# Water Quality Report 2013

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 2012 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. There are no local sources of drinking water. 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.)

*California Aqueduct*

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 at its Twin Oaks Valley Water Treatment Plant in San Marcos. 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.

### Conserve a precious resource

The Carlsbad Municipal Water District eased some of the mandatory water use restrictions. The San Diego region still faces long-term water supply challenges, and wise water use remains a way of life. Certain water conservation rules are always in effect for Carlsbad water customers. Visit **www.carlsbadca.gov/water** for current information and water saving tips.

## Sources

The sources of drinking water (both tap water 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 can pick up substances resulting from the presence of animals or from human activity.

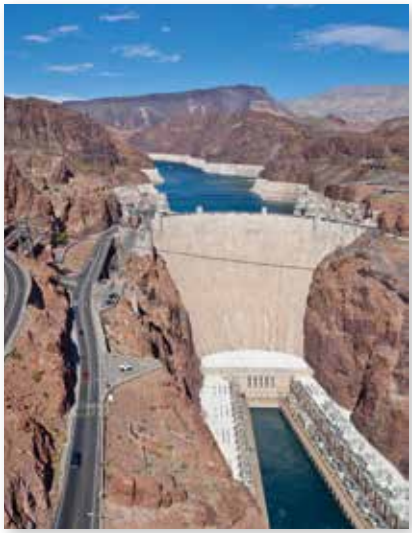
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling 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 stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

## Sources *continued*

- 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.



*Colorado River*

## Drinking water regulations

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

***Some people might be more vulnerable to contaminants in drinking water than the general population.***

*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**.

### Source water assessment and protection

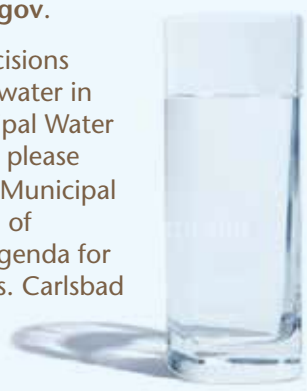
The Metropolitan Water District of Southern California completed the one time source water assessment required by the USEPA in December 2002.* Colorado River supplies are considered to be most vulnerable to contamination from recreation, urban/stormwater runoff, increasing urbanization in the watershed 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**.

*Storm drain*

**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 CDPH every five years.*

## How to contact us

This report covers testing for contaminants in 2012. For questions or concerns regarding the quality of Carlsbad's drinking water, contact Jase Warner at 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 and is available at most city facilities. 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

California Department of Public Health
Division of Drinking Water & Environmental Management
619-525-4159 ■ www.cdph.ca.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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# 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 2012.

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***

# 2012 Water Quality Analysis

## Metropolitan Water District of Southern California and the San Diego County Water Authority

| Parameter | Units | State or Federal MCL [MRDL] | PHG (MCLG) [MRDLG] | State DLR | Range Average | Treatment Plant Effluent | | Skinner Plant | Twin Oaks Plant Range Average | Twin Oaks Plant | Major Sources in Drinking Water |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Percent State | | | | | Range | | | 33 - 84 | Range | NA | |
| Project Water | % | NA | NA | NA | Average | | | 63 | Average | NA | |
| **PRIMARY STANDARDS--Mandatory Health-Related Standards** | | | | | | | | | | | |
| **CLARITY** | | | | | | | | | | | |
| | | | | | | | | | Range | 0.02 - 0.04 | |
| Combined Filter | NTU | TT=1 | NA | NA | Highest | | | 0.06 | Average | 0.04 | |
| Effluent Turbidity | % | TT (a) | NA | NA | % ≤ 0.3 | | | 100 | %≤ 0.1 | 100 | Soil runoff |
| **MICROBIOLOGICAL** | | | | | | | | | | | |
| Monthly Positives (CMWD) | | | | | Range | 0 - 1% | (Local) | | | | |
| Total Coliform Bacteria (b) | % | 5.0 | (0) | NA | Average | NA | (Local) | | | | Naturally present in the environment |
| | | | | | Range | NA | (Local) | | | | |
| *E. coli* | (c) | (c) | (0) | NA | Average | 0 | (Local) | | | | Human and animal fecal waste |
| **INORGANIC CHEMICALS** | | | | | | | | | | | |
| | | | | | Range | | | ND | Single | | Natural deposits erosion, glass and electronics |
| Arsenic | ppb | 10 | 0.004 | 2 | Average | | | ND | Sample | 3.0 | production wastes |
| 31 Residential Taps Sampled in 2012 | | | | | No. > AL | 0 | (Local) | | | | Internal corrosion of household pipes; |
| Copper (d,e) | ppm | AL = 1.3 | 0.3 | 0.05 | 90%ile | 0.30 | (Local) | | | | natural deposits erosion |
| | | | | | Control Range | | | 0.7 - 1.3 | | 0.7 - 1.3 | Erosion of natural deposits; |
| Fluoride (f) | | | | | Optimal Fluoride Level | | | 0.8 | | 0.8 | water additive that promotes strong teeth |
| | | | | | Range | | | 0.7 - 0.9 | | 0.2 - 0.9 | |
| Treatment-related Fluoride | ppm | 2.0 | 1 | 0.1 | Average | | | 0.8 | | 0.7 | |
| 31 Residential Taps Sampled in 2012 | | | | | No. > AL | 0 | (Local) | | | | House pipes internal corrosion; |
| Lead (e) | ppb | AL = 15 | 0.2 | 5 | 90%ile | ND | (Local) | | | | erosion of natural deposits |
| | | | | | Range | | | ND | Range | 0.3 - 0.5 | Runoff and leaching from fertilizer use; septic tank |
| Nitrate (as N) (g) | ppm | 10 | 10 | 0.4 | Average | | | ND | Average | 0.4 | and sewage; natural deposits erosion |

