



2016 Annual Consumer Confidence Report

Zone 7 Water Agency provides treated drinking water to four major water retailers, along with a small number of direct customers, serving approximately 239,000 people in Pleasanton, Livermore, Dublin and the Dougherty Valley area of San Ramon. Zone 7 also provides untreated water to local agricultural users and provides flood protection to 425 square miles of eastern Alameda County. *All water supplied during 2016 met the regulatory standards set by the State and federal governments and, in almost all cases, the quality was significantly better than required.*

[DETAILS INSIDE ▶](#)

Source Water Assessment

Zone 7 drinking water sources include local and imported surface water as well as groundwater. Protecting our source water is an important part of providing safe drinking water to the public.

A source water assessment, also known as a sanitary survey, is conducted on each drinking water source as required by the California State Water Resources Control Board Division of Drinking Water (DDW). Surface water is most vulnerable to contaminants as it travels through the Sacramento and San Joaquin watersheds and Delta. The latest sanitary survey for the Delta and the State Water Project (SWP) was completed in June 2012. It identified key vulnerabilities and sources of contaminants as wastewater-treatment plant discharges, urban runoff, recreational activities, and conversions of some agricultural Delta islands to wetlands. The sanitary survey includes an action plan to address these key vulnerabilities and sources of contaminants. In the past, the sanitary survey has been conducted every five years.

Sanitary surveys are now being produced on an annual basis, and focus on a narrower scope. Every five years these smaller annual surveys are compiled into a complete survey and updated to reflect current conditions. One of these annual sanitary surveys, focusing on the San Joaquin River watershed, was completed in June 2015. Two additional surveys are planned to be completed by June 2017, one focusing on an analysis of water quality data for the Sacramento-San Joaquin river delta and the SWP facilities, and one analyzing the impacts of the 2012–2015 drought on water quality and water treatment. These three annual surveys will be bundled together in time for the required submittal to DDW.

After leaving the Delta, water is transported to Zone 7 via the South Bay Aqueduct (SBA). SBA water quality may also be vulnerable to pollution from local cattle grazing, wildlife activities, and recreational activities in the watersheds of the Bethany and Del Valle reservoirs. Zone 7 is proactively participating in a number of activities to improve water supply reliability and water quality of the SBA.

► *Copies of any public outreach materials, source water assessment reports or sanitary surveys are available by calling **Gurpal Deol at 925-447-0533**.*

Commitment to Water Quality

Control strategies for seasonal taste-and-odor (T&O) control caused by algal growth in SBA water include periodic copper sulfate application to source water by the Department of Water Resources and use of Powdered Activated Carbon at both conventional treatment plants. Zone 7 is in the process of designing an advanced ozone treatment process at each of its surface-water treatment plants to provide more effective treatment for T&O and algal toxins while reducing disinfection by-products and improving overall water quality. The new ozone treatment process should come online over the next few years.

To address corrosion of lead and copper piping into drinking water, U.S. Environmental Protection Agency (USEPA) is currently considering revisions to the 1991 Lead and Copper Rule (LCR) to improve public health protection. Zone 7 and its retailers have been in compliance with the LCR requirements for many years and are actively monitoring for lead and copper in our delivered water. In addition, Zone 7 recently initiated a corrosion control treatment evaluation study to review existing processes and ensure that they are optimized for corrosion control.

► *More information about lead, including how to protect your family from exposures to lead, is available at: www.epa.gov/lead/learn-about-lead*

Terms Used

MAXIMUM CONTAMINANT LEVEL (MCL)

The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the Public Health Goals or Maximum Contaminant Level Goals 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 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.

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.

PRIMARY DRINKING WATER STANDARD (PDWS)

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

TREATMENT TECHNIQUE (TT)

A required process intended to reduce the level of a contaminant in drinking water.

