



## Zone 7 Water Agency

### 2014 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 220,000 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 2014 met the regulatory standards set by the state and federal governments and, in almost all cases, the quality was significantly better than required.



# 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 is conducted on each drinking water source as required by the 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 the Delta. A comprehensive source water assessment (also known as a sanitary survey) for the Delta and the State Water Project (SWP) is done every five years, and the latest one was completed in June 2012. It identified key vulnerabilities and sources of contaminants such 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.

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 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, including support of SWP infrastructure improvements.

Source water assessment reports are available on Zone 7's website or by calling Gurpal Deol at 925-447-0533.

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## Commitment to Water Quality

*Even though severe drought conditions in 2014 increased Zone 7's water treatment costs due to challenges caused by poor Delta water quality, all of the water that Zone 7 delivered to its customers met the drinking water standards set by the state and federal governments and, in almost all cases, the quality was significantly better than required.*

Control strategies for seasonal taste-and-odor control caused by algal growth in SBA water include periodic copper sulfate applications to source water by the Department of Water Resources and use of Powdered Activated Carbon at both conventional treatment plants. A more advanced and preferred taste-and-odor control method is ozonation which will be added to Zone 7's surface-water treatment plants. The project schedule will be developed based on funding availability.

The Mocho Groundwater Demineralization Plant went into operation in late summer 2009 to reduce the buildup of salts and minerals in the local groundwater basin and reduce the hardness of groundwater delivered primarily to the western side of Zone 7's service area. In 2014 Zone 7 minimized operation of the facility due to drought, since some water is lost during the demineralization process. For the year, approximately 434 acre-feet (141.4 million gallons) of groundwater was demineralized and approximately 490 tons of salt was exported as brine out of the Valley.

## 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 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's Office of Environmental Health Hazard Assessment (OEHHA).

### 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.

## New State Regulation for Hexavalent Chromium (CrVI)

Effective July 1, 2014, the MCL for CrVI is 10 µg/L.

Chromium is a heavy metal that occurs throughout the environment. The trivalent form (CrIII) is a recommended nutrient with very low toxicity. The hexavalent form (CrVI) is more toxic and has been known to cause cancer. California is the only state with a primary standard for CrVI.

Zone 7 has several groundwater wells with naturally-occurring CrVI near the MCL. The current plan is to blend water from these wells with other sources of water, as needed, to minimize any potential risk of exceeding the MCL.

# 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:

**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 THM and HAA levels are well below MCLs. Zone 7 TOC removal typically exceeds regulatory requirements.

**NITRATE** in drinking water at levels above 45 mg/L 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 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.

Nitrate levels in Zone 7's surface water supplies are typically very low (less than 5 mg/L) as compared to groundwater, but both sources meet all standards.

**HARDNESS** is caused by naturally-occurring minerals such as calcium and magnesium. Hard water does not pose a health risk, and is not covered by state or federal drinking water regulations. Groundwater is typically harder than surface water, but it is just as safe.

**SODIUM** is an essential nutrient that is found naturally in drinking water. Zone 7 also adds sodium hypochlorite as part of its disinfection process and sodium hydroxide for corrosion control. Sodium is not regulated because sodium levels in drinking water are usually low and are not likely to cause adverse health effects—even for those watching their salt intake. However, Zone 7 monitors sodium levels because some consumers are concerned about their sodium levels and may be monitoring their diets.

