2015 Water Quality Report

Modesto System– 5010010

This report contains important infomation about your drinking water.

Welcome

The City of Modesto supplies you with clean, reliable drinking water. We are pleased to provide you with water that meets United States Environmental Protection Agency (USEPA) standards for safety. City staff works diligently to comply with emerging environmental issues and drinking water regulations.

In accordance with the USEPA and California regulations under the Safe Drinking Water Act, water utilities are required to provide detailed water quality information to their consumers.

This report contains important information about your drinking water. If the report is not available in your native language, we encourage you to identify someone who understands it and can translate for you.

Contact Us:

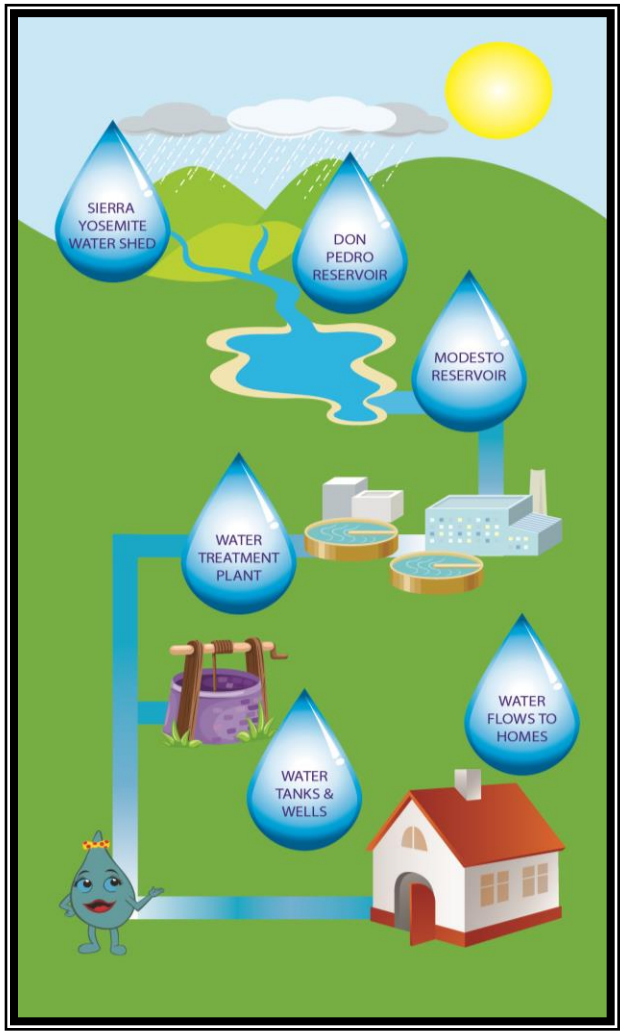
Water Services Division, PO Box 642, Modesto, CA 95353
Field Services, Water Conservation, Water Quality, and Emergencies: 209-342-2246
Utility Billing, Payment, Service on/off: 209-577-5395

Where Does My Water Come From?

The City currently operates 85 wells, 9 tanks, and 181 sampling points.
Until 1995, our customers received all of their water from wells. In order to continue to deliver clean, dependable water, the City partnered with the Modesto Irrigation District (MID) to construct a surface water treatment plant at Modesto Reservoir. The treatment process produces water that meets state and federal drinking water standards. In 2015, approximately 67% of the water supplied was from groundwater wells and 33% was surface water.

<u>Surface Water Treatment Process</u>:

- Water from Modesto Reservoir flows into the water treatment plant where ozone is added for disinfection.
- Liquid alum and polymers are mixed rapidly into the disinfected water to attract suspended particles and cause them to come together into a substance known as floc.
- The water flows into sedimentation basins to allow the floc to settle before the water goes to the filters.
- The water passes through an anthracite filter where any remaining floc is removed.
- Chlorine is added to the water as the final disinfectant.
- Lime and carbon dioxide are added to prevent corrosion of water pipes.
- Treated water flows to Modesto and into two 5 Million gallon tanks. From the tanks, it is pumped out as needed into the distribution system where it mixes with groundwater. It is then delivered to homes via service lines and you get to drink it, cook with it, bathe with it, etc.



