Santa Margarita Water District

2014 Water Quality Report

DATA FOR 2013

Your 2014 Water Quality Report

Since 1990, California public water utilities have been providing an annual Water Quality Report to their customers. **This year's report covers calendar year 2013 drinking water quality testing and reporting.** Santa Margarita Water District (SMWD) vigilantly safeguards its water supply and, as in years past, the water delivered to your home meets the quality standards required by federal and state regulatory agencies. The U.S. Environmental Protection Agency (USEPA) and the California Department of Public Health (CDPH) are the agencies responsible for establishing and enforcing drinking water quality standards.

In some cases, SMWD goes beyond what is required by testing for unregulated chemicals that may have known health risks but do not have drinking water standards. For example, the Metropolitan Water District of Southern California (MWDSC), which supplies treated imported surface water to SMWD, tests for unregulated chemicals in our water supply. Unregulated chemical monitoring helps USEPA and CDPH determine where certain chemicals occur and whether new standards need to be established for those chemicals to protect public health.

Through drinking water quality testing programs carried out by MWDSC for treated surface water and the SMWD for the distribution system, your drinking water is constantly monitored from source to tap for regulated and unregulated constituents.

The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

The Quality of Your Water is Our Primary Concern

Sources of Supply

Your drinking water is surface water imported by the MWDSC. MWDSC's imported water sources are the Colorado River and the State Water Project, which draws water from the Sacramento-San Joaquin River Delta.

Basic Information About Drinking Water Contaminants


State Water Project Aqueduct

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 land or through the layers of the ground it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animal and human activity.

Contaminants that may be present in source water include:

- **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- **Inorganic contaminants**, such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining and farming.
- **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production or mining activities.
- **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, which are by-products of industrial processes and petroleum production, and can also come from gasoline stations, urban stormwater runoff, agricultural application and septic systems.

In order to ensure that tap water is safe to drink, USEPA and the CDPH prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. CDPH regulations also establish limits for contaminants in bottled water that must provide the same protection for public 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 water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at (800) 426-4791 or check their website at: www.epa.gov/safewater/.

Disinfectants and Disinfection Byproducts

Disinfection of drinking water was one of the major public health advances in the 20th century. Disinfection was a major factor in reducing waterborne disease epidemics caused by pathogenic bacteria and viruses, and it remains an essential part of drinking water treatment today.

Water imported from MWDSC contains chloramines, a combination of chlorine and ammonia, as a drinking water disinfectant. Chloramines are effective killers of bacteria and other microorganisms that may cause disease.

Chlorine disinfection has almost completely eliminated from our lives the risks of microbial waterborne diseases. Chlorine is added to your drinking water at the source of supply (surface water treatment plant). Enough chlorine is added so that it does not completely dissipate through the distribution system pipes. This "residual" chlorine helps to prevent the growth of bacteria in the pipes that carry drinking water from the source into your home.

However, chlorine can react with naturally-occurring materials in the water to form unintended chemical byproducts, called disinfection byproducts (DBPs), which may pose health risks. A major challenge is how to balance the risks from microbial pathogens and DBPs. It is important to provide protection from these microbial pathogens while simultaneously ensuring decreasing health risks from disinfection byproducts. The Safe Drinking Water Act requires the USEPA to develop rules to achieve these goals.

Trihalomethanes (THMs) and Haloacetic Acids (HAAs) are the most common and most studied DBPs found in drinking water treated with chlorine. In 1979, the USEPA set the maximum amount of total THMs allowed in drinking water at 100 parts per billion as an annual running average. Effective in January 2002, the Stage 1 Disinfectants / Disinfection Byproducts Rule lowered the total THM maximum annual average level to 80 parts per billion and added HAAs to the list of regulated chemicals in drinking water. Your drinking water complies with the Stage 1 Disinfectants / Disinfection Byproducts Rule.

Stage 2 of the regulation was finalized by USEPA in 2006, which further controls allowable levels of DBPs in drinking water without compromising disinfection itself. A required distribution system evaluation was completed in 2008 and a Stage 2 monitoring plan has been approved by CDPH. Full Stage 2 compliance began in 2012.

