

MARIPOSA PUBLIC UTILITY DISTRICT

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2013 ANNUAL CONSUMER CONFIDENCE REPORT STATE WATER SYSTEM #2210001

We test the drinking water quality for many constituents as required by State and Federal Regulations. This report shows the results of our monitoring for the period of January 1 – December 31, 2013 and may include earlier monitoring data.

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

Type of water source(s) in use: Surface water, wells

Name and location of source(s): Stockton Creek Reservoir, Merced River, various wells

Drinking water source assessment information: Source Water Assessments were completed in April 2003.

The sources are considered most vulnerable to the following activities not associated with any detected contaminants:

- Transportation corridors – freeways/state highways
- Transportation corridors – road right-of-ways [herbicide use areas]
- Septic systems – high density [>1 /acre]
- Automobile – gas stations
- Historic gas stations
- Wastewater treatment plants and disposal facilities

Time and place of regularly scheduled Board meetings for public participation: Meetings are held the first Tuesday of every month at 6:30 PM. Meeting place is the MPUD office located at 4992 Seventh Street, Mariposa, CA.

For more information contact: Mark L. Rowney, General Manager (209) 966-2515.

TERMS USED IN THIS REPORT

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 MCLS) 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 (USEPA).

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.

Primary Drinking Water Standards (PDWS): MCLs and MRDLs contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Public Health Goal (PHG): The level 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 (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Secondary Drinking Water Standards (SDWS): MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWS do not affect the health at the MCL levels.

ND: Not detectable at testing limit

ppm or mg/L: parts per million or milligrams per liter

ppb or µg/L: parts per billion or micrograms per liter

ppt: parts per trillion or nanograms per liter (ng/L)

ppq: parts per quadrillion or picogram per liter (pg/L)

pCi/L: picocuries per liter (a measure of radiation)

Turbidity (measured in NTU) is a measurement of cloudiness of water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.

TON: Threshold Odor Number

DBP: Disinfection by-products

µmho/cm: Conductance-Micromho's per cm

MFL: Million fibers per liter

RAA: Running Annual Average

Si: Saturation Index

Meq/L: milligram equivalent CaCO₃

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

The sources of drinking water (both tap 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, that 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* that may come from a variety of sources such as agriculture, storm water runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production and can also come from gas stations, storm water runoff and septic systems.
- *Radioactive contaminants* that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to insure that the tap water is safe to drink, the USEPA and the California Department of Public Health (CDPH) prescribe regulations that limit the amount of certain contaminants in water provided by the public water systems. Department regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

MPUD treats and tests water according to the CDPH and USEPA regulations. District staff includes five employees certified in the operation of water treatment facilities, four employees certified in water distribution and at least one employee certified as a Laboratory Analyst. District staff is on duty 8-9 hours a day, 7 days a week. There is an MPUD employee on call 24 hours per day. The emergency (water and sewer only) pager phone access number is **209-742-2800**.

MPUD provides water, wastewater, and fire protection services to the general area of the Mariposa town basin. MPUD is a Special District, independent of Mariposa County government. The MPUD legislative body is made up of five Directors elected at large by registered voters residing in the District with individual Directors serving four-year terms. The Board of Directors regular meetings are held the first Tuesday of each month in the MPUD office at 4992 Seventh Street at 6:30PM. The members of the Board are Bill Bondshu, Dana Finney, Bob McKnight, Brian Muller, and David Radanovich. The Chairman for the year 2014 is Brian Muller. The General Manager is Mark Rowney. For more information contact the MPUD administrative office at 966-2515.

The MPUD water supply sources for 2013 include two surface water sources- Merced River at Saxon Creek and the Stockton Creek Reservoir; and two ground water wells. All of the water from the two surface water sources is treated at the treatment facility located on Trabucco Street east of town. Treatment consists of flocculation, sedimentation, filtration, total organic carbon reduction, and disinfection. In addition, a blend of sodium phosphates is added at approximately 2.5 parts per million as a corrosion inhibitor. Water from groundwater sources is pumped directly to the distribution system with disinfection from chlorine injection at each well head.

During the calendar year of 2013 the District used 117,685,000 gallons from Stockton Creek (augmented with 25,000,000 gallons from the Merced River) 17,738,000 gallons directly from the Merced River and pumped 16,040,700 gallons of water from wells. Therefore, 78% of your water was supplied from Stockton Creek Reservoir, 12% from the Saxon Creek water project (not including Merced River water diverted to the Stockton Creek Reservoir) and 11% from wells.

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 U. S. Environmental Protection Agency's (USEPA) Safe Drinking Water Hotline at 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 at 1-800-426-4791.

