YOUR DRINKING WATER

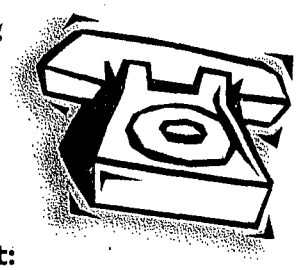
Annual Water Quality Report

1997

Contra Costa Water District • Cities of Antioch, Martinez and Pittsburg • California Cities Water Co. (Bay Point) • Diablo Water District (Oakley)

A Message to Our Customers:

Have you ever wondered about your tap water? Is it safe? What's in it? This report can answer those questions. It contains information about tap water quality, treatment, testing and the results of tests conducted before and after treatment. This important information is provided to you by the Contra Costa Water District (CCWD), the cities of Antioch, Martinez and Pittsburg, the California Cities Water Company (Bay Point's water provider) and Diablo Water District (Oakley's water provider). This report is required by the State of California's Department of Health Services. Since 1989, reports like this one have been mailed to all customers in the service areas of the water providers listed above. If you have any questions concerning this report, please call the representative of your water utility listed below.



Agency Points of Contact:

CCWD (Central Contra Costa): Joe Guistino - 688-8270
City of Antioch: Lori Sarti - 779-7024
City of Martinez: Richard Singletary - 372-3588
City of Pittsburg: John Edwards - 439-4026
CA Cities Water Co. (Bay Point): Charles Gibson - 1-800-999-4033
Diablo Water District (Oakley): Danny Bowers - 625-2112

At Your Tap: Safe Drinking Water

Safe drinking water is a necessity of life. That's why municipal water providers have been required for many years to make sure the water they deliver is safe to drink. Congress first enacted the Safe Drinking Water Act in 1974, then re-authorized it in 1996. For nearly 25 years, this act has ensured the public's health by empowering the U.S. Environmental Protection Agency to set health standards for tap water nationwide. Individual states are required to adopt standards at least as stringent as the EPA's, and your water provider must comply with these standards.

Under the Safe Drinking Water Act, water providers follow mandated schedules to test their water before and after treatment. These schedules vary by test. Some tests are required every four hours, while others are required daily, weekly, monthly or annually. Some substances, such as radioactive compounds, are so rarely found that testing is required every few years. All testing must be performed by laboratories that are certified by the California Department of Health Services Environmental Laboratory Accreditation Program.

Raw water (before treatment) is tested for many things, such as pesticides, metals and volatile chemicals, including MTBE (see the Raw Water Table on pages 6-7). After treatment, water is tested throughout the distribution pipelines to ensure it is safe to drink (see the Treated Water Table on pages 4-5). Turbidity (water clarity) must be monitored every four hours as water leaves the treatment plants on the way to customers' taps. This extensive monitoring, combined with state-of-the-art treatment and efforts made to protect water supplies, assures your tap water is among the safest in the world.

