

# Zone 7 Water Agency

## 2009 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 nearly 200,000 people in Pleasanton, Livermore, Dublin and the Dougherty Valley area of San Ramon. We also provide untreated irrigation water to some local agricultural operations and provide flood protection to all of eastern Alameda County.*

*All water supplied during 2009 met the regulatory standards set by the state and federal governments and, in almost all cases, the quality was significantly better than required.*



# About Water Quality

## Addressing Groundwater Hardness

The Mocho Groundwater Demineralization Plant went into operation in late summer 2009. It is intended to slow down the buildup of salts and minerals in our groundwater basin and reduce the hardness of groundwater delivered primarily to the western side of Zone 7's service area.

## Source-Water Assessment

We employ many techniques, including surveys and water-quality monitoring programs, to assess source-water quality and monitor potential contaminating activities. Source-water assessments have been completed for all of Zone 7's groundwater wells. Meanwhile, a State Water Project sanitary survey is conducted every five years, and the most recent update was completed in June 2008. Similarly, the final report for a South Bay Aqueduct (SBA) watershed study was completed in 2008.

Most of the contaminants detected in the SBA water supply originate in the Sacramento and San Joaquin watershed and the Delta. These contaminants can come from agricultural drainage, wastewater-treatment plant discharges, urban runoff, recreational activities, and seawater intrusion. After leaving the Delta, the quality of SBA water 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.

An ongoing seasonal challenge with SBA water is algal growth that can cause taste and odor complaints from customers. Control strategies 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. In 2009, Zone 7 completed evaluation of the use of ozone or ozone peroxide to improve taste, odor and other delivered water quality. Conventional ozonation of raw water was recommended at each plant. Zone 7's target completion date is 2021.

Groundwater sources in general can be vulnerable to releases from chemical/petroleum pipelines, leaking tanks (i.e. at gas stations or dry cleaners), groundwater contamination plumes, machine shops, photo processing/printing facilities, septic tanks, and wastewater-collection systems. However, although any one of these activities has the potential to contaminate groundwater supplies, no organic contaminants from these activities have ever been found in the wells Zone 7 pumps for drinking-water supply.

Copies of the source-water assessments and sanitary surveys are available by calling Guralp Deol at 925-447-0533.

## 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 (see below) as is economically and technologically feasible. Secondary MCLs are set for constituents having no health impacts, such as odor, taste and appearance of drinking water.

### MAXIMUM CONTAMINANT LEVEL GOAL (MCLG)

The level of a primary 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.

### 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 primary 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, and water-treatment requirements.

### TREATMENT TECHNIQUE (TT)

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

### NOTIFICATION LEVEL (NL)

These advisory levels are not enforceable standards. If a chemical is detected above its NL, certain notification requirements apply.

### ACTION LEVEL (AL)

The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

# 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.

There are some issues we know our customers may be particularly concerned about, including:

**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.

**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 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 surface water supply are typically very low (less than 5 mg/L) as compared to groundwater, but both sources meet all standards.

**BORON** In 2009, two out of 14 boron samples from the Mocho Wellfield were slightly above the notification level of 1000 ug/L. Although there are no current regulatory requirements for boron monitoring, it is one of the supplemental parameters included in our monitoring program. Under normal operating conditions, groundwater is blended with surface water before it reaches the customer tap.

**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 and 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 as 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 2009 WATER QUALITY DATA - CONTAMINANTS DETECTED IN WATER SUPPLY

### REGULATED CONTAMINANTS WITH PRIMARY DRINKING WATER STANDARDS, established by the State of California Department of Public Health

#### DISTRIBUTION SYSTEM

CONTAMINANT	MCL	DLR	PHG (MCLG) [MRDLG]	Everyday Equivalents	
Total coliform bacteria	More than 5 % of monthly samples are positive		0	One milligram per liter (mg/L) = a single penny in \$10,000 One microgram per liter (ug/L) = a single penny in \$10,000,000	
				Highest Percentage Of Monthly Positive Samples	
				0%	
Total trihalomethanes (TTHMs), ug/L	80	0.5*	NA	Highest Running Annual Average	Range of Individual Samples
				37	2-70
Haloacetic acids (five) (HAAs), ug/L	60	1*	NA	17	ND-28
Chloramines as Chlorine, mg/L	Maximum Residual Disinfectant Level (MRDL) = 4.0		{4}	Running Annual Average (RAA)	Range of Monthly Average Chloramines
				2.3	2.2 - 2.5

