



ABOUT THIS REPORT

The focal point of the water quality report is a table that lists the results of year-round monitoring for more than 120 constituents. Only the constituents that are found are listed in the water quality data tables. Bottled water is not covered in this report. Santa Ana met all primary drinking water standards in 2013.

By reading the table from left to right, you will learn the quantity of a constituent found in Santa Ana's water supply and how that compares with the allowable state and federal limits.

You'll also learn the range and average of the constituent measured as well as its origin. The questions and answers starting on this page, numbers 1 through 7, will explain the important elements of the table.

WATER SOURCE & COMPONENTS

1. What are the sources of the water Santa Ana delivers?

The City of Santa Ana depends on two sources for the 12.5 billion gallons of water we supply each year—68 percentage is groundwater and 32 percentage is imported water, purchased from the Metropolitan Water District of Southern California (MWD).

The groundwater accumulates and is stored beneath the surface of the earth and then pumped to the surface by 20 City-owned wells. MWD brings Colorado River water from Lake Havasu and runoff from the snow pack in the Sierra Nevada Range in Northern California. The water is then treated at either the Diemer Filtration Plant in Yorba Linda or the Weymouth Filtration Plant in LaVerne before it is delivered to Santa Ana.

There are seven MWD connections located in the city. Most of our customers receive a blending of the two sources, groundwater and imported water. For more details, see the Water Quality Standards for each of these sources in the data that follow. We have listed groundwater and imported water in separate columns.

2. What's in my drinking water?

Your tap water may contain different types of chemicals (organic and inorganic), microscopic organisms (e.g., bacteria, algae, viruses) and radioactive materials (radionuclides), many of which are naturally occurring. Health agencies require monitoring for these constituents, because at certain levels they could make a person sick. The column marked "Parameter" lists the constituents found in the water used by Santa Ana.

3. What are the maximum allowed levels for constituents in drinking water?

Health agencies have maximum contaminant levels for constituents so that drinking water is safe and looks, tastes and smells good. A few constituents have the letters "TT" in the MCL column because they do not have a numerical MCL. Instead, they have certain treatment requirements that have to be met. One of the constituents, total chlorine residual, has an MRDL (maximum residual disinfection level) instead of an MCL.

The MRDL is the maximum level of a disinfectant added for water treatment that is allowed in water. While disinfectants are necessary to kill harmful microbes, drinking water regulations protect against too much disinfectant being added. Another constituent, turbidity, has a requirement that 95 percent of the measurements taken must be below a certain number. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the efficiency of the filtration system.



WATER SOURCE & COMPONENTS *(continued)*

4. Why are some of the constituents listed in the section labeled “Primary Standards” and others in the “Secondary Standards”?

Constituents that are grouped in the primary standards section may be unhealthy at certain levels. Constituents that are grouped under the secondary standards section can affect the appearance, taste and smell of water, but do not affect the safety of the water unless they also have a primary standard. Some constituents (e.g., aluminum) have two different MCLs (Maximum Contaminant Level), one for health-related impacts, and another for non-health-related impacts not related to health.

5. How do I know how much of a constituent is in my water and if it is at a safe level?

With a few exceptions, if the average amount of a constituent found in tap water over the course of a year is no greater than the MCL, then the regulatory requirements are considered to be satisfied. The highest and lowest levels measured over a year are shown in the range. Requirements for safety, appearance, taste and smell are based on the average levels recorded and not the range.

6. How do constituents get into our water?

Drinking water (tap water and bottled water) comes from 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 human activity. The most likely source for each constituent is listed in the last column of the table.

7. Are there any potential sources of contamination in our system?

An assessment of the drinking water wells for the City of Santa Ana was completed in December 2013. The City wells are considered most vulnerable to the following activities associated with contaminants detected in the water supply: historic agricultural activities, golf courses, and application of fertilizers.

The City’s wells are considered most vulnerable to the following activities not associated with detected contaminants: chemical/petroleum pipelines, chemical/petroleum processing/stores, dry cleaners, gas stations, junk/scrap/salvage yards, metal plating/finishing/fabrication, plastics/synthetics producers, and sewer collection systems.

GET INVOLVED.

If you would like to be involved in issues and decisions that affect the quality and cost of your drinking water, City Council meetings are open to the public and held at 5:45 p.m. on the first and third Tuesday of each month. The meeting location is at City Council Chambers, 22 Civic Center Plaza, Santa Ana, CA 92701.