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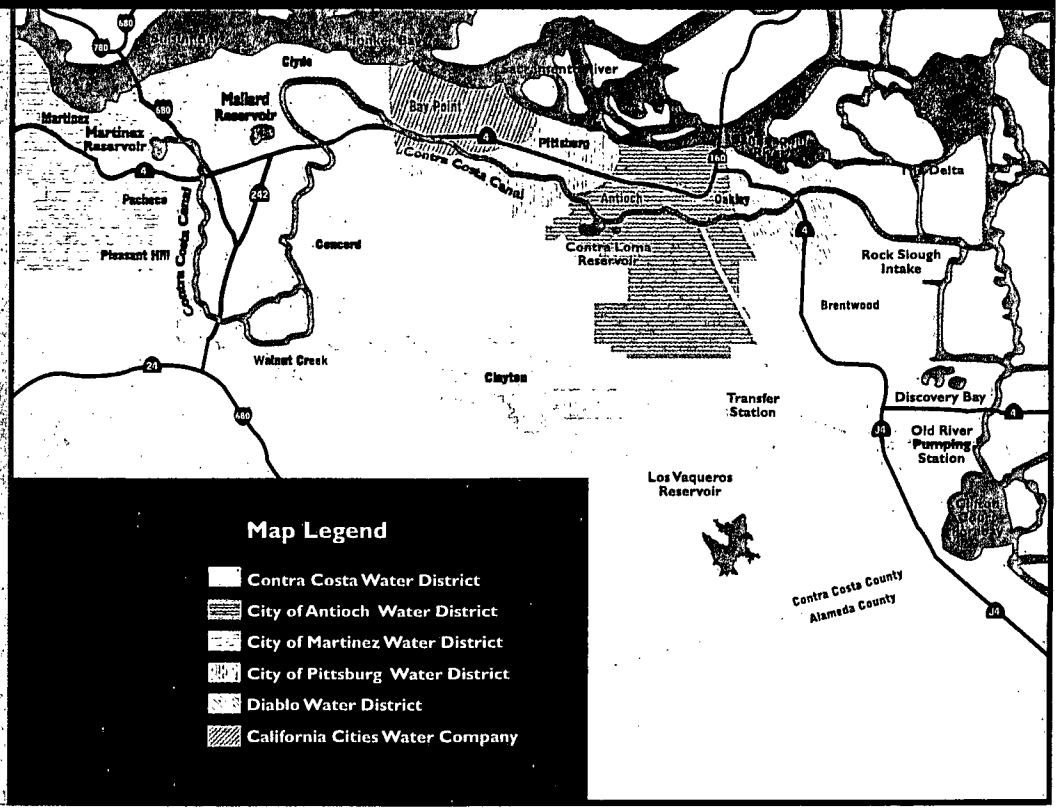
Where Your Water Comes From

The primary source of water for the population of 400,000 residents of Central and Eastern Contra Costa County is the Sacramento-San Joaquin Delta. Originating from rivers within California's mountain ranges, the water flows into the Sacramento and San Joaquin rivers, eventually finding its way into the Delta. Delta water enters the Contra Costa Canal at Rock Slough in Oakley or Old River at Discovery Bay, then flows east to Clyde, south to Walnut Creek and north to Martinez.



Q & A

Q *Sometimes I notice odd tastes and odors in my tap water. Why?*

A Tastes and odors can be caused by seasonal biological events in the Delta, such as salt water intrusion or algae. The vast majority of these tastes and odors are removed by the treatment process. Often, odors that seem to be coming from a glass of water as you stand over your kitchen sink are actually coming from your sink's drain. If you detect an odor in your water as you stand over your sink, step away from the sink and sniff the water again. If the problem is in your drain, you can clean it by pouring some lemon juice down it or running part of a lemon through your garbage disposal. If the problem is in your water, please call your water utility for assistance.

Q *Occasionally, the water from my faucet is slightly brown. What causes this? Is it dangerous?*

A A common source of brown water is galvanized plumbing in the home. The color is caused by rust and is not toxic. Brown water usually clears up after the water runs for a few minutes. If the problem persists longer than a few minutes, call your water utility for assistance.

Q *What should I know about Cryptosporidium and Giardia?*

A Cryptosporidium and Giardia are microscopic parasites that infect the intestinal tracts of warm-blooded animals. Characterized by diarrhea, these infections are rarely life-threat-ening in healthy adults.

Some people, however, may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people, such as people with cancer undergoing chemotherapy, people 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.

To protect yourself from Cryptospor-idium and Giardia , always wash your hands after changing diapers, cleaning up after pets, using the restroom or even working in garden soil. Never swallow water directly from rivers, lakes, streams, pools or spas, no matter how clean it looks.