#### WATER SUPPLY SOURCES

CONTAMINANT	MCL	DLR	PHG (MCLG)	DEL VALLE WATER TREATMENT PLANT		PATTERSON PASS WATER TREATMENT PLANT		MOCHO WELLFIELD		STONERIDGE WELL		HOPYARD WELLFIELD	
				Average	Range	Average	Range	Average	Range	Average	Range	Average	Range
Turbidity	TT = 1 NTU Maximum		NA	Highest Level Found = 0.17 NTU		Highest Level Found = 0.14 NTU		Average	Range	Average	Range	Average	Range
	TT = 95% of samples ≤ 0.3 NTU		NA	% of samples ≤ 0.3 NTU = 100		% of samples ≤ 0.3 NTU = 100		0.08	0.05 - 0.14	0.06	0.05 - 0.06	0.06	0.05 - 0.07
Total Organic Carbon (mg/L)	TT = Quarterly RAA Removal Ratio ≥ 1.0	0.3	NA	Lowest Quarterly RAA Ratio = 1.6		Lowest Quarterly RAA Ratio = 1.5		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>
Arsenic (ug/L)	10	2	0.004	ND	ND	ND	ND	ND	ND - 2	ND	ND	ND	ND - 2
Barium (ug/L)	1000	100	2000	ND	ND	ND	ND	180	130 - 290	220	210 - 220	140	120 - 190
Selenium (ug/L)	50	5	(50)	ND	ND	ND	ND	ND	ND - 12	ND	ND	6	6
Fluoride (mg/L)	2	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1 - 0.2
Nitrate (as NO3) (mg/L)	45	2	45	ND	ND-4.6	ND	ND-4.9	21	15 - 29	17	15 - 19	14	13 - 14

### REGULATED CONTAMINANTS WITH SECONDARY DRINKING WATER STANDARDS, established by the State of California Department of Public Health

Odor (TON - Threshold Odor Number)	3	1	--	0	0 - 1	1	0 - 1	0	0	0	0	0	NA
Conductivity (µS/cm)	1600		--	545	325 - 785	601	390 - 813	1172	748 - 1562	679	647 - 713	960	793 - 1046
Chloride (mg/L)	500		--	95	39 - 156	113	65 - 160	125	86 - 182	48	42 - 52	74	53 - 88
Sulfate (mg/L)	500	0.5	--	30	14 - 67	31	14 - 57	79	56 - 116	34	31 - 35	68	44 - 82
Total Dissolved Solids (mg/L)	1000		--	297	172 - 430	323	212 - 447	709	520 - 1013	389	358 - 406	594	492 - 656

### Additional Parameters - Included to assist consumers in making health or economic decisions, i.e. low sodium diet, water softening, etc.

Corrosivity (Aggressive Index), (a)	--		--	12.1	11.8 - 12.3	11.9	11.2 - 12.1	12.4	12.1 - 12.8	12.2	12.2 - 12.3	12.4	12.3 - 12.6
Alkalinity as calcium carbonate (mg/L)	--		--	80	55 - 145	73	49 - 88	351	268 - 443	231	217 - 238	319	275 - 350
Boron (ug/L)	NL = 1000	100	--	140	ND - 320	120	ND - 260	720	360 - 1020	290	220 - 320	410	270 - 520
Total Hardness as calcium carbonate (mg/L)	--		--	105	68 - 159	104	73 - 142	470	378 - 632	260	241 - 274	373	340 - 396
Calcium (mg/L)	--		--	22	14 - 36	21	13 - 30	90	70 - 114	47	42 - 49	77	71 - 81
Magnesium (mg/L)	--		--	12	8 - 17	13	9 - 18	60	42 - 85	35	32 - 37	43	40 - 47
Potassium (mg/L)	--		--	2.5	1.4 - 3.9	2.8	1.6 - 4.0	2.2	1.5 - 3.0	1.8	1.7 - 2.0	1.6	1.4 - 1.8
Sodium (mg/L)	--		--	64	33 - 90	73	51 - 99	75	45 - 105	43	39 - 47	64	39 - 80
pH (Units)	--		--	8.5	8.2 - 8.8	8.4	8.0 - 8.6	7.5	7.3 - 7.7	7.8	7.7 - 7.9	7.6	7.5 - 7.8
Silica (mg/L)	--		--	10	7 - 15	11	9 - 14	25	21 - 28	27	26 - 27	23	21 - 24

\* = TTHMs each component DLR is 0.5 ug/L. HAAs each component DLR is 1 ug/L except Monochloroacetic acid that has DLR of 2 ug/L.

