
Source water assessment and protection

The Metropolitan Water District of Southern California completed the one time source water assessment required by the USEPA in December 2002.* Colorado River supplies are considered to be most vulnerable to contamination from recreation, urban/stormwater runoff, increasing urbanization in the watershed and wastewater. State Water Project supplies are considered to be most vulnerable to contamination from urban/stormwater runoff, wildlife, agriculture, recreation and wastewater. A summary of the assessment can be obtained by calling the Metropolitan Water District at **213-217-6850**.

**Metropolitan's most recent watershed sanitary surveys were completed in March (Colorado River) and June 2012 (State Water Project). These reports are required by the SWRCB every five years.*

How to contact us

This report covers testing for contaminants in 2016. For questions or concerns regarding the quality of Carlsbad's drinking water, contact the Carlsbad Municipal Water District at **760-438-2722** or email **water@carlsbadca.gov**.



To participate in decisions that affect drinking water in the Carlsbad Municipal Water District service area, please watch the Carlsbad Municipal Water District Board of Directors meeting agenda for drinking water items. Carlsbad Municipal Water District Board meetings are held in conjunction with the Carlsbad City Council on an as needed basis on Tuesday evenings. Agendas may be obtained at **www.carlsbadca.gov** or Carlsbad City Hall, 1200 Carlsbad Village Drive. Comments regarding drinking water are always welcome.

Notification of this report is sent to all Carlsbad Municipal Water District customers. This report may be photocopied and distributed or posted. This report can be downloaded from **www.carlsbadca.gov/water-quality-report**.

Carlsbad Municipal Water District
5950 El Camino Real, Carlsbad, CA 92008
Hours: Monday through Friday, 8 a.m. to 5 p.m.
760-438-2722 • water@carlsbadca.gov

Additional sources for water quality information:

San Diego County Water Authority
858-522-6600 • www.sdcwa.org

Metropolitan Water District of Southern California
800-CALL-MWD (225-5693)
www.mwdh2o.com

State Water Resources Control Board
Division of Drinking Water & Environmental Management
619-525-4159 • www.waterboardsca.gov

U.S. Environmental Protection Agency
Office of Ground Water & Drinking Water
Safe Drinking Water Hotline 800-426-4791
www.epa.gov/safewater/hfacts.html

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