## JANUARY-DECEMBER 2014 WATER QUALITY DATA - CONTAMINANTS DETECTED IN WATER SUPPLY

Regulated Contaminants with 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 % of monthly samples are positive		(0)	Highest percentage of monthly positive samples 1.2%	
Total trihalomethanes (TTHMs), µg/L	80	1*	NA	Highest Locational Running Annual Average 66	Range of all samples collected in 2014 26-97
Haloacetic acids (five) (HAAs), µg/L	60	1*	NA	23	14-32
Chloramines as Chlorine, mg/L	Maximum Residual Disinfectant Level (MRDL) = 4.0		[4]	System-Wide Running Annual Average (RAA) 2.1	Range of Monthly Average Chloramines 1.9-2.2

### Units & Everyday Equivalents

mg/L=Milligrams per liter  
µg/L=Micrograms per liter  
pCi/L=Picocuries per liter  
µS/cm=Microsiemens per centimeter

### WATER SUPPLY SOURCES

CONTAMINANT			DEL VALLE WATER TREATMENT PLANT	PATTERSON PASS WATER TREATMENT PLANT	MOCHO WELLFIELD	STONERIDGE WELL	HOPYARD WELLFIELD	CHAIN OF LAKES WELLFIELD	
Turbidity	TT = 1 NTU Maximum		NA	Highest Level Found = 0.28 NTU	Highest Level Found = 0.24 NTU	Not Applicable	Not Applicable	Not Applicable	
	TT = 95% of samples ≤ 0.3 NTU		NA	% of samples ≤ 0.3 NTU = 100	% of samples ≤ 0.3 NTU = 100	Not Applicable	Not Applicable	Not Applicable	
Total Organic Carbon	TT = Quarterly RAA Removal Ratio ≥ 1.0		NA	Lowest Quarterly RAA Ratio = 1.7	Lowest Quarterly RAA Ratio = 1.7	Not Applicable	Not Applicable	Not Applicable	
<b>Inorganic Chemicals</b>				<b>Average</b> <b>Range</b>	<b>Average</b> <b>Range</b>	<b>Average</b> <b>Range</b>	<b>Average</b> <b>Range</b>	<b>Average</b> <b>Range</b>	
Barium (µg/L)	1000	100	2000	ND ND	ND ND	130 110 - 150	270 NA	160 120-210	270 250-290
Arsenic (µg/L)	10	2	0.004	ND ND-2	ND ND	ND ND - 2	2 NA	ND ND - 2	ND ND
Chromium total (µg/L)	50	10	(100)	ND ND	ND ND	ND ND	ND ND-13	ND ND	ND ND - 11
Chromium VI (µg/L)	10	1	0.02	NA** NA	NA** NA	NA** NA	10 NA	NA** NA	9 8 - 11
Selenium (µg/L)	50	5	30	ND ND	ND ND	ND ND - 7	ND NA	ND ND - 5	ND ND
Fluoride (mg/L)	2	0.1	1	0.1 0.1	0.1 0.1	0.1 0.1	0.1 NA	0.1 0.1	0.1 0.1
Nitrate (as NO3) (mg/L)	45	2	45	ND ND-5	ND ND - 5	16 9-22	19 NA	14 13-15	18 17-18
<b>Radionuclides</b>									
Uranium (pCi/L)	20	1	0.43	ND ND	ND ND	2 1 - 3	1 NA	2 1-3	ND ND-1

### REGULATED CONTAMINANTS WITH SECONDARY DRINKING WATER STANDARDS, established by DDW

Color	15	0	--	0 0 - 2.5	0 0	0 0	0 NA	0 0	0 0	0 0
Odor (TON - Threshold Odor Number)	3	1	--	0 0	0 0 - 1	0 0	0 NA	0 0	0 0	0 0
Conductivity (µS/cm)	1600	--	--	768 641 - 968	764 634 - 1022	1156 948 - 1405	803 NA	949 852 - 1058	751 686 - 834	
Chloride (mg/L)	500	--	--	151 117 - 201	149 105 - 196	131 100 - 160	69 NA	83 79 - 87	65 53 - 80	
Manganese (µg/L)	50	20	--	ND ND	ND ND	ND ND	ND NA	ND ND	ND ND-35	
Sulfate (mg/L)	500	0.5	--	40 24 - 75	39 23 - 79	81 61 - 116	48 NA	64 47 - 83	42 41 - 44	
Total Dissolved Solids (mg/L)	1000	--	--	404 358 - 522	398 226 - 520	701 552 - 894	478 NA	553 483 - 628	430 400 - 470	
Turbidity (NTU)	5	(0.05)	--	NA NA	NA NA	ND ND - 0.08	0.08 NA	ND ND - 0.05	0.1 0.06 - 0.2	