Your water provider uses a multiple-bar-rier treatment process considered highly

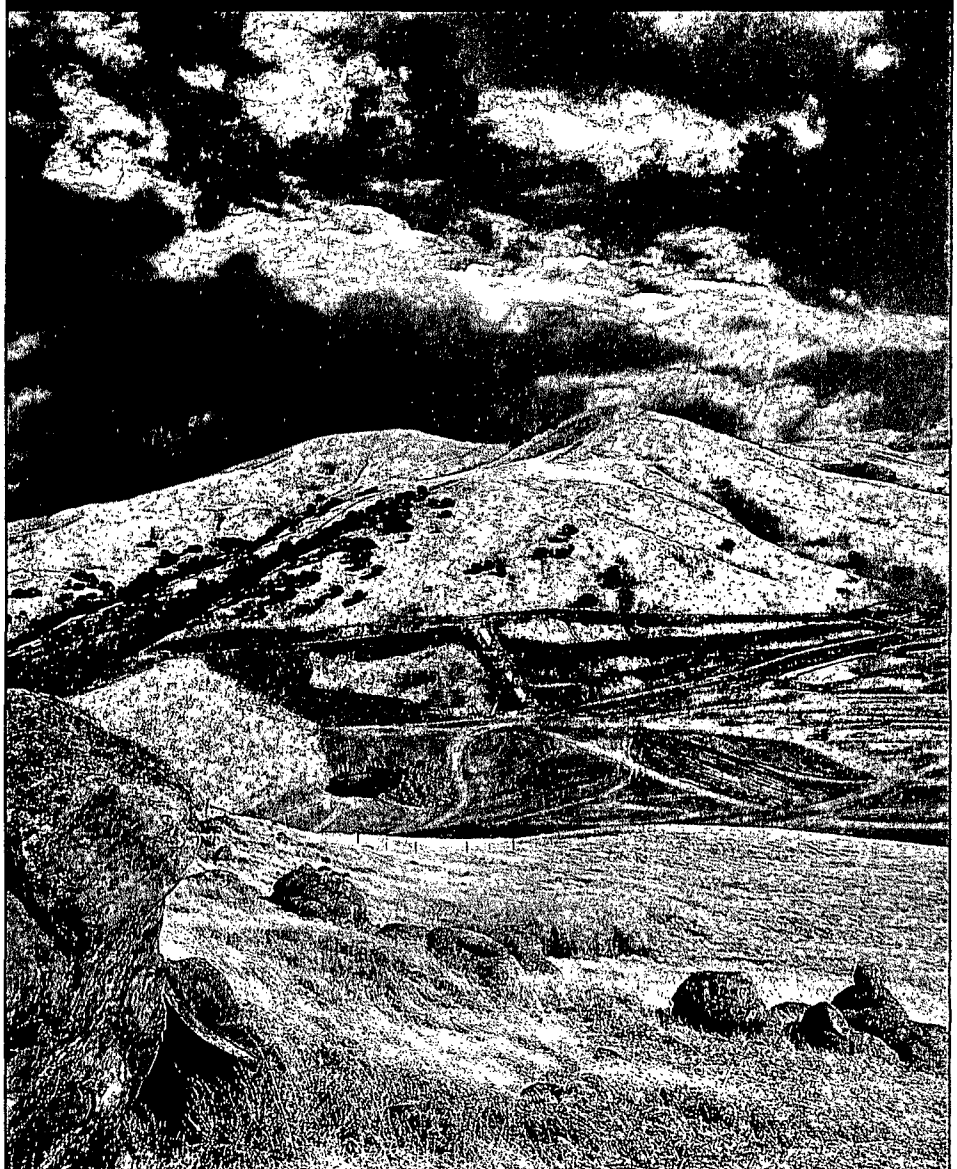
Your Water Providers

The Contra Costa Water District provides treated water to approximately 200,000 residents in Clayton, Clyde, Concord, Martinez, Pacheco, Pleasant Hill, Port Costa and Walnut Creek. Another 200,000 Contra Costa County residents are served by agencies that purchase raw water from CCWD, then treat, distribute and bill for it themselves. These agencies are: the cities of Antioch, Martinez and Pittsburg and the California Cities Water Company (Bay Point). Oakley residents are served by a jointly owned Diablo Water District/CCWD plant.