WATER SERVICES DIVISION

WATER QUALITY INFORMATION

Cross Connection Control Program

The purpose of the cross connection control program is to reduce the hazards of contamination to the public water system by identifying actual and potential cross connections and taking action to protect the system from these hazards. This is accomplished by installing approved backflow prevention assemblies where hazards are identified; or ensuring that water-using equipment on the premises is installed in accordance with plumbing code requirements and good practice.

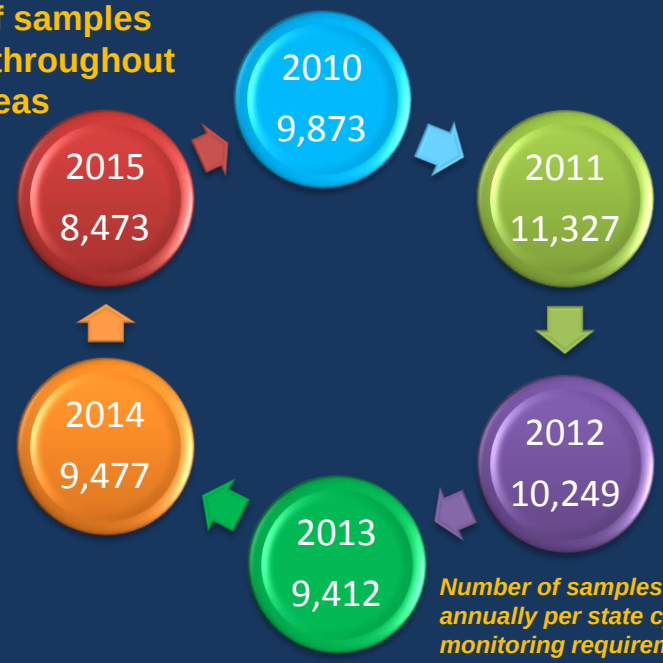
To keep your drinking water safe, the City's Cross-Connection specialist surveys the system to ensure compliance with cross connection/backflow requirements. The City of Modesto makes sure all primary external backflow prevention assemblies are tested annually. In 2015, there were 5,200 assemblies tested throughout the service areas.

Water Quality Sampling

The City of Modesto takes pride in the quality of potable water it provides to its customers. To ensure the highest water quality, water is tested on a weekly basis from wells, tanks, and distribution points throughout the service areas. On an annual basis, City staff collect an average of 9,800 water samples and test for approximately 170 chemicals as required by the State.

For more detailed information (refer to pages 9-13), we have provided you with a table showing what type of chemicals have been found in the water, the results of those samples, and the State MCLs (Maximum Contaminant Levels).

Number of samples collected throughout service areas



Number of samples collected vary annually per state cycle monitoring requirements

USEPA and the State Water Resources Control Board

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

Water taste can vary within the water system depending on the age of pipes, minerals in the water, time of year, the percentage of well water mixing with surface water and the process of disinfection.

The State Water Resources Control Board requires us to inform you that:

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. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water hotline (1-800-426-4791).

Some people may 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, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline 1-800-426-4791 and/or https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline.

WATER SERVICES DIVISION

CONTAMINANT INFORMATION

Possible Causes of Contamination

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.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that 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 water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water 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 gas stations, urban storm water runoff, agricultural application, and septic systems.
- Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production or mining activities.

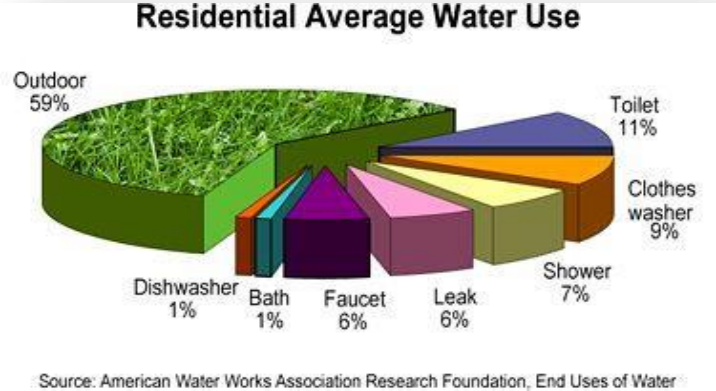
More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.