MPUD completed construction of a new Surface Water Treatment Facility (SWTF) in July 2013. Design and construction was funded through the California State Revolving fund (grant \$3,000,000) and Proposition 50 (grant \$2,000,000). The primary features of the new facility include a new clarifier, ultra filtration membrane filters, granular activated carbon filters and new operations building. The new SWTF has improved turbidity removal, provides more effective barrier for bacteriological contaminants, requires less water to waste for filter maintenance and brings the water system into compliance with the disinfection by-product drinking water standards established by the Federal EPA and CDPH.

DROUGHT CONDITIONS

Due to the current drought conditions, the District has restarted an additional ground water well with a production of approximately 120 gallons per minute. In May, June and July of 2013, the District pumped water to the Stockton Creek Reservoir and directly to the Surface Water Treatment Facility. This year, the District started pumping from the Merced River in February and is planning to continue pumping until the end of June. Due to the pump system permit, minimum stream flow curtailment requirement, the Merced River will be unavailable for pumping from mid July to the end of the year.

At the February, 2014 board meeting, the MPUD Board of Directors adopted Resolution NO. 2014-1780 requesting customers to voluntarily reduce water use by 20% and placing the following water use restrictions in effect as of February 14, 2014:

- Out of District water sales are prohibited unless specifically approved by the Board of Directors
- Non commercial (fundraising type) car washes are prohibited
- Restaurants are not to provide drinking water unless specifically requested by the customer
- Use of public water supplies for fire suppression training is suspended
- Out of District public water supply is available for fire suppression purposes only up to the declaration of fire containment
- Added May 6, 2014 – The use of District public water supply for washing of sidewalks, walkways, driveways, parking lots, tennis courts, and all other hard surface areas outside of structures is prohibited.
- Additional water use restrictions may be adopted in the future as the State of California implements new water diversion curtailments and/or if drought conditions persist into 2015.

The District Board is currently reviewing proposed water and sewer rate increases. The last increase was in 2001. The current drought conditions have had a major impact on the cash reserve due to the energy cost of accessing Merced River for water supply in 2013 and 2014. Without access to the Merced River, the District would have inadequate water supply before the end of 2013.

The following table lists the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of the listed contaminants in the water does not necessarily indicate that the water poses a health risk. The Department allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative of the water quality, is more than one year old.

SAMPLING RESULTS FOR SODIUM AND HARDNESS – SURFACE WATER

Chemical or Constituent (and reporting units)	Sample Date	Range of Detections	Typical Source of Contaminant
Sodium (mg/L)	6-3-13	1.2 – 4.7	Salt present in the water and is generally naturally occurring.
Hardness as CaCO ₃ (mg/L)	6-3-13	5.0 - 77	Sum of polyvalent cations present in the water, generally magnesium and calcium, and are usually naturally occurring.

SAMPLING RESULTS SHOWING FECAL INDICATOR-POSITIVE GROUND WATER SOURCE SAMPLES

Microbiological Contaminants (complete if fecal-indicator detected)	Total No. of Detections	Sample Dates	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
Fecal Indicator (<i>E. coli</i>) (Ground Water Rule)	0	2 PER MONTH	0	(0)	Human and animal fecal waste
Fecal Indicator Enterococci or Coliphage (Ground Water Rule)	0 (In the year)	N/A	TT	N/A	Human and animal fecal waste

SAMPLING RESULTS SHOWING THE DETECTION OF COLIFORM BACTERIA

Microbiological Contaminants (complete if bacteria detected)	Highest No. of Detections	No. of Months in Violation	MCL	MCLG	Typical Source of Bacteria
Total Coliform Bacteria (Total Coliform Rule)	0	0	More than 1 sample in a month with a detection	0	Naturally present in the environment
Fecal Coliform or <i>E. coli</i> (Total Coliform Rule)	0	0	A routine sample and a repeat sample detect total coliform and either sample also detects fecal coliform or <i>E. coli</i>	0	Human and animal fecal waste

SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER

(Sample Taken from Customer Tap)
 Monitoring for September 2012 – next monitoring required 2015

Lead and Copper	No. of Samples collected	90 th Percentile Level Detected	# Sites Exceeding AL	AL	PHG	Typical Source of Contaminant
Lead (ppb)	20	2.1	None	15	0.2	Internal corrosion of household plumbing systems, discharges from industrial manufacturers; erosion of natural deposits.
Copper (ppm)	20	.280	None	1.3	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

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. MPUD 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 <http://www.epa.gov/safewater/lead>.