Who runs the treatment plant?

Water treatment plant operators, technicians and supervisors nationwide are certified by their states. In California, the education and training requirements have become increasingly stringent over the past several years. Currently, the federal EPA is developing national requirements for operator certification much like those already in place in California. In addition, the chemists, microbiologists and lab technicians who analyze a plant's water must pass proficiency tests on a regular basis. They must also have a background education in the environmental sciences and specialized training in water treatment.

LOS VAQUEROS RESERVOIR



The newly completed Los Vaqueros Reservoir Project provides you with a consistent supply of higher-quality, less-salty water. Water pumped from Old River near Discovery Bay is stored in the reservoir or delivered directly to customers through the Contra Costa Canal.

effective in eliminating these parasites, therefore the odds of a Cryptosporidium or Giardia outbreak are extremely low. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other bacteriological contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Q *MTBE has been in the news lately. Is it in my drinking water?*

A Methyl tertiary butyl ether (MTBE) is a gasoline additive credited with reducing air pollution. CCWD has been taking water samples directly from the Delta and testing them for MTBE on a regular basis. So far, the additive has been undetectable in Delta waters based on State of California testing standards that set the minimum level for detection at 5 parts per billion.

How to Read the Tables

Below, you'll find detailed information about your tap water in the Treated Water Table. On pages 6 and 7, you'll find information about your water before treatment in the Raw Water Tables. Along the left hand side of both tables is a list of substances for which testing was conducted, as required by government agencies. The testing period covered January 1 through December 31, 1997.

Treated Water Table (below)
Immediately to the right of the substance list is a column titled "standard," then another column titled "MCL," which stands for maximum contaminant level. Substances that have "primary" in the standard column are regulated because they may have short or long-term effects on a person's health. Substances that have "secondary" in the standard column are regulated because they may cause aesthetic problems (such as a slight odor), but not a health problem. The numbers in the MCL column are the highest level at which each substance is allowed in the water.

When a substance has "action level" in the standard column, it means the number in the MCL column is the highest level at which the substance is allowed before the provider must make immediate corrective changes in treatment methods or announcements to the public.

Across the top of the table are the names of each water provider. The data that falls below each provider's name is the information for that provider.

Raw Water Tables (pages 6-7)
The long list of substances on page 6 are the many substances for which raw water is tested. These are general mineral, inorganic, organic and physical constituents.

Treated Water: Water From Your Tap

PARAMETERS			CCWD		DIABLO WATER DIS.	
Chemical	**Standard**	**MCL**	**Range**	**Average**	**Range**	**Average**
Asbestos	Primary	7 MFL	ND	-	ND	-
Total Trihalomethane (TTHM)	Primary	0.1 mg/L	0.018 - 0.045	0.031	ND - 0.010	0.002
Aluminum (Al)	Secondary	0.2 mg/L	ND	-	ND - 0.052	<0.05
Chloride (Cl)	Secondary	250 mg/L	35 - 130	56	29 - 180	63
Corrosivity (SI)*	Secondary	non-corrosive	-0.61 - 0.69	0.07	0.14 - 0.59	0.37
Fluoride (F)	Secondary	4.0 mg/L	0.7 - 0.78	0.74	0.66 - 0.79	0.72
Foaming Agents (MBAS)	Secondary	0.5 mg/L	ND	-	ND	-
Iron (Fe)	Secondary	0.3 mg/L	ND	-	ND	-
Manganese (Mn)	Secondary	0.05 mg/L	**ND - 0.070****	<0.03	ND	-
Silver (Ag)	Secondary	0.1 mg/L	ND - 0.012	<0.01	ND	-
Sulfate (SO4)	Secondary	250 mg/L	38 - 74	56	39 - 110	65
Total Dissolved Solids (TDS)	Secondary	1000 mg/L †††	170 - 280	216	170 - 389	267
Thiobencarb	Secondary	0.001 mg/L	ND	-	ND	-
Zinc (Zn)	Secondary	5.0 mg/L	ND	-	ND	-
Sodium (Na)	None	n/a	33 - 108	55	38 - 84	58
Alkalinity (CaCO3)	None	n/a	50 - 76	64	66 - 87	75
pH	None	n/a	8.7 - 9.2	8.9	8.8 - 9.2	9.0
Total Hardness (CaCO3)	None	n/a	68 - 112	77	62 - 112	87
EPA Lead Study (Pb)	Action Level	0.015 mg/L @ 90th %	**ND - 0.03*****	0.004	ND - 0.009	0.003
EPA Copper Study (Cu)	Action Level	1.3 mg/L@ 90th %	ND - 0.33	0.1	ND - 0.64	0.044
Physical						
Color	Secondary	15 CU	0	0	0	0
Odor-Threshold	Secondary	3 TON	0	0	0	0
Turbidity	Primary	1 NTU	0.04 - 0.13	0.05	<0.05 - 0.05	0.05
Microbiological						
Total Coliform	Primary	>5.0% positive	0 %	0 %	0 %	0 %