Chloramines form less disinfectant by-products. People who use kidney dialysis machines may want to take special precautions and consult their physician for appropriate type of water treatment. Customers who maintain fish ponds, tanks or aquaria should also make necessary adjustments in water quality treatment, as these disinfectants are toxic to fish.

Questions about your water? Contact us for answers.

For information about this report, or your water quality in general, please contact Steve Francis, Operations Superintendent, at (949) 459-6539. The Water District Board of Directors meets the first Wednesday of each month at 7 p.m. in the Board Room at 26111 Antonio Parkway, Rancho Santa Margarita, California 92688. Please feel free to participate in these meetings.

For more information about the health effects of the listed contaminants in the following tables, call the USEPA hotline at (800) 426-4791. The USEPA also maintains a water-related website at www.epa.gov/safewater.

Important Information the EPA Would Like You to Know

Issues in Water Quality that Could Affect Your Health

Immuno-Compromised People

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people, such as those with cancer who are undergoing chemo-therapy, persons who have had 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.

About Lead in Tap Water

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.

SMWD 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, (800) 426-4791, or at: www.epa.gov/safewater/lead.

Cryptosporidium

Cryptosporidium is a microscopic organism that, when ingested, can cause diarrhea, fever, and other gastrointestinal symptoms. The organism comes from animal and/or human wastes and may be in surface water. MWDSC tested their source water and treated surface water for *Cryptosporidium* in 2013 but did not detect it. If it ever is detected, *Cryptosporidium* is eliminated by an effective treatment combination including sedimentation, filtration and disinfection.

The USEPA and the federal Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from USEPA's Safe Drinking Water hotline at (800) 426-4791 between 10 a.m. and 4 p.m. Eastern Time (7 a.m. to 1 p.m. in California).

What are Water Quality Standards?

Drinking water standards established by USEPA and CDPH set limits for substances that may affect consumer health or aesthetic qualities of drinking water. The chart in this report shows the following types of water quality standards:

- **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.
- **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.
- **Secondary MCLs:** Set to protect the odor, taste, and appearance of drinking water.
- **Primary Drinking Water Standard:** MCLs for contaminants that affect health along with their monitoring and reporting requirements and water treatment requirements.
- **Regulatory Action Level (AL):** The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

How are Contaminants Measured?

Water is sampled and tested throughout the year. Contaminants are measured in:

- parts per million (ppm) or milligrams per liter (mg/L)
- parts per billion (ppb) or micrograms per liter (µg/L)
- parts per trillion (ppt) or nanograms per liter (ng/L)

What is a Water Quality Goal?

In addition to mandatory water quality standards, USEPA and CDPH have set voluntary water quality goals for some contaminants. Water quality goals are often set at such low levels that they are not achievable in practice and are not directly measurable. Nevertheless, these goals provide useful guideposts and direction for water management practices. The chart in this report includes three types of water quality goals:

- **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 USEPA.
- **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.
- **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.