SAMPLING RESULTS FOR DISINFECTION BY-PRODUCTS, DISINFECTANT RESIDUALS AND DISINFECTION BY-PRODUCTS PRECURSORS						
Contaminant	Unit Measurement	MCL (AL) [MRDL]	PHG (MCLG) [MRDLG]	Range of Detection s	Major Sources in Drinking Water	Health Effects Language
* TTHMs – Total Trihalomethanes	ppb	80 RAA	N/A	59.4 - 97.0 Quarterly RAA	By-product of drinking water chlorination	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience liver, kidney or central nervous system problems, and may have an increased risk of getting cancer.
Haloacetic Acids	ppb	60 RAA		No Violation 40.4 - 58.9	By-product of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of MCL over many years may have an increased risk of getting cancer.
Chlorine	ppm	[MRDL = 4.0 (as Cl ₂)]	[MRDLG = 4 (as Cl ₂)]	0.72 - 0.77	Drinking water disinfectant added for treatment	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
* Control of DBP precursors (TOC)	ppm	Must exceed 1.0	N/A	0.90 - 1.67 Quarterly RAA	Various natural and man-made sources	Total organic carbon (TOC) has no health effects; however, total organic carbon provides a medium for the formation of disinfection by-products. The by-products include trihalomethanes (TTHMs) and haloacetic acids (HAAs). Drinking water containing these by-products in excess of the MCL may lead to adverse health effects, liver of kidney problems, or nervous system effects, and may lead to an increased risk of cancer.

*Any violation of an MCL, MRDL, or TT is asterisked. Additional information regarding the violation is provided later in this report.

SAMPLING RESULTS SHOWING TREATMENT OF SURFACE WATER SOURCES	
Treatment Technique (type of approved filtration technology used)	Ultra Filtration Membranes
Turbidity Performance Standards (that must be met through the water treatment process)	<u>Turbidity of the filtered water must:</u> 1 – Be less than or equal to .3 NTU January through August, .1 NTU September through December in 95% of measurements in a month 2 – Not exceed 1 NTU for more than eight consecutive hours 3 – Not exceed 2 NTU at any time
Lowest monthly percentage of samples that met Turbidity Performance Standard No. 1	100%
Highest single turbidity measurement during the year	0.101 NTU
The number of violations of surface water treatment requirements	None

- (a) A required process intended to reduce the level of a contaminant in drinking water.
- (b) Turbidity (measured in NTU) is a measurement of the cloudiness of water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.

DETECTION OF CONTAMINANTS WITH A <u>PRIMARY</u> DRINKING WATER STANDARD							
Chemical or Constituent	Unit Measurement	MCL (AL) [MRDL]	PHG (MCLG) [MRDLG]	Surface Water Stockton Creek	Surface Water Merced River	Dist. Wells (range)	Typical Source of Contaminant
Regulated organic chemicals				ND	ND	ND	
Inorganics Nitrate, as NO ₃	mg/L	45	45	ND (Sampled on 6-3-13)	ND (Sampled on 6-3-13)	4.6-11 (Sampled on 5-21-12)	Runoff from fertilizer leaching from septic tanks, erosion of natural deposits
Turbidity - Groundwater only	NTU	5		See page 5	See page 5	.040 - .064	Soil runoff
Aluminum	mg/L	1	0.6	ND (Sampled on 6-3-2013)	0.057 (Sampled on 6-3-2013)	.003-.0031 (Sampled on 5-21-12)	Erosion of natural deposits, residue from some surface water treatment processes
Barium	mg/L	1	2	ND (Sampled on 6-3-2013)	ND (Sampled on 6-3-2013)	.00046 - .00078 (Sampled on 5-21-12)	Discharge of oil drilling wastes and from metal refineries; erosion of natural deposits
Chromium	µg/L	50	(100)	ND (Sampled on 6-3-2013)	ND (Sampled on 6-3-2013)	1.1 (Sampled on 5-21-12)	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride	mg/L	2	1	ND (Sampled on 6-3-2013)	ND (Sampled on 6-3-2013)	0.037 - 0.060 (Sampled on 5-21-12)	Runoff/leaching from natural deposits; industrial wastes
Perchlorate	µg/L	6.0	6	ND (Sampled on 6-3-2013)	ND (Sampled on 6-3-2013)	ND (Sampled on 5-9-11)	Perchlorate is an inorganic chemical used in solid rocket propellant, fireworks, explosives, flares, matches, and a variety of industries. It 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.
Gross Alpha Particle Activity (Sampled on 8-28-2007)	pCi/L avg. composite	15	(0)	0.605	0.528	0.6	Erosion of natural deposits.