Chart Units/ Abbreviations

MCL (Maximum Contaminant Level) ND (Not Detected) NR (Not Required) mg/L (milligrams per liter) MFL (million fibers per liter) CU (color unit) • N tends to form calcium deposit * On 2/5/97, the secondary standard for manganese was exceeded. (See note on Manganese below.) ** In January 1997, the City of A these constituents. Tested once during the year ††† 500 mg/L is recommended by California Department of Health Services. ***** At least 90% of sampled households medium for bacteria. †† **Manganese** has no adverse health effects and is regulated for aesthetic reasons only.

Raw water testing is conducted on water from the Contra Costa Canal before it is delivered to treatment facilities, as well as on water from various wells and river intakes ("supplemental sources") that are used throughout the year. Water providers must monitor and report on all their sources.

All water providers listed in this report receive water from the Contra Costa Water District, therefore the CCWD Raw Water Table applies to all of them. The results of testing on each provider's supplemental sources are listed in the smaller tables under the provider's name. Only substances that were detected are listed in the raw water tables. If a substance is not listed, it was not detected. The data is organized by test site, therefore you will notice the source locations listed across the top with the corresponding data below each source.

With the exception of a 90-minute turbidity violation in Antioch's treated water and manganese violations in the City of Pittsburg's and Contra Costa Water District's treated water, there were no MCL violations in 1997 by the utilities that provided this report. (See Treated Water Table below.) Turbidity is a measurement of water clarity and has no adverse health effects. It is regulated because it can provide a medium for bacteria. Manganese also has no adverse health effects. It is regulated as a secondary (aesthetic) standard because it can affect water color.

Understanding the Tables

All data in the tables is in milligrams per liter (mg/L), also called parts per million (ppm). The ranges represent the lowest and highest levels of each substance found in the water during the year. These levels were then averaged over the entire year and the resulting number is listed in the average column. The initials "ND" stand for not detected. "NR" in a column indicates that the provider was not required to test for a particular substance.