2013 Metropolitan Water District of Southern California Treated Surface Water

Chemical	MCL	PHG, or (MCLG)	Average Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
Radiologicals – Tested in 2011						
Alpha Radiation (pCi/L)	15	(0)	3	ND – 3	No	Erosion of Natural Deposits
Beta Radiation (pCi/L)	50	(0)	ND	ND – 4	No	Decay of Man-made or Natural Deposits
Uranium (pCi/L)	20	0.43	2	2	No	Erosion of Natural Deposits
Inorganic Chemicals – Tested in 2013						
Aluminum (ppm)	1	0.6	0.16	0.1 – 0.23	No	Treatment Process Residue, Natural Deposits
Arsenic (ppb)	10	0.004	2	2	No	Erosion of Natural Deposits
Nitrate (ppm as NO_3)	45	45	1.8	1.8	No	Agriculture Runoff and Sewage
Fluoride (ppm) treatment-related	Control Range 0.7 – 1.3 ppm Optimal Level 0.8 ppm		0.8	0.7 – 1	No	Water Additive for Dental Health
Secondary Standards* – Tested in 2013						
Aluminum (ppb)	200*	600	160	100 – 230	No	Treatment Process Residue, Natural Deposits
Chloride (ppm)	500*	n/a	86	84 – 87	No	Runoff or Leaching from Natural Deposits
Color (color units)	15*	n/a	1	1	No	Naturally-occurring Organic Materials
Odor (threshold odor number)	3*	n/a	3	3	No	Naturally-occurring Organic Materials
Specific Conductance (µmho/cm)	1,600*	n/a	890	870 – 900	No	Substances that Form Ions in Water
Sulfate (ppm)	500*	n/a	190	180 – 200	No	Runoff or Leaching from Natural Deposits
Total Dissolved Solids (ppm)	1,000*	n/a	540	520 – 560	No	Runoff or Leaching from Natural Deposits
Unregulated Chemicals – Tested in 2013						
Alkalinity, total as $CaCO_3$ (ppm)	Not Regulated	n/a	110	93 – 120	n/a	Runoff or Leaching from Natural Deposits
Boron (ppm)	NL = 1	n/a	0.14	0.14	n/a	Runoff or Leaching from Natural Deposits
Calcium (ppm)	Not Regulated	n/a	60	59 – 61	n/a	Runoff or Leaching from Natural Deposits
Hardness, total as $CaCO_3$ (ppm)	Not Regulated	n/a	250	240 – 250	n/a	Runoff or Leaching from Natural Deposits
Hardness, total (grains/gallon)	Not Regulated	n/a	15	14 – 15	n/a	Runoff or Leaching from Natural Deposits
Magnesium (ppm)	Not Regulated	n/a	22	22 – 23	n/a	Runoff or Leaching from Natural Deposits
pH (pH units)	Not Regulated	n/a	8.1	8.1	n/a	Hydrogen Ion Concentration
Potassium (ppm)	Not Regulated	n/a	4.2	4 – 4.4	n/a	Runoff or Leaching from Natural Deposits
Sodium (ppm)	Not Regulated	n/a	84	82 – 87	n/a	Runoff or Leaching from Natural Deposits
Total Organic Carbon (ppm)	TT	n/a	2.5	2.2 – 2.7	n/a	Various Natural and Man-made Sources

ppb = parts-per-billion; **ppm** = parts-per-million; **pCi/L** = picoCuries per liter; **µmho/cm** = micromhos per centimeter;
ND = not detected; **MCL** = Maximum Contaminant Level; **(MCLG)** = federal MCL Goal; **PHG** = California Public Health Goal;
NL = Notification Level; **n/a** = not applicable; **TT** = treatment technique * Contaminant is regulated by a secondary standard.

Turbidity – combined filter effluent Metropolitan Water District Diemer Filtration Plant	Treatment Technique	Turbidity Measurements	TT Violation?	Typical Source of Contaminant
1) Highest single turbidity measurement	0.3 NTU	0.06	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. **NTU** = nephelometric turbidity units
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 contaminants in drinking water that are difficult and sometimes impossible to measure directly.

Unregulated Chemicals Requiring Monitoring

Chemical	Notification Level	PHG	Average Amount	Range of Detections	Most Recent Sampling Date
Chlorate (ppb)	800	n/a	55	39 – 75	2013
Chromium, Hexavalent (ppb)	n/a	0.02	0.085	0.051 – 0.14	2013
Molybdenum, Total (ppb)	n/a	n/a	4.2	4 – 4.4	2013
Strontium, Total (ppb)	n/a	n/a	890	780 – 980	2013
Vanadium, Total (ppb)	50	n/a	2.4	2.4	2013

Drinking Water Fluoridation

Fluoride has been added to U.S. drinking water supplies since 1945. Of the 50 largest cities in the U.S., 43 fluoridate their drinking water.

In December 2007, MWDSC joined a majority of the nation's public water suppliers in adding fluoride to drinking water in order to prevent tooth decay. In line with recommendations from the CDPH, as well as the U.S. Centers for Disease Control and Prevention, MWDSC adjusted the natural fluoride level in imported treated water from the Colorado River and State Project water to the optimal range for dental health of 0.7 to 1.3 parts per million. Fluoride levels in drinking water are limited under California state regulations at a maximum dosage of 2 parts per million.