DETECTION OF CONTAMINANTS WITH A <u>SECONDARY</u> DRINKING WATER STANDARD						
Primary Inorganics	Unit	Calif. MCL	Surface Water Stockton Creek	Surface Water Merced River	Dist. Wells (range)	Typical Source of Contaminant
Calcium	mg/L		17 (Sampled on 6-3-2013)	1.7 (Sampled on 6-3-2013)	31 - 40 (Sampled on 5-21-12)	
Magnesium	mg/L		8.5 (Sampled on 6-3-2013)	0.20 (Sampled on 6-3-2013)	28 -31 (Sampled on 5-21-12)	
Tot. Alkalinity as CaCO ₃	mg/L		76 (Sampled on 6-3-2013)	7.1 (Sampled on 6-3-2013)	170 - 190 (Sampled on 5-21-12)	
Bicarbonate Alkalinity	mg/L		76 (Sampled on 6-3-2013)	7.1 (Sampled on 6-3-2013)	210 - 240 (Sampled on 5-21-12)	
Sulfate as SO ₄	mg/L	500	7.2 (Sampled on 6-3-2013)	ND (Sampled on 6-3-2013)	12 - 18 (Sampled on 5-21-12)	Runoff/leaching from natural deposits; industrial wastes
Chloride	mg/L	500	3.4 (Sampled on 6-3-2013)	1.3 (Sampled on 6-3-2013)	7.0 - 9.1 (Sampled on 5-21-12)	Substances that form ions when in water; seawater influence
pH**	Unit	6.5 - 8.5	8.1 (Sampled on 6-3-2013)	7.1 (Sampled on 6-3-2013)	7.0 (Sampled on 5-21-12)	
Specific Conductance	µmho/cm	900 - 1600	200 (Sampled on 5-21-12)	24 (Sampled on 5-21-12)	380- 450 (Sampled on 5-21-12)	Substances that form ions when in water; seawater influence
Tot. Dissolved Solids (TDS)	mg/L	1000	110 (Sampled on 6-3-2013)	19 (Sampled on 6-3-2013)	240-300 (Sampled on 5-21-12)	Runoff/leaching from natural deposits
Color	color units	15	15 (Sampled on 6-3-2013)	10 (Sampled on 6-3-2013)	<1.0 (Sampled on 5-21-12)	Naturally-occurring organic materials
Odor	TON	3 units	4.0 (Sampled on 6-3-2013)	4.0 (Sampled on 6-3-2013)	1.0 - 2.0 (Sampled on 5-21-12)	Naturally-occurring organic materials
Langelier Index @ 60°C	Si		-0.28 (Sampled on 6-3-2013)	-3.2 (Sampled on 6-3-2013)	-0.58 -0.72 (Sampled on 5-21-12)	
MBAS (Foaming Agents)	µg/L	500	ND (Sampled on 6-3-2013)	ND (Sampled on 6-3-2013)	50 (Sampled on 5-21-12)	Municipal and industrial waste discharges
Iron **	µg/L	300	30 Weekly annual average	30 Weekly annual average	19 (Sampled on 5-21-12)	Leaching from natural deposits; industrial wastes
Manganese ** (1)	µg/L	50	14 Weekly annual average	13 Weekly annual average	5 (Sampled on 5-21-12)	Erosion of natural deposits.

Potassium			ND (Sampled on 6-3-2013)	ND (Sampled on 6-3-2013)	0.23 - 0.44 (Sampled on 5-21-12)	
Zinc	mg/L	5	ND (Sampled on 6-3-2013)	ND (Sampled on 6-3-2013)	.0072 - 0.025 (Sampled on 5-21-12)	Runoff/leaching from natural deposits; industrial wastes

**Summary Information for Violation of a MCL, MRDL, AL, TT,
or Monitoring and Reporting Requirement**

VIOLATION OF A MCL, MRDL, AL, TT, OR MONITORING AND REPORTING REQUIREMENT				
Violation	Explanation	Duration	Actions Taken to Correct the Violation	Health Effects Language
Violation exceeded MCL for TTHM	Water system required to maintain TTHM < 80 ppb. See Range of Detections for Disinfection By-Products, this report.	1 st and 2 nd Qtr RAA for 2013	The water system has been in compliance since the new surface water treatment facility was completed in June 2013.	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience liver, kidney or central nervous system problems, and may have an increased risk of getting cancer.
Failed to meet minimum removal of DBP precursors (TOC) ratio RAA	Water system required to provide greater than 1.0 RAA of TOC percent removal. See Range of Detections for Disinfection-By-Products, this report.	February RRA for 2013	The water system has been in compliance since the new surface water treatment facility was completed in June 2013.	Total organic carbon (TOC) has no health effects; however, total organic carbon provides a medium for the formation of disinfection by-products. The by-products include trihalomethanes (TTHMs) and haloacetic acids (HAAs). Drinking water containing these by-products in excess of the MCL may lead to adverse health effects, liver of kidney problems, or nervous system effects, and may lead to an increased risk of cancer.

** Surface water after treatment

Manganese is a secondary drinking water standard. Contaminate limit is a guideline for aesthetic quality – not an adverse affect on public health.