WATER SERVICES DIVISION

WATER CONSERVATION

Water is a critical part of California's way of life. Our economy, our environment and our day-to-day lifestyle need water to flourish. But our water is limited – especially during this historic drought. The lack of rain and snow this winter means we have to stretch the water that we do have. The good news…it's easy to keep saving! There are lots of simple ways to reduce the amount of water that we use at home, both inside and outside.

City of Modesto UTILITIES DEPARTMENT



Water Conservation Tips

- Check household faucets for leaks. A faucet with even a slow drip can waste 10 to 25 gallons of water. Just think, 15 drips per minute add up to almost 3 gallons of water wasted per day.
- Keep showers to 5 minutes or less in length. A five-minute shower can use 10 to 25 gallons of water.
- Use a broom to sweep your driveway, garage, or sidewalk instead of using water.
- Water your lawn in the evening or in the early morning to avoid evaporation.
- Make seasonal adjustments to your irrigation timers.
- Use water only when you need it. Don't leave water running; be sure to turn it off when you are finished.
- Do not water outdoors during and up to 48 hours following measureable rain.

Fun Facts

- Without water, the earth would look like the moon.
- All living things need water to live. People can live several weeks without food, but only a few days without water.
- Water makes up 83% of our blood, 70% of our brain, and 90% of our lungs. Overall, our bodies are 70% water.
- A tomato is about 95% water. An apple, a pineapple, and an ear of corn are each 80% water.
- Much more fresh water is stored under the ground in aquifers than on the earth's surface.
- While the daily recommended amount of water is eight cups per day, not all of this water must be consumed in the liquid form. Nearly every food or drink item provides some water to the body.

Water Conservation Program
Elementary School Education

WATER SERVICES DIVISION

WATER CONSERVATION

Water Wise House Calls

The City of Modesto has programs to assist customers with Water Conservation including the *Free* home water audit. Customers can call and schedule an appointment for a trained conservation specialist to come to their home, analyze their outdoor water use and assist them to conserve water by demonstrating how to read the meter, reset watering timers, and check for leaks.

List of Rebate Programs

Current Rebate Programs

- Turf Replacement
- Toilet
- Washing Machine

Additional Rebates as of July 1st 2016

- Smart Irrigation Controllers
- Rain Barrels
- Drip Irrigation
- High Efficiency Sprinkler Nozzles

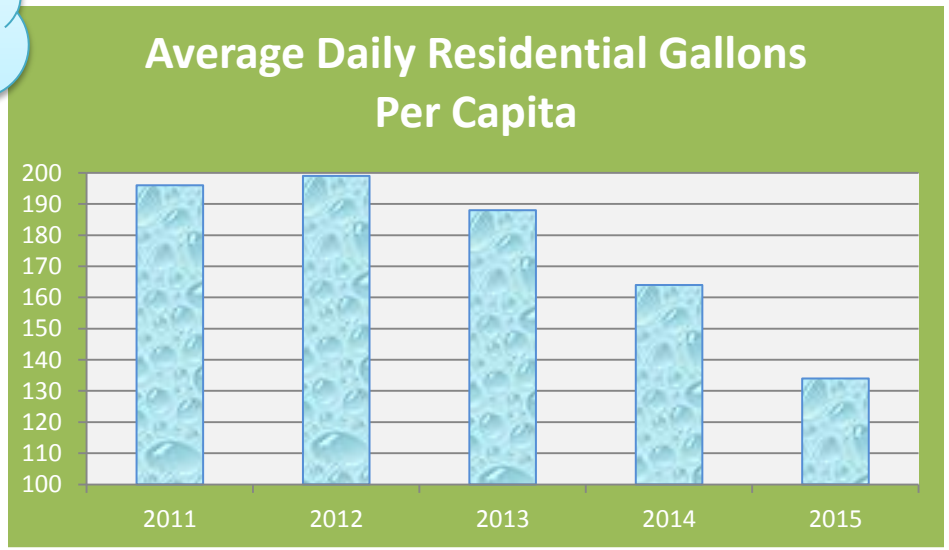


Table Introduction

Definition of Terms:

AL (action level): the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
MCL (maximum contaminant level): the highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs or MCLGs as feasible using the best available treatment technology. Secondary MCLs are set to protect the odor, taste and appearance of drinking water.
MCLG (maximum contaminant level goal): the level of a contaminant in drinking water below which there is no known/expected health risk. MCLGs allow for a margin of safety.
MRDL (maximum residual disinfectant level): 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.
MRDLG (maximum residual disinfectant level goal): the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contamination.
PHG (Public Health Goal): 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's Office of Environmental Health Hazard Assessment without regard to cost or available detection and treatment technologies.
TT (treatment technique): a required process intended to reduce the level of a contaminant in drinking water.
NL (notification level): A health based advisory level for an unregulated contaminant in drinking water. It is used by Department of Drinking Water to provide guidance to drinking water systems.

Comparative Figures for Interpretation

1 PPM	1 PPB	1 PPT
1 second in 11.5 days	1 second in 31.7 years	1 second in 317.1 centuries
1 penny out of $10,000	1 penny of $10,000,000	1 penny of $10,000,000,000
1 inch of 15.8 miles	1 inch of 15,782.8 miles	1 inch of 657.6 trips around the equator
1 minute in 1.9 years	1 minute in 19 centuries	1 minute in 1,900 millenniums
1 ounce in 62,500 pounds	1 ounce in 31,250 tons	1 ounce in 31,250,000 tons

Source: American Water Works Association Research Foundation

Abbreviations:

DLR: detection limit for reporting
cfu/ml: colony forming units
mg/L: number of milligrams in one liter of water
n/a: not applicable
NTU: nephelometric turbidity units
pCi/L: picocuries per liter (a measure of radiation)
ppb: parts per billion
ppm: parts per million
ppt: parts per trillion
TT: treatment technique
ND: non-detect
µS/cm: micro-siemens/cm
<: less than
>: greater than
LRAA: locational Running Annual Average

2015 Water Quality Table

Regulated Contaminants with Primary MCLs

Inorganic Chemicals	Units	MCL	PHG	DLR	AVG	Range	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Arsenic	ppb	10	0.004	2	2.1	0-7.3	2015	No	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Barium	ppm	1	2	0.1	0.08	0-0.24	2015	No	Discharge of oil drilling wastes and from metal refineries; erosion of natural deposits
Fluoride	ppm	2	1	0.1	0.06	0-0.14	2015	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Hexavalent Chromium	ppb	10	0.02	1	1.7	0-4	2015	No	Discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities; erosion of natural deposits
Nitrate	ppm	45	45	2	18.9	0-46.4	2015	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits

Volatile Organic Chemicals	Units	MCL	PHG	DLR	AVG	Range	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Tetrachloroethylene (PCE)	ppb	5	0.06	0.5	0.14	0-3.2	2015	No	Discharge from factories, dry cleaners and auto shops (metal degreaser)
Trichloroethylene (TCE)	ppb	5	1.7	0.5	0.17	0-5.1	2015	No	Discharge from metal degreasing sites and other factories

Synthetic Organic Chemicals/Herbicides and Pesticides	Units	MCL	PHG	DLR	AVG	Range	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Dibromochloropropane (DBCP)	ppt	200	1.7	10	8	1-100	2015	No	Banned nematocide that may still be present in soils due to runoff/leaching from former use on soybeans, cotton, vineyards, tomatoes and tree fruit

Special Notifications:
While your drinking water meets the federal and state standard for arsenic, it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The U.S. Environmental Protection Agency continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

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 serous 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, or you are pregnant, you should ask advice from your health care provider.