There are many places to go for additional information about the fluoridation of drinking water:

U.S. Centers for Disease Control and Prevention
1 (800) 232-4636
www.cdc.gov/fluoridation/

California Department of Public Health
www.cdph.ca.gov/certlic/drinkingwater/Pages/Fluoridation.aspx

American Water Works Association
www.awwa.org

For more information about MWDSC's fluoridation program, please contact Edgar G. Dymally at (213) 217-5709 or at edymally@mwdh2o.com.

Conservation Tips for Inside Your Home . . .

Wash only full loads of laundry and dishes:
Saves up to 50 gallons per week

Fix household leaks promptly:
Saves up to 20 gallons per day

Spend only 5 minutes in the shower:
Saves up to 8 gallons each time

Turn off the water while you brush your teeth:
Saves up to 2.5 gallons per minute

Buy water-saving devices like high-efficiency toilets and clothes washers. Many of them are eligible for rebates and you'll save many gallons of water per day.

Further conservation ideas, and complete rebate information, are available on the web at www.bewaterwise.com.

. . . and for Outside Your Home

Water your lawn 1 to 2 days a week instead of 5 days a week:
Saves up to 840 gallons per week

Check your sprinkler system for leaks, overspray and broken sprinkler heads and repair promptly:
Saves up to 500 gallons per month

Use a broom instead of a hose to clean driveways and sidewalks:
Saves up to 150 gallons each time

Water your plants in the early morning or evening to reduce evaporation and ineffective watering due to wind:
Saves up to 25 gallons each time

Additional water saving steps and devices are also available, and some of these are eligible for substantial rebates. Consider replacing your lawn with drought tolerant plants, synthetic turf, or permeable hardscape. Or add rotating sprinkler nozzles, a weather-based controller, or a drip line to enhance your automated irrigation system. And mulch. Hundreds of gallons a year can be saved by simply using organic mulch around plants to reduce evaporation.

Further conservation ideas, and complete rebate information, are available on the web at www.bewaterwise.com.

Talk to your family and friends about saving water. If everyone does a little, we all benefit a lot.

Want Additional Information?

There's a wealth of information on the internet about Drinking Water Quality and water issues in general, especially the drought and conservation. Some good sites — both local and national — to begin your own research are:

Santa Margarita Water District: www.smwd.com
Metropolitan Water District of Southern California: www.mwdh2o.com
U.S. Environmental Protection Agency: www.epa.gov/safewater
California Department of Water Resources: www.water.ca.gov
Water Conservation Tips & Rebate Information: www.bewaterwise.com

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2013 Santa Margarita Water District Distribution System Water Quality

Disinfection Byproducts	MCL (MRDL/MRDLG)	Average Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
Total Trihalomethanes (ppb)	80	57	33 – 58	No	Byproducts of Chlorine Disinfection
Haloacetic Acids (ppb)	60	20	7.9 – 25	No	Byproducts of Chlorine Disinfection
Chlorine Residual (ppm)	(4 / 4)	1.6	0.97 – 1.8	No	Disinfectant Added for Treatment
Aesthetic Quality					
Color (color units)	15*	3	ND – 3	No	Erosion of Natural Deposits
Turbidity (NTU)	5*	0.18	0.16 – 0.21	No	Erosion of Natural Deposits

Eight locations in the distribution system are tested quarterly for total trihalomethanes and haloacetic acids; thirty-six locations are tested monthly for color, odor, and turbidity.
Odor was not detected in 2013. **MRDL** = Maximum Residual Disinfectant Level; **MRDLG** = Maximum Residual Disinfectant Level Goal; **NTU** = nephelometric turbidity units;
ND = not detected *Contaminant is regulated by a secondary standard to maintain aesthetic qualities (taste, odor, color).

Bacterial Quality	MCL	MCLG	Highest Monthly Positive Samples	MCL Violation?	Typical Source of Contaminant
Total Coliform Bacteria	5%	0	0.0%	No	Naturally Present in the Environment

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.