*Continued*

# 2012 Water Quality Analysis

## Metropolitan Water District of Southern California and the San Diego County Water Authority

| Parameter | Units | State or Federal MCL [MRDL] | PHG (MCLG) [MRDLG] | State DLR | Range Average | Treatment Plant Effluent | | Skinner Plant | Twin Oaks Plant Range Average | Twin Oaks Plant | Major Sources in Drinking Water |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **RADIOLOGICALS (h)** | | | | | | | | | | | |
| | | | | | Range | | | ND - 2 | Range | 1.0 - 1.7 | |
| Uranium | pCi/L | 20 | 0.43 | 1 | Average | | | 1 | Average | 1.3 | Erosion of natural deposits |
| **DISINFECTION BY-PRODUCTS, DISINFECTANT RESIDUALS, AND DISINFECTION BY-PRODUCT PRECURSORS (i,j)** | | | | | | | | | | | |
| Total Trihalomethanes | | | | | Range | 35 - 44 | (Local) | | | | |
| (TTHM) (CMWD 2012 Samples) | ppb | 80 | NA | NA | Average | 47.4 | (Local) | | | | By-product of drinking water chlorination |
| Total Trihalomethanes | | | | | Range | | | 10 - 19 | Range | 28 - 75 | |
| (TTHM) (k) | ppb | 80 | NA | NA | RAA | | | 14 | Average | 43 | By-product of drinking water chlorination |
| Haloacetic Acids (five) | | | | | Range | 8.6 - 17 | (Local) | | | | |
| (HAA5) (CMWD 2012 Samples) | ppb | 60 | NA | NA | Average | 17.8 | (Local) | | | | By-product of drinking water chlorination |
| Haloacetic Acids (five) | | | | | Range | | | 1.4 - 6.1 | Range | ND - 5.3 | |
| (HAA5) (l) | ppb | 60 | NA | NA | RAA | | | 2.7 | Average | 3.7 | By-product of drinking water chlorination |
| | | | | | Range | Distribution System-wide: | | 1.5 - 2.8 | | | |
| Total Chlorine Residual | ppm | [4.0] | [4.0] | NA | Highest RAA | Distribution System-wide: | | 2.3 | | | Drinking water disinfectant added for treatment |
| | | | | | Range | | | 1.2 - 11 | Range | 1.6 - 9.1 | |
| Bromate (m,n) | ppb | 10 | 0.1 | 1.0 | Highest RAA | | | 6.5 | Average | 3.5 | By-product of drinking water ozonation |
| **SECONDARY STANDARDS--Aesthetic Standards** | | | | | | | | | | | |
| | | | | | Range | | | 75 - 77 | Single | | Runoff/leaching from natural deposits; |
| Chloride | ppm | 500 | NA | NA | Average | | | 76 | Sample | 78 | seawater influence |
| | | | | | Range | | | 1 | Range | ND | |
| Color | Units | 15 | NA | NA | Average | | | 1 | Average | ND | Naturally-occurring organic materials |
| | | | | | Range | | | 1 - 2 | Single | | |
| Odor Threshold (o) | TON | 3 | NA | 1 | Average | | | 2 | Sample | 1 | Naturally-occurring organic materials |
| | | | | | Range | | | 440 - 780 | Single | | Substances that form ions in water; |
| Specific Conductance | µS/cm | 1,600 | NA | NA | Average | | | 640 | Sample | 640 | seawater influence |
| | | | | | Range | | | 96 - 120 | Single | | Runoff/leaching from natural deposits; |
| Sulfate | ppm | 500 | NA | 0.5 | Average | | | 110 | Sample | 96 | industrial wastes |
| Total Dissolved Solids | | | | | Range | | | 360 - 400 | Single | | Runoff/leaching from natural deposits; |
| (TDS) | ppm | 1,000 | NA | NA | Average | | | 380 | Sample | 370 | seawater influence |
| **OTHER PARAMETERS** | | | | | | | | | | | |
| **CHEMICAL** | | | | | | | | | | | |
| | | | | | Range | | | 75 - 110 | Single | | |
| Alkalinity | ppm | NA | NA | NA | Average | | | 93 | Sample | 92 | |
| | | | | | Range | | | 130 | Single | | Runoff/leaching from natural deposits; |
| Boron | ppb | NL = 1,000 | NA | 100 | Average | | | 130 | Sample | 140 | industrial wastes |
| | | | | | Range | | | 34 - 41 | Single | | |
| Calcium | ppm | NA | NA | NA | Average | | | 38 | Sample | 37 | |
| | | | | | Range | | | 50 | Range | 190 - 280 | By-product of drinking water chlorination; |
| Chlorate | ppb | NL = 800 | NA | 20 | Range | Distribution System-wide: | | ND - 80 | Average | 218 | industrial processes |
| | | | | | Range | | | ND | Range | 0.04 - 0.19 | Runoff/leaching from natural deposits; |
| Chromium VI (p) | ppb | NA | 0.02 | 1 | Average | | | ND | Average | 0.07 | discharge from industrial waste factories |
| Corrosivity (q) | | | | | Range | | | 12.2 - 12.3 | Single | | Elemental balance in water; affected |
| (as Aggressiveness Index) | AI | NA | NA | NA | Average | | | 12.2 | Sample | 12 | by temperature, other factors |
| Corrosivity (r) | | | | | Range | | | 0.35 - 0.50 | Single | | Elemental balance in water; affected |
| (as Saturation Index) | SI | NA | NA | NA | Average | | | 0.42 | Sample | 0.24 | by temperature, other factors |
| | | | | | Range | | | 120 - 220 | Single | | |
| Hardness | ppm | NA | NA | NA | Average | | | 170 | Sample | 160 | |
| | | | | | Range | | | 15 - 17 | Single | | |
| Magnesium | ppm | NA | NA | NA | Average | | | 16 | Sample | 16 | |
| | pH | | | | Range | | | 8.1 - 8.5 | Single | | |
| pH | Units | NA | NA | NA | Average | | | 8.3 | Sample | 7.8 | |
| | | | | | Range | | | 3.4 - 3.6 | Single | | |
| Potassium | ppm | NA | NA | NA | Average | | | 3.5 | Sample | 3.5 | |
| | | | | | Range | | | 65 - 66 | Single | | |
| Sodium | ppm | NA | NA | NA | Average | | | 66 | Sample | 68 | |
| | | | | | Range | | | 1.8 - 2.3 | Range | 2.0 - 3.3 | |
| TOC | ppm | TT | NA | 0.30 | Highest RAA | | | 2.1 | Average | 2.4 | Various natural and man-made sources |
| N-Nitrosodimethylamine | | | | | Range | | | ND - 2.8 | Single | | By-product of drinking water chloramination; |
| (NDMA) | ppt | NL = 10 | 3 | 2 | Range | Distribution System-wide: | | ND - 6.7 | Sample | 2.7 | industrial processes |