Chromium 6 (Cr6) MCL Compliance for Chain of Lakes Well No. 5

For MCL compliance Chain of Lakes (COL) 5 water is blended with other COL well/s prior to entry into the distribution system per California DDW approved blending plan. A monthly sample is collected whenever COL 5 well is used for supply. MCL compliance is determined by a running annual average. Blending station Cr6 data from 2016 is listed below:

Units	MCL	PHG	Average	Range
µg/L	10	0.02	9	8–10

What's in Your Water?

The table at the right shows the average level and range of each detected regulated contaminant. Detected secondary standards, and additional parameters are also listed. The following components may be of particular interest to our customers:

TOTAL COLIFORM BACTERIA testing indicates microbial quality of water. Zone 7 Total Coliform Rule (TCR) monitoring includes both total coliform and *E. coli* testing but no *E. coli* were detected. This CCR reflects changes in drinking water regulatory requirements during 2016. All water systems are required to comply with the State TCR. Beginning 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 USEPA 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.

TURBIDITY is a measure of the cloudiness of the water. We are required to monitor it because it is a good indicator of the effectiveness of the filtration system for surface-water treatment. Note that turbidity does not measure air bubbles, only particles.

TOC (Total Organic Carbon) has no health effects. However, TOC contributes to the formation of disinfection byproducts. These byproducts include THMs (trihalomethanes) and HAAs (haloacetic acids). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, including liver or kidney problems, nervous-system effects, and increased cancer risk. Regulatory TOC- removal requirements are applicable to conventional water-treatment plants only. Treatment operation is optimized for maximum TOC removal and Zone 7's Locational Running Annual Averages for THM and HAA levels are well below their respective MCLs. Zone 7 TOC removal typically exceeds regulatory requirements.

NITRATE in drinking water at levels above 10 mg/L (as nitrogen) is a health risk for infants 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 10 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. Nitrate levels in Zone 7's surface water supplies are typically very low (less than 1 mg/L) as compared to groundwater, but both sources meet all standards.

JANUARY–DECEMBER 2016 WATER QUALITY DATA—CONTAMINANTS DETECTED IN WATER SUPPLY

PRIMARY DRINKING WATER STANDARDS, ESTABLISHED BY THE STATE WATER RESOURCES CONTROL BOARD (STATE BOARD), DIVISION OF DRINKING WATER (DDW)

Distribution System																
CONTAMINANT	MCL	DLR (MRL)	PHG (MCLG) (MRDLG)													
Total coliform bacteria	More than 5.0% of monthly samples are positive		(0)	Highest percentage of monthly positive samples												
				1.9%												
Total trihalomethanes (TTHMs), µg/L	80	1*	NA	Highest Locational Running Annual Average (RAA)						Range of all samples collected in 2016						
				67						22–55						
Haloacetic acids (five) (HAAs), µg/L	60	1*	NA	20						8–19						
Chloramines as Chlorine, mg/L	Maximum Residual Disinfectant Level (MRDL)=4.0		[4]	System-Wide RAA						Range of Monthly Average Chloramines						
				2.4						2.3–2.6						

