

How To Read The Data Tables

You will find three data tables showing a list of chemicals tested in each of the following water sources:

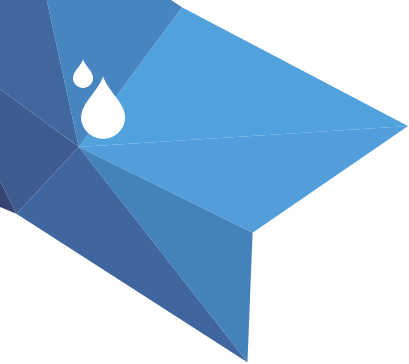
- Santa Ana Distribution System
- Santa Ana Groundwater
- Metropolitan Water District of Southern California Treated Surface Water

For each table, begin with the chemical and read across.

- 1** The column marked “Chemicals” lists the substances found in the water Santa Ana delivers.
- 2** MCL is the highest level of substance (contaminant) allowed.
- 3** MCLG is the goal level for that substance (this may be lower than what is allowed). Average Amount is the average level measured for the substance (less is better).
- 4** Range of Detections is the highest and lowest amounts measured.
- 5** A “No” under MCL Violation indicates government requirements were met.
- 6** Typical Sources in Drinking Water tells you where the constituent usually originates.

Note: “Unregulated Constituents” are measured, but maximum allowed contaminant (MCL) levels have not been established by the government.





Glossary

Use this glossary to understand the terms, abbreviations and measurements used in the data tables.

Terms & Abbreviations

Chemicals

Components or elements found in drinking water.

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 color, 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. EPA.

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)

The MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

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 (Cal/EPA).

Regulatory Action Level

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

Treatment Technique (TT)

A required process intended to reduce the level of contaminants in drinking water that are difficult and sometimes impossible to measure directly.

Variances and Exemptions

Permissions from the State Water Board to exceed an MCL or not comply with a treatment technique under certain conditions.



Measurements

Santa Ana conducts extensive sampling and testing to ensure your water meets all water quality standards. In 2020, we collected 16,705 water quality samples at various sampling points in our water system; all of which were below state and federal maximum allowable levels.

Contaminants are measured in:

Parts per million (ppm)
or milligrams per liter (mg/L)

Parts per billion (ppb)
or micrograms per liter (µg/L)

PicoCuries per liter (pCi/L)
A measurement of radioactivity in water.

Micromhos per centimeter (umho/cm)
A measurement for conductivity of water.

Grains per gallon (grains/gal)
A measurement of water hardness often used for sizing household water softeners. One grain per gallon is equal to 17.1 mg/L of hardness.

Nephelometric Turbidity Units (NTU)
A measurement of the clarity of water. Turbidity in excess of 5 NTU is noticeable to the average person.



Additional Abbreviations

AL	= Regulatory Action Level
NA	= Not Applicable
ND	= Not Detected
NL	= Notification Level
SMCL	= Secondary MCL



2020 CITY OF SANTA ANA DISTRIBUTION SYSTEM WATER QUALITY

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Type	MCL (MRDL/MRDLG)	Average Amount	Range of Detections	MCL Violation?	Typical Sources Of Chemical
DISINFECTANT RESIDUAL AND DISINFECTION BY-PRODUCTS					
Chlorine Residual (ppm)	(4 / 4)	0.88	ND - 2.66	No	Disinfectant Added for Treatment
Total Trihalomethanes (ppb) ¹	80	27	ND - 32	No	Byproducts of Chlorine Disinfection
Haloacetic Acids (ppb) ¹	60	9	ND - 13	No	Byproducts of Chlorine Disinfection
AESTHETIC QUALITY					
Odor (threshold odor number)	3*	1	1 - 2	No	Naturally-occurring organic materials
Turbidity (ntu)	5*	<0.1	ND - 0.8	No	Erosion of natural deposits

Eight locations in the distribution system are tested quarterly for total trihalomethanes and haloacetic acids.
Fifty locations are tested monthly for color, odor and turbidity. Color was not detected in 2020

Microbiological	MCL	MCLG	Highest Monthly Percent Positives	MCL Violation?	Typical Sources of Chemical
Total Coliform Bacteria	5.0	0	0.49%	No	Naturally present in the environment

No more than 5.0% of the monthly samples may be positive for total coliform bacteria.
The occurrence of 2 consecutive total coliform positive samples, one of which contains fecal coliform/E.coli, constitutes an acute MCL violation.