2015 Water Quality Table

Regulated Contaminants with Primary MCLs

Radiological	Units	MCL	PHG (MCLG)	DLR	AVG	Range	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Gross Alpha	pCi/L	15	(0)	3	1.3	0-7.3	2015	No	Erosion of natural deposits
Uranium	pCi/L	20	0.43	1	7.9	0-23	2015	No	Erosion of natural deposits

Bacteriological	Units	MCL	PHG	DLR	Highest Month	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Total Coliform Bacteria	Present/Absent	>5.0% per month	(0)	n/a	3%	2015	No	Naturally present in the environment

Bacteriological	Units	MCL	PHG	DLR	AVG	Range	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Heterotrophic Plate Count	cfu/ml	n/a	n/a	n/a	2	0-22	2015	No	n/a

Disinfection Byproducts and Disinfection Residuals

Disinfection Byproducts	Units	MCL	PHG	DLR	AVG	Range	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Total Haloacetic Acids	ppb	60	n/a	n/a	30.1	0-46.4	2015	No	By-product of drinking water disinfection
Trihalomethanes (Total)	ppb	80	n/a	n/a	56.6	0-78.9	2015	No	By-product of drinking water disinfection

Disinfectant Residual	Units	MRDL	MRDLG	DLR	AVG	Range	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Chlorine	mg/L	4	4	n/a	0.93	0-2.3	2015	No	Drinking water disinfectant added for treatment

2015 Water Quality Table

At The Tap Contaminants

Metals	Units	Action Level	PHG	DLR	# OF Samples	90th Percentile	Year Sampled	# Samples > Action Limits	TYPICAL SOURCE OF CONTAMINANTS
Copper	ppm	1.3	0.3	0.05	55	0.08	2015	0	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead	ppb	15	0.2	5	55	ND	2015	1	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

Regulated Contaminants with Secondary MCLs

Inorganic Chemicals	Units	Standard	PHG	DLR	AVG	Range	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Chloride	ppm	500	n/a	n/a	86	7-350	2015	No	Runoff and leaching from natural deposits; seawater influence
Color	units	15	n/a	n/a	0.7	0-6	2015	No	Naturally-occurring organic materials
Specific Conductance	uS/cm	1600	n/a	n/a	572	200-1300	2015	No	Substances that form ions when in water; seawater influence
Iron	ppb	300	n/a	n/a	15.2	0-190	2015	No	Leaching from natural deposits; industrial wastes
Sulfate	ppm	500	n/a	n/a	15.1	0.6-36	2015	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids	ppm	1000	n/a	n/a	364	68-1200	2015	No	Runoff/leaching from natural deposits

Additional Inorganic Chemicals

Inorganic Chemicals	Units	MCL	PHG	DLR	AVG	Range	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Hardness (as CaCO3)	ppm	n/a	n/a	n/a	174	49-363	2015	No	n/a
pH	units	n/a	n/a	n/a	7.3	6.9-8.2	2015	No	n/a
Sodium	ppm	n/a	n/a	n/a	48.9	12-130	2015	No	n/a

2015 Water Quality Table

UCMR3 (Unregulated Contaminants Monitoring Rule)

Contaminants	Units	Notification Level	MRDLG	Reporting Limit	AVG	Range	Year Sampled	Violation	TYPICAL SOURCE OF CONTAMINANTS
Chlorate	ppb	800	800	20	132	0-390	2013	No	n/a
Hexavalent Chromium	ppb	n/a	n/a	0.03	3	0-7	2013	No	n/a
Total Chromium	ppb	n/a	50	0.02	3	0-7.5	2013	No	n/a
Molybdenum	ppb	n/a	n/a	1	1.4	0-9.7	2013	No	n/a
Strontium	ppb	n/a	n/a	0.3	606	0-1800	2013	No	n/a
Vanadium	ppb	50	n/a	0.2	18	1-54	2013	No	n/a
1,2-Dichloroethane	ppb	n/a	0.4	0.03	0.001	0-0.06	2013	No	Discharge from industrial chemical factories
1,2,3-Trichloropropane	ppb	0.005	n/a	0.03	0.004	0-0.14	2013	No	n/a
1,4-Dioxane	ppb	1	n/a	0.07	0.006	0-0.17	2013	No	n/a
Chlorodifluoromethane	ppb	n/a	n/a	0.08	0.133	0-6.6	2013	No	n/a