Water Supply Sources

CONTAMINANT				DEL VALLE WATER TREATMENT PLANT		PATTERSON PASS WATER TREATMENT PLANT		MOCHO GROUNDWATER DEMINERALIZATION PLANT		MOCHO WELLFIELD		STONERIDGE WELL		HOPYARD WELLFIELD		CHAIN OF LAKES WELLFIELD	
Turbidity	TT=1 NTU Maximum		NA	Highest Level Found=0.29 NTU		Highest Level Found=0.28 NTU		NA		NA		NA		NA		NA	
	TT=95% of samples ≤0.3 NTU		NA	% of samples ≤0.3 NTU=100		% of samples ≤0.3 NTU=100		NA		NA		NA		NA		NA	
Total Organic Carbon	TT=Quarterly RAA Removal Ratio ≥ 1.0		NA	Lowest Quarterly RAA Ratio=2.0		Lowest Quarterly RAA Ratio=1.9		NA		NA		NA		NA		NA	
Inorganic Chemicals				Average	Range	Average	Range	Average	Range	Average	Range	Average	Range	Average	Range	Average	Range
Barium (µg/L)	1000	100	2000	ND	ND	ND	ND	ND	ND	130	ND–150	230	210–260	140	110–210	260	220–290
Chromium total (µg/L)	50	10	(100)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND–12
Chromium 6 (Cr6) (µg/L)**	10	1	0.02	ND	NA	ND	NA	NA	NA	6	5–8	9	9–10	6	5–7	9	8–12
Selenium (µg/L)	50	5	30	ND	ND	ND	ND	ND	ND	ND	ND–7	ND	ND	ND	ND	ND	ND
Fluoride (mg/L)	2	0.1	1	0.1	ND–0.1	ND	ND–0.1	ND	ND	ND	ND–0.1	0.1	0.1	ND	ND–0.1	0.1	ND–0.1
Nitrate (as N) (mg/L)	10	0.4	10	ND	ND–0.8	ND	ND–0.8	1.9	1.3–3.1	3.3	2.0–5.1	3.7	3.6–3.9	3.2	2.9–3.9	4.4	3.7–5.8
Radionuclides																	
Uranium (pCi/L)	20	1	0.43	ND	ND	ND	ND	ND	ND - 1	2	1–3	ND	ND - 1	3	2–3	ND	ND

SECONDARY DRINKING WATER STANDARDS, ESTABLISHED BY DDW

Color	15	0	--	0.4	0–2.5	1	0–2.5	0	0	0	0	0	0	0	0	0	0
Conductivity (µS/cm)	1600		--	578	378–884	533	360–694	621	392–727	1208	1010–1601	731	668–808	976	858–1028	755	656–840
Chloride (mg/L)	500		--	108	69–180	111	68–160	74	43–88	142	118–174	59	52–70	82	78–84	67	52–86
Sulfate (mg/L)	500	0.5	--	32	14–49	26	13–40	43	23–56	86	60–137	46	43–49	69	44–81	43	39–53
Total Dissolved Solids (mg/L)	1000		--	315	205–478	287	191–360	355	212–416	716	564–1010	428	400–455	568	522–602	433	369–492
Turbidity (NTU)	5	(0.05)	--	NA	NA	NA	NA	ND	ND–0.06	0.1	ND–0.8	ND	ND	0.1	ND–0.3	0.2	ND–0.4

ADDITIONAL PARAMETERS—Included to assist consumers in making health or economic decisions, i.e. low sodium diet, water softening, etc.

Alkalinity as calcium carbonate (mg/L)	--		--	79	50–152	65	49–77	166	102–195	327	276–456	245	239–255	320	290–339	238	206–264
Boron (µg/L)	--	100	--	170	ND–240	150	ND–230	1000	680–1300	910	600–1410	430	370–530	488	430–540	340	230–410
Total Hardness as calcium carbonate (mg/L)	--		--	110	69–170	91	64–116	218	113–274	449	378–653	285	264–314	391	378–405	321	288–362
Potassium (mg/L)	--		--	3	2–5	3	2–4	1	1–2	2	2–3	2	2	2	2	2	2
Sodium (mg/L)	--		--	67	46–106	69	47–86	44	34–61	81	50–107	49	42–56	60	39–71	35	29–44
pH (Units)	--		--	8.3	7.8–8.8	8.4	7.8–9.0	7.6	7.5–7.7	7.3	7.2–7.5	7.5	7.4–7.6	7.4	7.2–7.4	7.3	6.9–7.5
Silica (mg/L)	--		--	9	4–14	10	5–14	13	8–15	25	21–30	27	26–28	24	24–26	25	23–28

NOTES

* TTHMs each component DLR is 1 µg/L. HAAs each component DLR is 1 µg/L except Monochloroacetic acid that has DLR of 2 µg/L.
 ** Treatment Plants, Mocho and Hopyard wellfield latest data for Cr6 are from 2011. No Cr6 monitoring is required for these sources as total Cr is less than 10 µg/L.