LEAD AND COPPER ACTION LEVELS AT RESIDENTIAL TAPS

Chemical	Action Level (AL)	Public Health Goal	90th Percentile Value	Sites Exceeding AL / Number of Sites	AL Violation?	Typical SourcesOf Chemical
Lead (ppb) ³	15	0.2	ND	0 / 135	No	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper (ppm) ³	1.3	0.3	0.14	0 / 135	No	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

In 2018, 135 residences were tested for lead and copper at-the-tap. Lead was detected in 3 samples, none of which exceeded the AL for lead. Copper was detected in 95 samples, none of which exceeded the AL for copper. A regulatory action level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. In 2020, no school submitted a request to be sampled for lead.

UNREGULATED CHEMICALS REQUIRING MONITORING IN THE DISTRIBUTION SYSTEM

Chemical	Notification Level	PHG	Average Amount	Range of Detections	Most Recent Sampling Date
Bromochloroacetic acid (ppb)	NA	NA	0.94	ND - 3.9	2020
Bromodichloroacetic acid (ppb)	NA	NA	0.68	ND - 2.1	2020
Chlorodibromoacetic acid (ppb)	NA	NA	0.47	ND - 1.4	2020
Dibromoacetic acid (ppb)	NA	NA	0.88	ND - 2.6	2020
Dichloroacetic acid (ppb)	NA	MCLG = 0	1.2	ND - 6.1	2020
Monobromoacetic acid (ppb)	NA	NA	0.1	ND - 0.6	2020
Trichloroacetic acid (ppb)	NA	MCLG = 20	0.7	ND - 2.5	2020

** Total chromium is regulated with an MCL of 50 ppb but was not detected, based on the detection limit for purposes of reporting of 10 ppb.
Total chromium was included as part of the unregulated chemicals requiring monitoring.



2020 CITY OF SANTA ANA GROUNDWATER QUALITY

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Chemical	MCL	PHG (MCLG)	Average Amount	Range of Detections	MCL Violation?	Most Recent Sampling Date	Typical Source of Chemical
Radiologicals							
Gross Alpha (pCi/L)	15	(0)	<3	ND - 13.98	No	2020	Erosion of Natural Deposits
Uranium (pCi/l)	20	0.43	3	ND - 8.18	No	2020	Erosion of Natural Deposits
Inorganic Chemicals							
Barium (ppm)	1	2	< 0.1	ND - 0.14	No	2020	Erosion of Natural Deposits
Fluoride (ppm)	2	1	0.34	0.18 - 0.47	No	2020	Erosion of Natural Deposits
Nitrate (ppm as N)	10	10	1.88	0.45 - 4	No	2020	Runoff and Leaching from Fertilizer Use; Leaching from Septic Tanks and Sewage; Erosion of Natural Deposits
Nitrate + Nitrite (ppm as N)	10	10	1.88	0.45 - 4	No	2020	Runoff and Leaching from Fertilizer Use; Leaching from Septic Tanks and Sewage; Erosion of Natural Deposits
Perchlorate (ppb)	6	1	<4	ND - 4.5	No	2020	Discharge from Industrial Operations
Secondary Standards*							
Chloride (ppm)	500*	NA	54	19.3 - 99.9	No	2020	Erosion of Natural Deposits
Color (color units)	15*	NA	<1	ND - 3	No	2020	Naturally-Occurring Organic Materials
Specific Conductance (umho/cm)	1,600*	NA	686	525 - 961	No	2020	Substance That Forms Ions When In Water
Sulfate (ppm)	500*	NA	92.2	61.8 - 125	No	2020	Erosion of Natural Deposits
Total Dissolved Solids (ppm)	1,000*	NA	413	292 - 606	No	2020	Erosion of Natural Deposits
Turbidity (ntu)	5*	NA	<0.1	ND - 0.3	No	2020	Soil Runoff
Unregulated Constituents							
Alkalinity, total (ppm as CaCO ₃)	Not Regulated	NA	168	156 - 195	NA	2020	Erosion of Natural Deposits
Bicarbonate (ppm as HCO ₃)	Not Regulated	NA	204	190 - 238	NA	2020	Erosion of Natural Deposits
Boron (ppm)	NL = 1	NA	<0.1	ND - 0.11	NA	2020	Erosion of Natural Deposits
Calcium (ppm)	Not Regulated	NA	77	52.5 - 116	NA	2020	Erosion of Natural Deposits
Hardness, total (grains/gal)	Not Regulated	NA	15	11 - 22	NA	2020	Erosion of Natural Deposits
Hardness, total (ppm as CaCO ₃)	Not Regulated	NA	255	180 - 379	NA	2020	Erosion of Natural Deposits
Magnesium (ppm)	Not Regulated	NA	14.8	10.9 - 21.8	NA	2020	Erosion of Natural Deposits
Perfluoro butane sulfonic acid (ppt)	NL = 500	NA	6.5	ND - 9.2	NA	2020	Industrial Discharge
Perfluoro heptanoic acid (ppt)	Not Regulated	NA	4.5	ND - 6.6	NA	2020	Industrial Discharge
Perfluoro hexane sulfonic acid (ppt)	Not Regulated	NA	12.2	7.2 - 15.5	NA	2020	Industrial Discharge
Perfluoro octane sulfonic acid (ppt)	NL = 6.5	NA	21.4	12.5 - 27.9	NA	2020	Industrial Discharge
Perfluoro octanoic acid (ppt)	NL = 5.1	NA	15.5	9.7 - 20	NA	2020	Industrial Discharge
Perfluorohexanoic acid (ppt)	Not Regulated	NA	8.1	5.2 - 11	NA	2020	Industrial Discharge
pH (pH units)	Not Regulated	NA	7.9	7.6 - 8.1	NA	2020	Acidity, Hydrogen Ions
Potassium (ppm)	Not Regulated	NA	2.2	1.6 - 3.1	NA	2020	Erosion of Natural Deposits
Sodium (ppm)	Not Regulated	NA	43.7	34.5 - 55.2	NA	2020	Erosion of Natural Deposits