Lead and Copper Action Levels at Residential Taps

	Action Level (AL)	Health Goal	90th Percentile Value	Sites Exceeding AL / Number of Sites	AL Violation?	Typical Source of Contaminant
Lead (ppb)	15	0.2	ND	0 / 52	No	Corrosion of Household Plumbing
Copper (ppm)	1.3	0.3	0.081	0 / 52	No	Corrosion of Household Plumbing

Every three years, 52 residences are tested for lead and copper at-the-tap. The most recent set of samples was collected in September 2012.
Lead was not detected in any sample. Copper was detected in 21 samples; none exceeded the action level.
A regulatory action level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Unregulated Chemicals Requiring Monitoring

Chemical	Notification Level	PHG	Average Amount	Range of Detections	Most Recent Sampling Date
Chlorate (ppb)	800	n/a	46	35 – 55	2013
Chromium, Hexavalent (ppb)	n/a	0.02	0.073	0.051 – 0.1	2013
Molybdenum, Total (ppb)	n/a	n/a	4.4	4.2 – 4.6	2013
Strontium, Total (ppb)	n/a	n/a	910	810 – 1,000	2013
Vanadium, Total (ppb)	50	n/a	2.5	2.4 – 2.5	2013

Source Water Assessments

Imported (MWDSC) Water Assessment

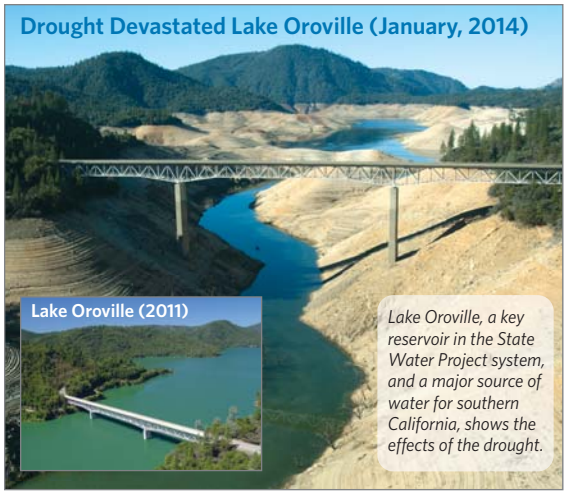
Every five years, MWDSC is required by CDPH to examine possible sources of drinking water contamination in its State Water Project and Colorado River source waters.

In 2012, MWDSC submitted to CDPH its updated Watershed Sanitary Surveys for the Colorado River and State Water Project, which include suggestions for how to better protect these source waters. Both source waters are exposed to stormwater runoff, recreational activities, wastewater discharges, wildlife, fires, and other watershed-related factors that could affect water quality.

Water from the Colorado River is considered to be most vulnerable to contamination from recreation, urban/stormwater runoff, increasing urbanization in the watershed, and wastewater. Water supplies from Northern California's State Water Project are most vulnerable to contamination from urban/stormwater runoff, wildlife, agriculture, recreation, and wastewater.

USEPA also requires MWDSC to complete one Source Water Assessment (SWA) that utilizes information collected in the watershed sanitary surveys. MWDSC completed its SWA in December 2002. The SWA is used to evaluate the vulnerability of water sources to contamination and helps determine whether more protective measures are needed.

A copy of the most recent summary of either Watershed Sanitary Survey or the SWA can be obtained by calling MWDSC at (213) 217-6850.



It's official: California is in a drought.

2013 was the driest year on record, and as dry conditions continue, some regions throughout the state are being severely impacted.

On January 17, 2014, Governor Brown declared a drought emergency and asked that all Californians voluntarily reduce their water use by 20%. While there is no immediate danger of water supply interruptions here in Orange County, we must use our water supplies as efficiently as possible because we don't know how long the drought will last.

Southern California is well-prepared and in better shape than many of those in other parts of the state because we made investments for dry periods like this. Over the past 20 years, we have invested more than $15 billion in water storage and infrastructure improvements that will help sustain us now, and will help ensure reliability in the future. The drought is a serious reminder that we must continue to invest in water infrastructure and reliability projects.

This report contains important information about your drinking water. Translate it, or speak with someone who understands it.

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

Santa Margarita Water District

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