

Water and Food Safety

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Food Safety Basics for Urban Farmers

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Water-Key Component of Farm & Community Garden Food Safety

- Water provides moisture to crops
 - But it can also carry chemicals and bacteria
- Common Sources of Agricultural Water
 - Surfaces-canals, rivers, streams
 - Reservoirs
 - Wells
 - Municipal sources

Municipal Water

- US EPA has established Federal drinking water standards and California has similar standards
 - Some are stricter
 - See handout comparing US & California standards
- Required to be tested annually in California
- Must meet State drinking water standards

**MAXIMUM CONTAMINANT LEVELS AND REGULATORY DATES
FOR DRINKING WATER
U.S. EPA VS CALIFORNIA
LAST UPDATED JULY 2014**

Contaminant	U.S. EPA		California	
	MCL (mg/L)	Date ^a	MCL (mg/L)	Effective Date
<i>Inorganics</i>				
Aluminum	0.05 to 0.2 ^b	1/91	1 0.2 ^b	2/25/89 9/8/94
Antimony	0.006	7/92	0.006	9/8/94
Arsenic	0.05	eff: 6/24/77	0.05	77
	0.010	eff: 1/23/06	0.010	11/28/08
Asbestos	7 MFL ^c	1/91	7 MFL ^c	9/8/94
Barium	1	eff: 6/24/77	1	77
	2	1/91		
Beryllium	0.004	7/92	0.004	9/8/94
Cadmium	0.010	eff: 6/24/77	0.010	77
	0.005	1/91	0.005	9/8/94
Chromium	0.05	eff: 6/24/77	0.05	77
	0.1	1/91		
Copper	1.3 ^d	6/91	1 ^b 1.3 ^d	77 12/11/95
	0.2	7/92	0.2 0.15	9/8/94 6/12/03

Municipal Water

- Must meet State drinking water standards
- Alameda County issues an annual water quality report for its drinking water

ALAMEDA COUNTY WATER DISTRICT

2013

WATER QUALITY REPORT

Dear ACWD Customer:

This report summarizes the results of the thousands of analyses conducted on your drinking water during 2013. I'm pleased to report that your water consistently met or surpassed all federal and state drinking water standards for public health and safety over the course of the year. To learn more about the quality of your drinking water, turn to the following pages:

Information for the Immuno-Compromised	2
Comprehensive Water Quality Monitoring	2
Drinking Water Source Assessment	2
2013 Water Quality Tables	3-4
A Note About Lead	5
Understanding Taste & Odor Issues	5



43885 South Grimmer Blvd.
Fremont, CA 94538



Report includes only key chemicals

2013 WATER QUALITY INFORMATION

In 2013, the laboratory analysts and water treatment plant operators in ACWD's state certified laboratories and satellite laboratories analyzed for more than 180 substances and found very few of them in your water. In all cases, your water was in compliance with federal and state standards for public health and safety. There are two types of standards ACWD is required to meet:

Primary Drinking Water Standards set limits for substances in water that may be harmful to humans if consumed in excess. They include MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Secondary Drinking Water Standards deal with aesthetic qualities such as taste and odor which relate to consumer acceptance rather than health factors.

A summary of key results for 2013 is presented in the following tables. Technical terms and abbreviations used in the tables are explained below.

Primary Drinking Water Standards for Alameda County's key parameters

Parameters	Units	Primary MCL or [MRDL]
Fluoride (naturally-occurring) ⁽¹⁾	ppm	2
Fluoride (treated water) ⁽¹⁾	ppm	2
Bromate	ppb	10
Disinfectant Residual (as Cl ₂) ⁽¹⁾	ppm	[4]
Gross Alpha ⁽¹⁾	pCi/L	15
5 Haloacetic Acids (HAA5) ⁽¹⁾	ppb	60
Nitrate (as NO ₃)	ppm	45
Nitrate + Nitrite (as N)	ppm	10
Radium-226 ⁽¹⁾	pCi/L	NA ⁽¹⁾
Total Coliform ⁽¹²⁾	%	5 ⁽¹¹⁾
Total Trihalomethanes (TTHMs) ⁽¹²⁾	ppb	80
Turbidity ⁽¹³⁾	NTU	TT = 0.1 or 0.3 ⁽¹⁴⁾
		TT = 5.0 ⁽¹⁵⁾