*Contaminant is regulated by a secondary standard to maintain aesthetic qualities (taste, odor, color).

UNREGULATED CHEMICALS REQUIRING MONITORING

Chemical	Notification Level	PHG	Average Amount	Range of Detections	Most Recent Sampling Date
Germanium (ppb)	NA	NA	0.1	ND - 0.4	2018
Manganese (ppb) **	SMCL = 50	NA	2.2	0.8 - 3.3	2018

** Manganese is regulated with a secondary standard of 50 ppb but was not detected, based on the detection limit for purposes of reporting of 20 ppb. Manganese was included as part of the unregulated chemicals requiring monitoring.



2020 MWD TREATED SURFACE WATER

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Chemical	MCL	PHG (MCLG)	Average Amount	Range of Detections	MCL Violation ?	Typical Source of Chemical
Radiologicals - Tested in 2020						
Alpha Radiation (pCi/L)	15	(0)	ND	ND - 3	No	Erosion of Natural Deposits
Beta Radiation (pCi/L)	50	(0)	ND	ND - 5.9	No	Decay of Natural and Man-made Deposits
Uranium (pCi/L)	20	0.43	2	1 - 3	No	Erosion of Natural Deposits
Inorganic Chemicals - Tested in 2020						
Aluminum (ppm)	1	0.6	0.137	ND - 0.26	No	Treatment Process Residue, Natural Deposits
Barium (ppm)	1	2	0.107	0.107	No	Refinery Discharge, Erosion of Natural Deposits
Bromate (ppb)	10	0.1	1.9	ND - 1.3	No	Byproduct of Drinking Water Ozonation
Fluoride (ppm)	2	1	0.7	0.5 - 0.9	No	Water Additive for Dental Health
Secondary Standards - Tested in 2020						
Aluminum (ppm)	200*	600	137	ND - 260	No	Treatment Process Residue, Natural Deposits
Chloride (ppm)	500*	NA	94	93 - 94	No	Runoff or Leaching from Natural Deposits
Color (color units)	15*	NA	1	1	No	Naturally-occurring Organic Materials
Odor (threshold odor number)	3*	NA	2	2	No	Naturally-occurring Organic Materials
Specific Conductance (µmho/cm)	1,600*	NA	970	964 - 975	No	Substances That Form Ions In Water
Sulfate (ppm)	500*	NA	216	215 - 217	No	Runoff or Leaching from Natural Deposits
Total Dissolved Solids (ppm)	1,000*	NA	592	582 - 603	No	Runoff or Leaching from Natural Deposits
Unregulated Constituents - Tested in 2020						
Alkalinity, total as CaCO ₃ (ppm)	Not Regulated	NA	118	117 - 120	NA	Runoff or Leaching from Natural Deposits
Boron (ppm)	NL = 1	NA	0.13	0.13	NA	Runoff or Leaching from Natural Deposits
Calcium (ppm)	Not Regulated	NA	66	65 - 67	NA	Runoff or Leaching from Natural Deposits
Hardness, total as CaCO ₃ (ppm)	Not Regulated	NA	265	261 - 269	NA	Runoff or Leaching from Natural Deposits
Hardness, total (grains/gallon)	Not Regulated	NA	15	15 - 16	NA	Runoff or Leaching from Natural Deposits
Magnesium (ppm)	Not Regulated	NA	26	25 - 26	NA	Runoff or Leaching from Natural Deposits
N-nitrosodimethylamine (ppt)	NL = 10	NA	3.1	3.1	NA	Byproduct of Drinking Water Chloramination, Industrial Processes
pH (pH units)	Not Regulated	NA	8.1	8.1	NA	Hydrogen Ion Concentration
Potassium (ppm)	Not Regulated	NA	4.6	4.5 - 4.7	NA	Runoff or Leaching from Natural Deposits
Sodium (ppm)	Not Regulated	NA	96	93 - 98	NA	Runoff or Leaching from Natural Deposits
Total Organic Carbon (ppm)	TT	NA	2.4	2.2 - 2.7	NA	Various Natural and Man-made Sources
Turbidity - combined filter effluent Metropolitan Water District Diemer Filtration Plant		Treatment Technique	Turbidity Measurements		TT Violation?	Typical Source of Chemical
1) Highest single turbidity measurement		0.3 NTU	0.04		No	Soil Runoff
2) Percentage of samples less than 0.3 NTU		95%	100%		No	Soil Runoff