CITY OF PITTSBURG		CITY OF ANTIOCH		CAL CITIES WATER CO.		CITY OF MARTINEZ	
Range	Average	Range	Average	Range	Average	Range	Average
ND	-	ND	-	NR	-	NR	-
0.009 - 0.030	0.017	0.029 - 0.055	0.044	0.049 - 0.095	0.071	ND-0.009	0.005
ND	-	ND	-	ND - 0.07	0.06	ND	-
57 - 161	76	26 - 230	77	48 - 190	119	26-214	69
†	0.45	0.03 - 0.15	0.07	†	-1.12	-0.32 - +0.82	0.47
0.70 - 0.85	0.72	0.63 - 0.99	0.81	0.1 - 0.2	0.15	0.50 - 1.0	0.82
ND	-	ND	-	ND	-	ND	-
†	**0.07††**	ND	-	ND	-	ND	-
†	0.07	ND	-	ND	-	ND	-
ND	ND	ND	-	ND	-	ND	-
†	61	39 - 55	47	38 - 64	51	35 - 78	56
291 - 483	312	126 - 566	280	190 - 540	365	170 - 390	250
ND	-	ND	-	ND	-	ND	-
†	0.11	ND	-	ND	-	ND	-
†	99	17 - 154	51	42 - 130	86	†	54
101 - 129	107	45 - 90	64	62 - 96	79	56 - 91	72
8.4 - 8.5	8.5	8.3 - 8.6	8.5	7.6 - 7.9	7.8	8.7 - 9.2	9.0
†	140	58 - 130	82	71 - 140	106	63 - 132	91
†	0.002	†	<0.005	ND	-	ND - 0.014	<0.005
†	0.07	†	0.1	†	0.26	ND - 0.083	0.063
†	3	0	0	<3	<3	<5	<5
1.6 - 2.0	1.7	ND-1	<1	<1 - 3	1.8	1.4 - 3	1.4
0.05 - 0.09	0.06	**0.02-0.16(5.7)*** **	0.04	0.04 - 0.24	0.08	0.04 - 0.09	0.05
	0 %	0 %	0 %	0 %	0 %	0 - 1.6%	0 %

)helometric turbidity unit) TON (threshold odor number) < (less than) ± (plus or minus) SI (Saturation Index) cfu (colony forming units) * Corrosivity: (-) tends to corrode, (+) reported a brief turbidity spike of 5.7 NTU, which lasted approximately 90 minutes. The public was notified and corrective measures taken. (See note on Turbidity below.) † No range available for test below 0.015 mg/L. Ranges can reflect individual households that tested higher. **Turbidity** is a measurement of water clarity and has no adverse health effects. It is regulated because it can provide a

Raw Water: Before Water is Treated

Raw water is tested in accordance with government regulations for the substances listed below. Only substances that were detected appear in the individual provider's tables below and on the next page.

REGULATED ORGANIC CHEMICALS

Volatile Organic Chemicals

1,1,1-Trichloroethane (1,1,1,-TCA)
1,1,2,2-Tetrachloroethane
1,1,2-Trichloro -1,2,2-trifluoroethane
1,1,2-Trichloroethane (1,1,2-TCA)
1,1-Dichloroethane (1,1,-DCA)
1,1-Dichloroethylene (1,1-DCE)
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene (o-DCB)
1,2-Dichloroethane (1,2-DCA)
1,2-Dichloropropane
1,3-Dichloropropene
1,4-Dichlorobenzene (p-DCB)
Benzene
Carbon Tetrachloride
cis-1,2-Dichloroethylene
Ethylbenzene
Methylene chloride
Monochlorobenzene
Styrene
Tetrachloroethylene (PCE)
Toluene
Total xylenes (m, p, o)
trans-1,2-Dichloroethylene
Trichloroethylene (TCE)
Trichlorofluoromethane (Freon¬11)
Vinyl chloride (VC)

Synthetic Organic Chemicals

1,2-Dibromo-3-chloropropane (DBCP)
2,3,7,8-TCDD (Dioxin)
2,4,5-TP Silvex
2,4-D
Alachlor (Alanex)
Atrazine
Bentazon
Carbofuran
Chlordane
Dalapon
Di(2-ethylhexyl)adipate
Diethylhexylphthalate (DEHP)
Dinoseb
Diquat
Endothall
Endrin
Ethylene dibromide (EDB)
Glyphosate
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorocyclopentadiene
Lindane
Methoxychlor
Molinate
Oxamyl (Vydate)
PAHs (Benzoapyrene)
Pentachlorophenol (PCP)
Picloram
Polychlorinated Biphenyls(PCB)
Simazine
Thiobencarb
Toxaphene