For more information, contact:

Santa Ana City Council

20 Civic Center Plaza

P.O. Box 1988, M31

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YOUR WATER, YOUR HEALTH

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 the water poses a health risk. You can learn more about contaminants and potential health effects by calling the U.S. Environmental Protection Agency's (USEPA) Safe Drinking Water Hotline at 800-426-4791 or visiting the website at epa.gov/safewater/.

To ensure that tap water is safe to drink, the USEPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water. Both sets of requirements protect public health. Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

USEPA/CDC (U.S. Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline 800-426-4791. Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. To date, cryptosporidium has not been detected in our water supply.

Beginning in October 2007, water that is received by the City of Santa Ana from MWD will have fluoride added to it. Our well water has a naturally occurring fluoride range level of 0.18 to 0.56 ppm. Water provided by MWD will have a fluoride level of 0.7 to 0.8 ppm. This plan was approved by the CDC and the California Department of Public Health. Additional information may be found by calling MWD's Water Quality Information Hotline at 800-354-4420. You can also download a fact sheet at mwdh2o.com/fluoridation/fluoridationfactsheet.pdf or visit ada.org/fluoride.aspx.

QUESTIONS ABOUT YOUR WATER QUALITY REPORT?

A copy of the complete assessment is available at the Water Resources Division office. You can request a summary of the assessment be sent to you by contacting us at 714-647-3320. If you have questions about your water quality, contact:

City of Santa Ana, Water Resources Division

Nabil Saba, P.E., Water Resources Manager
Cesar Barrera, P.E., Principal Civil Engineer
Thomas Dix, Water Quality Coordinator

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TERMS AND ABBREVIATIONS

The following glossary of definitions will help you understand the terms and abbreviations used in this report.

Constituents: 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 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 USEPA.

Maximum Residual Disinfectant Level (MRDL): 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): 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.

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.

Regulatory Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. The adjacent table lists data on the levels of regulated contaminants that were detected in our water supply from January 1 through December 31, 2013. The presence of these contaminants in the drinking water does not necessarily indicate that the water poses a health risk.

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

THE FOUR TERMS TO EXAMINE

Primary Standards



Mandatory health-related standards that may cause health problems in drinking water.

Secondary Standards



Aesthetic standards (non health-related) that could cause odor, taste, or appearance problems in drinking water.

Unregulated Parameters



Information about contaminants that are monitored but are not currently regulated by federal and state health agencies.

Additional Parameters



Information that may also be of interest to our customers.

WATER QUALITY DATA



ADDITIONAL ABBREVIATIONS USED IN THIS CHART

MFL: million fibers per liter	NS: no standard	ppm: parts per million, or milligrams per liter (mg/L)
NA: not applicable	NTU: nephelometric turbidity units – a measure of suspended material in water	ppt: parts per trillion, or nanograms per liter (ng/L)
ND: not detectable at testing limit	pCi/L: picocuries per liter (a measure of radioactivity)	ppq: parts per quadrillion, or picograms per liter
NR: not required	ppb: parts per billion, or micrograms per liter (ug/L)	uS/cm: microsiemens per centimeter
NC: not collected	NL: notification level	AI: aggressiveness index
AL: action level	CFU: colony-forming units	PHG: public health goal



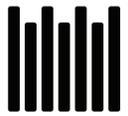
Primary Standards - Mandatory Health - Related Standards

CLARITY Parameter	MCL	PHG (MCLG)	Imported Water		Groundwater		Typical Source of Contaminant
			Range	Average	Range	Average	
Combined Filter Effluent Turbidity (NTU)	0.3	NA	Highest	0.05	NR	NR	Soil runoff
Combined Filter Effluent Turbidity (%) ¹	95 ²	NA	%<0.3	100	NR	NR	Soil runoff

MICROBIOLOGICAL Parameter	MCL	PHG (MCLG)	Imported Water		Groundwater		Typical Source of Contaminant
			Range	Average	Range	Average	
Total Coliform Bacteria ³	NA	NA	ND - 0.2	ND	ND	ND	Naturally present in the environment.
RADIOLOGICALS							
Natural Uranium (pCi/L)	20	0.43	1 - 2	2	ND - 10.20	3.73	Erosion of natural deposits.