### 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)	--	--	--	83 61 - 108	83 68-104	342 282 - 411	283 NA	318 278 - 361	250 231 - 270	
Boron (µg/L)	--	100	--	200 140-330	200 120-320	940 520 - 1470	490 NA	500 420 - 560	320 280 - 370	
Total Hardness as calcium carbonate (mg/L)	--	--	--	128 112-167	123 102-174	449 374 - 567	270 242 - 315	378 351 - 416	331 292 - 369	
Potassium (mg/L)	--	--	--	4 3-4	4 3-4	2 2 - 3	2 NA	2 2	1 1	
Sodium (mg/L)	--	--	--	95 74-129	93 68-128	88 57 - 123	47 NA	60 43 - 77	32 26 - 37	
pH (Units)	--	--	--	8.1 7.9 - 8.4	8.2 7.9 - 8.4	7.3 7.1 - 7.5	7.3 NA	7.3 7.2 - 7.6	7.3 7.1 - 7.5	
Silica (mg/L)	--	--	--	9 3-13	10 6-14	25 21 - 28	26 NA	24 24 - 26	25 24 - 27	

\* = 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. \*\* = Chromium VI monitoring not required because total Chromium was less than DLR. 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, ND = Monitored for but not detected at or above DLR or MRL. ND or value in range column indicates that more than one analysis was performed during the year.

### 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, may come from wastewater treatment plants, septic systems, agricultural-livestock operations, and wildlife.

**INORGANIC CONTAMINANTS**, such as salts and metals, 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** 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, are byproducts of industrial processes and petroleum production. They can also come from gas stations, urban stormwater runoff, and septic systems.

**RADIOACTIVE CONTAMINANTS** 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 U.S. Environmental Protection Agency and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that must provide the same protection for public health. More information is available on the EPA's website, [www.epa.gov/safewater/](http://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.

**ARSENIC** Erosion of natural deposits.

**BARIUM** Erosion of natural deposits.

**CHROMIUM** Erosion of natural deposits.

**CHROMIUM VI** Erosion of natural deposits.

**SELENIUM** Erosion of natural deposits.

**URANIUM** Erosion of natural deposits.

**FLUORIDE** Erosion of natural deposits.

**NITRATE** Leaching from septic tanks and sewage; runoff from fertilizer use; and erosion of natural deposits.

# Contaminants Not Detected in Zone 7's Water Supply

None of the primary standards listed below were detected at or above Detection Limits for Purposes of Reporting (DLR) during 2014 monitoring.

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
Asbestos*	Nickel		
Beryllium	Nitrite (as nitrogen)		
Cadmium	Perchlorate		
	Thallium		

None of the primary standards listed above were detected at or above DLR in Zone 7 water supply during 2014 monitoring.

\* Latest monitoring for asbestos was conducted in 2011

\*\* Based upon low vulnerability, the California Department of Public Health (the predecessor to the State Water Board's Division of Drinking Water for drinking water regulation) 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. 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 state approval, Compliance Monitoring is conducted once every three years. Data from June 14, 2012 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)	13	ND	None	15	0.2
Copper (µg/L)	13	160	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 water conveyed through the Delta, and then through the South Bay Aqueduct (SBA), makes up the majority of Zone 7's 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.

## Zone 7's Primary Water Sources:

### Imported Surface Water

More than three-quarters of Zone 7's water supply originates as Sierra Nevada snowmelt and is conveyed by the State Water Project via the Delta and the South Bay Aqueduct\*.

### 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 State Water Project.

\* In wet years, surplus State Water Project supplies are stored 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 and Prevention (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).



### Zone 7 Water Agency

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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.)*