ND or value in range column indicates that more than one analysis was performed during the year.

Common Units in Everyday Equivalents

mg/L = Milligrams per liter (1 mg/L is like one penny in \$10,000)
 µg/L = Micrograms per liter (1 µg/L is like one penny in \$10,000,000)

ABBREVIATIONS/UNITS

MCL = Maximum Contaminant Level, **DLR** = Detection Limit for Purposes of Reporting (DDW established), **MRL** = Minimum Reporting Level, **PHG** = Public Health Goal, **MCLG** = Maximum Contaminant Level Goal, **MRDLG** = Maximum Residual Disinfectant Level Goal, **NA** = Not Applicable, **RAA** = Running Annual Average, **TT** = Treatment Technique, **NTU** = Nephelometric Turbidity Unit, **µg/L** = Micrograms per liter, **mg/L** = Milligrams per liter, **µS/cm** = Microsiemens per centimeter, **pCi/L** = Picocuries per liter, **ND** = Monitored for but not detected at or above DLR or MRL.

WHERE DO CONTAMINANTS COME FROM?

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 it 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 wastewater-treatment plants, septic systems, agricultural-livestock operations, landscaping, agriculture and wildlife.

INORGANIC CONTAMINANTS, such as salts and metals, that can be naturally occurring or result from urban stormwater 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 stormwater runoff, and residential uses.

ORGANIC CHEMICAL CONTAMINANTS, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production. They can also come from gas stations, urban stormwater runoff, and septic systems.

RADIOACTIVE CONTAMINANTS which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the USEPA and the State Division of Drinking Water prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Regulations also establish limits for contaminants in bottled water to provide protection for public health. More information is available on the USEPA's website, www.epa.gov/safewater/.

MAJOR SOURCES OF DETECTED CONTAMINANTS

Major sources of regulated contaminants detected in Zone 7 water supply are listed below:

TURBIDITY Soil runoff.

TOTAL ORGANIC CARBON Various natural and man-made sources.

BARIIUM Erosion of natural deposits; discharge of drilling wastes; and discharge from metal refineries.

CHROMIUM Erosion of natural deposits; discharge from steel and pulp mills and chrome plating.

SELENIUM Erosion of natural deposits.

FLUORIDE Erosion of natural deposits and discharge from fertilizer and aluminum factories.

NITRATE Erosion of natural deposits; runoff from fertilizer use; and leaching from septic tanks and sewage.

URANIUM Erosion of natural deposits.

Contaminants Not Detected in Zone 7's Water Supply

PRIMARY STANDARDS: CONTAMINANTS NOT DETECTED IN ZONE 7 WATER SUPPLY			
ORGANIC CHEMICALS			
Volatile Organic Chemicals (VOCs)		Synthetic Organic Chemicals (SOCs)*	
Benzene	Monochlorobenzene	Alachlor	Heptachlor
Carbon Tetrachloride	Styrene	Atrazine	Heptachlor Epoxide
1,2-Dichlorobenzene	1,1,2,2-Tetrachloroethane	Bentazon	Hexachlorobenzene
1,4-Dichlorobenzene	Tetrachloroethylene	Benzo(a)pyrene	Hexachlorocyclopentadiene
1,1-Dichloroethane	Toluene	Carbofuran	Lindane
1,2-Dichloroethane	1,2,4-Trichlorobenzene	Chlordane	Methoxychlor
1,1-Dichloroethylene	1,1,1-Trichloroethane	2,4-D	Molinate
cis-1,2-Dichloroethylene	1,1,2-Trichloroethane	Dalapon	Oxamyl
trans-1,2-Dichloroethylene	Trichloroethylene	Dibromochloropropane (DBCP)**	Pentachlorophenol
Dichloromethane	Trichlorofluoromethane	Di(2-ethylhexyl)adipate	Picloram
1,2-Dichloropropane	1,1,2-Trichloro-1,2,2-Trifluoroethane	Di(2-ethylhexyl)phthalate	Polychlorinated Biphenyls
1,3-Dichloropropene	Vinyl Chloride	Dinoseb	Simazine
Ethylbenzene	Xylenes	Diquat	Thiobencarb
Methyl-tert-butyl ether (MTBE)		Endothall	Toxaphene
		Endrin	2,3,7,8-TCDD (Dioxin)
		Ethylene Dibromide (EDB)**	2,4,5-TP (Silvex)
		Glyphosate	
INORGANIC CHEMICALS		RADIONUCLIDES***	
Aluminum	Cyanide	Radium-226, Radium-228	Beta/photon emitters
Antimony	Mercury	Gross Alpha particle activity	Tritium, Strontium-90
Arsenic	Nickel		
Asbestos*	Nitrite (as nitrogen)		
Beryllium	Perchlorate		
Cadmium	Thallium		