Abbreviations/Units: MCL = Maximum Contaminant Level, DLR = Detection Limit for Purposes of Reporting (CDPH established), PHG = Public Health Goal, MCLG = Maximum Contaminant Level Goal, MRDLG = Maximum Residual Disinfectant Level Goal, NA = Not Applicable, CWE = Clearwell Effluent, TT = Treatment Technique, NTU = Nephelometric Turbidity Unit, µg/L = Micrograms per liter, mg/L = Milligrams per liter, µS/cm = Microsiemens per centimeter, NL = Notification level, ND = Monitored for but not detected at or above DLR. ND or value in range column indicates more than one analysis was performed. (a) Zone 7 strives to supply non-corrosive water (Aggressive Index > 12) by pH adjustment on treated surface water.

## 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, 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 U.S. Environmental Protection Agency and the state Department of Public Health 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 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 from natural deposits; runoff from orchards; and wastes from glass and electronics production.

**BARIUM** Discharge of drilling wastes; discharge from metal refineries; and erosion of natural deposits.

**SELENIUM** Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; and runoff from livestock lots (feed additive).

**FLUORIDE** Erosion of natural deposits; water additive which promotes strong teeth; and discharge from fertilizer and aluminum factories.

**NITRATE** Runoff from fertilizer use; leaching from septic tanks and sewage; and erosion of natural deposits.

## Other Measures

### Lead and Copper Rule

This rule is applicable to Zone 7's direct customers only. Per the CDPH-approved Compliance Monitoring Plan, the 5th and 6th rounds of sampling were conducted on June 25, 2009 and December 17, 2009 respectively, and the data is summarized below:

Contaminant	No. of Samples Collected	90th Percentile Level Detected	Number of Sites Exceeding AL	Action Level (AL)	PHG
<b>June 25, 2009 Data Summary</b>					
Lead (ug/L)	17	4	1	15	0.2
Copper (ug/L)	17	220	None	1300	300
<b>December 17, 2009 Data Summary</b>					
Lead (ug/L)	24	4	None	15	0.2
Copper (ug/L)	24	270	None	1300	300

The VA Medical Center installed lead-removal filters on all of its drinking fountains, and the filter effectiveness is evident in the monitoring data.

*Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and/or flush your tap from 30 seconds to 2 minutes before using tap water. Additional information is available from the USEPA Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.*

### Initial Distribution System Evaluation

Initial Distribution System Evaluation (IDSE) was a requirement to comply with the EPA Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR). The intent of IDSE was to characterize disinfection byproducts (DBPs) levels in the distribution system and identify locations to monitor DBPs for Stage 2 DBPR compliance. The Stage 2 DBPR bases total trihalomethanes (TTHMs) and haloacetic acids (HAAs) compliance on a locational running annual average (LRAA), calculated at each monitoring location. Following EPA guidelines, 4 IDSE sample locations were identified for 4 consecutive quarterly monitorings. Monitoring was initiated in the 2nd quarter of 2008 and the concentration in ug/L is listed below:

Sample Date	5/13/08		8/13/08		11/18/08		2/18/09		LRAA	
Sample Location	TTHMs	HAAs	TTHMs	HAAs	TTHMs	HAAs	TTHMs	HAAs	TTHMs	HAAs
Livermore Turnout 9	27	11	46	18	44	23	81	31	50	21
CAL Water Turnout 2	29	11	42	15	41	23	58	23	43	18
Pleasanton Turnout 4	27	10	7.2	3.7	43	24	66	23	36	15
DSRSD Turnout 2	29	13	25	9.0	30	16	37	13	30	13

TTHMs include: Chloroform, Bromodichloromethane, Dibromochloromethane, and Bromoform.

HAAs include: Monochloroacetic acid, Dichloroacetic acid, Trichloroacetic acid, Bromoacetic acid, and Dibromoacetic acid.

# Where Does Your Water Come From?

## Water Treatment

State Water Project water conveyed through the Delta, and then through the South Bay Aqueduct is treated either at the Patterson Pass Conventional Water Treatment Plant, the Patterson Pass Ultrafiltration Water Treatment Plant, or the Del Valle Water Treatment Plant. 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.

Zone 7 applies a multi-barrier approach to treat and remove pollutants, 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.

## 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 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 and storage for State Water Project water.

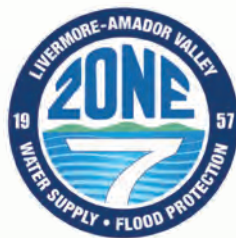
### Local Groundwater

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, we store surplus State Water Project 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).



### Zone 7 Water Agency

100 North Canyons Parkway  
Livermore, CA 94551  
925.454.5000  
[www.zone7water.com](http://www.zone7water.com)

*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.)*