Turbidity is a measure of the cloudiness of the water, an indication of particulate matter, some of which might include harmful microorganisms. Low turbidity in Metropolitan's treated water is a good indicator of effective filtration. Filtration is called a "treatment technique" (TT). A treatment technique is a required process intended to reduce the level of chemicals in drinking water that are difficult and sometimes impossible to measure directly.
NTU = nephelometric turbidity units

UNREGULATED CHEMICALS REQUIRING MONITORING

Chemical	Notification Level	PHG	Average Amount	Range of Detections	Most Recent Sampling Date
Germanium (ppb)	NA	NA	0.1	ND - 0.4	2018
Manganese (ppb) **	SMCL = 50	NA	2.2	0.8 - 3.3	2018

** Manganese is regulated with a secondary standard of 50 ppb but was not detected, based on the detection limit for purposes of reporting of 20 ppb. Manganese was included as part of the unregulated chemicals requiring monitoring.



1. Trihalomethanes and Haloacetic Acids.

Twelve locations in the distribution system are tested quarterly for total trihalomethanes (TTHMs) and haloacetic acids (HAAS).

2. Coliform.

No more than 5% of the monthly samples may be positive for total coliform bacteria. The occurrence of 2 consecutive total coliform positive samples, one of which contains fecal coliform/E.coli, constitutes an acute MCL violation. This Consumer Confidence Report (CCR) reflects changes in drinking water regulatory requirements during 2016. All water systems are required to comply with the state Total Coliform Rule. Effective April 1, 2016, all water systems are also required to comply with the federal Revised Total Coliform Rule. The new federal rule maintains the purpose to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbials (i.e., total coliform and E. coli bacteria). The U.S. EPA anticipates greater public health protection as the new rule requires water systems that are vulnerable to microbial contamination to identify and fix problems. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment to determine if any sanitary defects exist. If found, these must be corrected by the water system.

3. Lead and Copper.

In 2018, 135 residences were tested for lead and copper at-the-tap. Lead was detected in 3 of the samples, none of which exceeded the AL for lead. Copper was detected in 95 samples, none of which exceeded the AL for copper. A regulatory action level (AL) is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. In 2020, no school submitted a request to be sampled for lead.

4. Combined Filter Effluent Turbidity (NTU).

Turbidity is a measure of the cloudiness of the water, an indication of particulate matter, some of which might include harmful microorganisms. Low turbidity in MWD's treated water is a good indicator of effective filtration. Filtration is called a "treatment technique" (TT). A treatment technique is a required process intended to reduce the level of chemicals in drinking water that are difficult and sometimes impossible to measure directly.