None of the primary standards listed above were detected at or above DLR in Zone 7 water supply during 2016 monitoring.

* Latest monitoring for SOCs and asbestos conducted in 2014 and 2011, respectively.

** Latest monitoring conducted in 2016.

*** Based upon low vulnerability, California DDW granted reduced monitoring for radionuclides for current supply sources on January 25, 2008. Only gross alpha particle activity monitoring is required once every nine years. Latest gross alpha monitoring conducted in 2008 and next monitoring is due in 2017. Uranium monitoring is conducted for supplemental information as in-house capabilities are available.

Lead and Copper Rule

This rule is applicable to Zone 7's direct customers only. Per the California DDW approval compliance monitoring is conducted once every three years. Data from June 16, 2015 monitoring is summarized below:

Contaminant	No. of Samples Collected	90th Percentile Level Detected	Number of Sites Exceeding AL	Action Level (AL)	PHG
Lead (µg/L)	15	13	None	15	0.2
Copper (µg/L)	15	630	None	1300	300

ND = Not detected at or above 5 µg/L

► 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. Zone 7 Water Agency 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>.

About Water Treatment

State Water Project (SWP) water conveyed through the Delta, and then through the South Bay Aqueduct (SBA), makes up the majority of our surface-water supplies. Zone 7 has three facilities for the treatment of surface water: the Patterson Pass Conventional, the Patterson Pass Ultrafiltration, and the Del Valle water treatment plants. Because of the Del Valle plant's physical location, its water supply source can be from the SBA, Del Valle Reservoir, or a blend of the two. The Patterson Pass plants receive water only from the SBA.

Zone 7 applies a multi-barrier approach to treat and remove pollutants from surface water, and the water is then disinfected using chloramination to minimize microbial risks. Groundwater is simply chloraminated to maintain a consistent residual disinfectant throughout the distribution system. Groundwater may also be treated by reverse osmosis to reduce the concentration of minerals in the groundwater.

Our Primary Water Sources

IMPORTED SURFACE WATER. More than three-quarters of our water supply originates as Sierra Nevada snowmelt and is conveyed by the SWP through the Delta and then via the SBA.*

LOCAL SURFACE WATER. This is comprised of local rain runoff stored in Del Valle Reservoir.

LOCAL GROUNDWATER. This supply is pumped by Zone 7 from the aquifer that underlies the Livermore-Amador Valley; water in the aquifer comes from local rainfall and from the SWP.

* *In wet years, we store surplus SWP supplies in local and offsite groundwater basins for use when needed, and for reliability during droughts.*

Educational Information

- ▶ 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 U.S. Environmental Protection Agency's (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).



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*Este Informe Contiene Información Muy Importante Sobre Su Agua Potable. Tradúzcalo O Hable Con Alguien Que Lo Entienda Bien.
(This Report Contains Important Information About Your Drinking Water. Translate it, or speak with someone who understands it.)*