INORGANIC CHEMICALS							
Arsenic (ppb)	10	0.004	ND - 2.0	2	ND - 3.50	0.28	Erosion of natural deposits; runoff from orchards, glass and electronics production wastes.
Barium (ppb)	1000	2000	ND	ND	ND - 139.00	17.85	Oil and metal refinery discharges; erosion of natural deposits.
Fluoride (ppm) (naturally occurring)	2	1	NO.1 - 0.4	0.3	0.15 - 0.80	0.35	Erosion of natural deposits; discharge from fertilizer and aluminum factories.
Fluoride (ppm) (Treatment - related)	(see notes) ⁴	1	0.7 - 1.0	0.8	NA	NA	Water additive for dental health.
Nitrate (as NO3 ppm) ⁵	45	45	ND	ND	ND - 37.74	10.69	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits.
Nitrate and Nitrite (as N ppm)	10	10	ND	ND	0.00 - 8.53	2.41	
Perchlorate (ppb) ⁶	6	6	ND	ND	ND - 4.00	0.03	Usually gets into drinking water as a result of environmental contamination from historic aerospace or other industrial operations that used or use, store, or dispose of perchlorate and its salts.
Selenium (ppb)	50	(50)	ND	ND	NR	NR	Refineries, mines, and chemical waste discharges; runoff.

WATER QUALITY DATA



Primary Standards - Mandatory Health-Related Standards (Continued)

Parameter	MCL	PHG (MCLG)	Imported Water		Groundwater			Typical Source of Contaminant
			Range	Average	90th Percentile	# of Sites Above the AI	# of Sites Sampled	
Copper (ppm)	AL=1.3	0.3	ND	ND	0.14	0	84	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Lead (ppb)	AL= 15	0.2	ND	ND	ND	0	84	Internal corrosion of household plumbing systems; erosion of natural deposits; discharges from industrial manufacturers.

Parameter	MCL (MRDL)	PHG MCLG (MRDLG)	Imported Water		Groundwater or System		Typical Source of Contaminant
			Range	Average	Range	Average	
Volatile Organic Compounds							
Methyl-tert-butyl-ether (MTBE) (ppb)	5	13	ND	ND	ND	ND	Leaking underground gasoline storage tanks and pipelines; discharge from petroleum and chemical factories.
Disinfection By-Products, Disinfectant Residuals – Values are for the distribution system based on annual running average							
Total Trihalomethanes (TTHM) (ppb) ⁷	80	NA	12 - 60	58	ND - 52.8	30.9	Byproduct of drinking water disinfection.
Haloacetic Acids (Five) (ppb)	60	NA	ND - 22	18	ND - 23.5	11.6	Byproduct of drinking water disinfection.
Total Chlorine Residual (ppm)	[4.0]	[4.0]	ND - 2.9	2.3	ND - 1.18	1	Drinking water disinfectant added for treatment.

Secondary Standards - Aesthetic Standards (Non Health Related)

Parameter	MCLG	PHG (MCLG)	Imported Water		Groundwater		Typical Source of Contaminant
			Range	Average	Range	Average	
Chloride (ppm)	500	NA	84 - 91	87	18.20 - 100.00	53.27	Runoff/leaching from natural deposits; seawater influence.
Color (units)	15	NA	1	1	ND - 3.00	0.3	Naturally occurring organic materials.
Odor, Threshold (units)	3	NA	3 - 6	3	ND	ND	Naturally occurring organic materials.
Spec. Conductance (um/cm)	1600	NA	850 - 900	880	436.00 - 1,130.00	700.23	Substances that form ions when in water, seawater influence.
Sulfate (ppm)	500	NA	170 - 200	185	44.20 - 143.00	91.52	Runoff/leaching from natural deposits, seawater influence.
Total Dissolved Solids (ppm)	1000	NA	520 - 560	535	250.00 - 636.00	420.1	Runoff/leaching from natural deposits.
Turbidity (NTU)	5	NA	ND	ND	ND - 0.300	0.11	Soil runoff.

Additional Parameters That May Be Of Interest To Our Customers

Parameter	MCL	PHG (MCLG)	Imported Water		Groundwater		Typical Source of Contaminant
			Range	Average	Range	Average	
1,4-Dioxane (ppb)	NA	NA	NC	NC	ND	ND	Runoff/leaching from natural deposits; seawater influence.