Secondary Drinking Water Standards

Parameters	Units	Secondary MCL
Chloride	ppm	500
Copper	ppm	1
Color	units	15
Manganese	ppb	50
Odor	TON	3
Specific Conductance	$\mu\text{S} / \text{cm}$	1,600
Sulfate	ppm	500
Total Dissolved Solids	ppm	1,000

Alameda Co Well Water Testing to meet Potable Water Standards

- Chemical & Bacterial Testing

- samples must be drawn at well, before any treatment or filtration
- samples can be taken by lab personnel or others if using bottles from the lab & the lab procedures
- testing must be done by a California State Approved Lab; a list of local labs is on back of this sheet.
- write the address or APN of where sample was taken, on the lab slip.

<u>Chemical</u>	<u>Maximum</u>
• Chloride	500 mg/l
• Color	15 Units
• Copper	1,000 µg/l (micrograms per liter)
• Iron	300 µg/l
• Manganese	50 µg/l
• Nitrate (as NO ₃)	45.0 mg/l
• Odor - Threshold	3 Units
• Sulfate	500 mg/l
• Total Dissolved Solids	1,000 mg/l
• Turbidity	5 Units
• Zinc	5,000 µg/l
• Bacteria	Must be absent of Coliform

Captured Rainwater

- If capture rainwater is used only to irrigate crops, it does not need to be potable
 - Confirm with Alameda Co Environmental Health Dept
- Captured rainwater should be examined weekly
 - prone to rodents, mosquitoes, algae growth, insects and lizards
 - may seep chemicals, insects, dirt or animals droppings
- Captured rainwater should not be used to wash harvested produce or for handwashing

FSMA Water Quality Criteria for Water Used During Growing Activities*

- Each source of production water (including captured rainwater) must be tested to evaluate whether its water quality profile meet the following criteria:
 - **126 or less** colony forming unites (CFU) generic *E. coli* per 100 mL water geometric mean (GM)
 - AND
 - **410 or less** CFU generic *E. coli* per 100 mL water statistical threshold value (STV)
- This requirement is difficult to understand. But it basically means that your testing costs will be more than your water cost savings from harvesting rainwater

*SOURCE: Produce Safety Alliance Train the Trainer, Module 5.1, slide 21

Certificate of Analysis

Report Issue Date: 03/21/2012 14:39
Received Date: 03/13/2012
Received Time: 10:42

[REDACTED]
P.O. Box 828
Selma, CA 93662

Lab Sample ID: A2C0852-01

Sample Date: 03/13/2012 10:42

Sample Type: Routine

Sample Control Qualifiers: SC02

Sample Description: Water Canal MID

Sampled by: [REDACTED]

Matrix: Water

Microbiology

Analyte	Method	Result	RL	Units	Batch	Prepared	Qual
<u>E.Coli by 1x10 MTF</u>							
*E. Coli	SM 9221 B/F	>23	1.1	MPN/100 mL	A202592	03/13/12 15:18	

Drip Irrigation

- Consider using drip irrigation wherever possible. It minimizes the risk of contamination because above-ground plant parts are not directly wetted



CDFA's Small Farm Food Safety Guidelines Related to Water

- **If you use only municipal water, you do not need to get your water tested so you can ignore the 2 water testing requirement in this slide**
- Prior to planting, test irrigation water and, if contaminated, find the source and fix it or request that your water supplier do so
- During the growing season, test irrigation water as close to point-of-use as possible at least once during the growing season
- Ensure that water used for spray applications of pesticides and fertilizers is not contaminated

In summary

- Using municipal water for all of your crop production, harvesting and postharvest activities will save you from the hassles and costs of having to get your water tested