*Continued*

# 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) |

# 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 2012, 1,560 samples were analyzed with two positives in July and one positive in September. 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) Copper has both primary and secondary standards.

(e) Lead and copper are regulated as a Treatment Technique 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) State MCL is 45 mg/L as nitrate, which is the equivalent of 10 mg/L as N.

(h) Skinner data are from samples collected (triennially) during four consecutive quarters of monitoring in 2011 and reported for three years until the next samples are collected. Twin Oaks data collected (annually) from four consecutive quarters of monitoring in 2012.

(i) Skinner was in compliance with all provisions of the Stage 1 and Stage 2 Disinfectants and Disinfection By-Products Rules (D/DBPR). Stage 2 D/DBPR monitoring began in the 2nd quarter of 2012. Compliance was based on the RAA.

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

(k) DLR reporting level is 0.5 ppb for each of the trihalomethanes (bromodichloromethane, bromoform, chloroform, and dibromochloromethane) which is lower than the state DLR of 1.0 ppb.

(l) State DLR is 1.0 ppb for each of the following: dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid; and 2.0 ppb for monochloroacetic acid.

(m) Skinner used EPA method 326.0 which has a state DLR of 1.0 ppb. Compliance was based on the RAA.

(n) Twin Oaks running annual average was calculated from quarterly results of monthly and daily samples. Bromate reporting level is 3ppb.

(o) In May 2012, monitoring frequency for Skinner was reduced from quarterly to annual when RAA returned to <3 TON. Per CDPH requirements, quarterly monitoring was conducted following a secondary MCL exceedance in April 2008.

(p) Chromium VI reporting level is 0.03 ppb, which is below the state DLR of 1 ppb.

(q) AI <10.0 = Highly aggressive and very corrosive water. AI ≥12.0 = Non-aggressive water. AI (10.0 - 11.9 ) = Moderately aggressive water.

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

# 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

A subsidiary district of the City of Carlsbad