WATER QUALITY DATA



Unregulated Parameters That May Be Of Interest To Our Customers

Parameter	MCL	PHG (MCLG)	Imported Water		Groundwater	
			Range	Average	Range	Average
Total Alkalinity (as CaCO ₃) (ppm)	NA	NA	76 - 130	110	141.00 - 237.00	167.4
Bicarbonate (as HCO ₃)	NA	NA	NC	NC	172.00 - 289.00	203.95
Boron (ppb)	NA	NL = 1000	140 - 150	145	0.00 - 0.36	0.02
Bromide (ppm)	NS	NS	NC	NC	0.00 - 0.21	0.09
Calcium (ppm)	NA	NA	56 - 61	59	24.40 - 124.00	74.05
Bicarbonate (as CaCO ₃)	NA	NA	NC	NC	141.00 - 237.00	167.4
Hexavalent Chromium (ppb)	NA	0.02	ND	ND	0.00 - 2.20	1.01
Total Hardness (as CaCO ₃) (ppm)	NA	NA	230 - 250	245	81.60 - 428.00	245.23
Total Hardness (Grains per gallon)	NS	NS	13.4 - 14.6	14.3	4.76 - 24.97	14.31
Magnesium (ppm)	NA	NA	21 - 23	22	5.00 - 28.70	14.66
N-Nitrosodimethylamine (NDMA) (ppt)	NA	NL = 10	ND - 11	ND		
pH (pH units)	NA	NA	8.1	8.1	7.80 - 8.10	7.94
Potassium (ppm)	NA	NA	4.0 - 4.4	4.2	1.30 - 3.00	2.07
Radon (pCi/L) ⁸	NA	NA	ND	ND		
Sodium (ppm)	NA	NA	79 - 87	83	34.10 - 81.00	45.46
TOC (ppm)	TT	NA	2.1 - 2.7	2.4	ND - 0.41	0.14
Vanadium (ppb)	NA	NL = 50	ND - 3.0	ND - 3.0	0.00 - 6.00	0.91

Chlorate (ppb) ⁹	NA	NA	38.1 - 67.6	53.25	37.5 - 85.8	55.12
Chromium (ppb) ⁹	NA	NA	<0.2 - 0.5	0.06	<0.2 - 0.6	0.28
Hexavalent Chromium (ppb) ⁹	NA	NA	0.03 - 0.12	0.07	0.09 - 0.68	0.36
Molybdenum (ppb) ⁹	NA	NA	4.5 - 5.3	4.79	4.6 - 5.2	4.75
Strontium (ppb) ⁹	NA	NA	854 - 1070	938.38	656 - 959	827.5
Vanadium (ppb) ⁹	NA	NA	2.3 - 3.0	2.81	2.4 - 2.8	2.55

NOTES



- ¹ **TURBIDITY:** Is a measure of the cloudiness of the water. It is monitored in our imported water source because it is a good indicator of the effectiveness of the filtration system.
- ² The turbidity level of the filtered water shall be less than or equal to 0.3 NTU in 95% of the measurements taken each month and shall not exceed 1 NTU at any time. The averages and ranges of turbidity shown in the Secondary Standards were based on the treatment plant effluent.
- ³ The State required raw water coliform monitoring for all treatment plants beginning March 2008. Reporting level is 1 CFU/100mL for total coliform and E. coli.
- ⁴ Data for the naturally occurring fluoride were taken before the fluoridation treatment began. Fluoridation treatment of water supplies at all five MWD treatment plants started sequentially from October 29, 2007 to December 3, 2007. Metropolitan was in compliance with all provisions of the State's Fluoridation System Requirements.
- ⁵ **SPECIAL EDUCATIONAL STATEMENT REGARDING NITRATE:**
Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. Nitrate in drinking water at levels above 45 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 45 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, you should ask advice from your health care provider.
- ⁶ **SPECIAL EDUCATIONAL STATEMENT REGARDING PERCHLORATE:**
Perchlorate has been shown to interfere with uptake of iodide by the thyroid gland, and to thereby reduce the production of thyroid hormones, leading to adverse effects associated with inadequate hormone levels. Thyroid hormones are needed for normal prenatal growth and development of the fetus, as well as for normal growth and development in the infant and child. In adults, thyroid hormones are needed for normal metabolism and mental function.
- ⁷ **NOTE:** Eight locations in the distribution system are tested quarterly for total trihalomethanes and haloacetic acids.
- ⁸ **RADON:** Radon is a radioactive gas that you can't see, taste, or smell. It is found throughout the U.S. Radon can move through the ground and into a home through cracks and holes in the foundation. Radon can build up in high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, call the California radon program (1-800-745-7236), the EPA Safe Drinking Water Act Hotline (1-800-426-4791), or the National Safe Council Radon Hotline (1-800-SOS-RADON.)
- ⁹ In 2012, EPA revised the Unregulated Contaminant Rule to establish a new set of unregulated contaminants. This new assessment monitoring is referred to as UCMR3 monitoring. This monitoring is required of all Public Water Systems during a 12 month period from January 2013 to December 2015. The constituents noted are those monitored at designated UCMR3 water sampling locations.