REGULATED INORGANIC CHEMICALS

Aluminum
Antimony (Sb)
Arsenic (As)
Asbestos
Barium (Ba)
Beryllium (Be)
Cadmium (Cd)
Chromium (Cr)
Cyanide (CN)
Mercury (Hg)
Nickel (Ni)
Nitrate (as NO3)
Nitrite (as N)
Nitrate + Nitrite (sum as N)
Selenium (Se)
Sulfate (SO4)
Thallium (Th)

UNREGULATED ORGANIC CHEMICALS

1,1,1,2-Tetrachloroethane
1,1-Dichloropropene
1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
1,3-Dichlorobenzene
1,3-Dichloropropane
1-Phenylpropane
2,2-Dichloropropane
2-Chlorotoluene
3-Hydroxycarbofuran
4-Chlorotoluene
Aldicarb (Temix)
Aldicarb sulfone
Aldicarb sulfoxide
Aldrin
Bromacil
Bromobenzene
Butachlor
Carbaryl
Chlorodibromomethane
Chloroethane
Chloromethane
Chlorothalonil
Diazinon
Dicamba
Dichlorodifluoromethane
Dieldrin
Dimethoate
Diuron
Hexachlorobutadiene
Isopropylbenzene
Methomyl
Methyl tert butyl ether (MTBE)
Metribuzin
n-Butylbenzene
Napthalene
p-Isopropyltoluene
Prometryn
Propachlor
sec-Butylbenzene
tert-Butylbenzene

RADIOCHEMISTRY

Total Alpha
Total Beta
Radon 222
Strontium-90 (Sr-90)
Tritium (H3)
Uranium (U)
Combined Ra 226 & Ra 228

Contra Costa Water District — Raw Water Sources

		MALLARD SLOUGH *		ROCK SLOUGH		OLD RIVER	
Regulated Inorganic Chemicals	**MCL(mg/l)**	**Range**	**Average**	**Range**	**Average**	**Range**	**Average**
Arsenic (As)	0.05	0-0.004	0.002	0 - 0.003	<0.002	0 - 0.004	<0.002
Asbestos	7 MFL	ND		†	1.1	†	0.88
Nitrate (as NO3)	45	0 - 3.6	2	0 - 2.9	<2	0-3.5	<2
Nitrate + Nitrite (sum as N)	10	0 - <2	<2	0 - <2	<2	0 - 3.5	<2
Sulfate (SO4) *	500	52 - 420	188	31 - 94	44	16 - 32	23
Regulated Organic Chemicals							
Volatile Organic Chemicals	No VOCs detected						
Synthetic Organic Chemicals	No SOCs detected						
Radiochemistry	pCi/l						
Total Alpha	15	0 - 0.51	0.2	0.4 - 1.85	0.9	0.19 - 1.5	0.71
Total Beta	50	ND - 5	<4	ND	-	ND	-
Radon 222	300 ††	ND - 1483**	126	ND - 299	129	ND - 201	<100
Tritium (H3)	20,000	ND - 260	139	ND - 207	86	ND - 246	87
Unregulated Organic Chemicals	No UOCs detected						

* Mallard Slough source is supplementary to the primary Contra Costa Canal delta source.
** Mallard Slough not on line at time of sampling
† One sample taken at this site in 1997
†† Proposed MCL

The table above includes water provided to CCWD treated water customers, as well as raw water provided to the cities of Antioch, Pittsburg and Martinez, the California Cities Water Company (Bay Point) and the Diablo Water District (Oakley).

Diablo Water District — Supplemental Sources

		OAKLEY WELL*	
	MCL(mg/l)	Range	Average
Regulated Inorganic Chemicals **			
Aluminum	1	-	0.06
Nitrate (as NO3)	45	-	10.3
Nitrate + Nitrite (sum as N)	10	-	1.5
Sulfate (SO4)	500	-	390
Regulated Organic Chemicals			
Volatile Organic Chemicals	No VOCs detected		
Synthetic Organic Chemicals ø			
Unregulated Organic Chemicals Ø			
Radiochemistry ØØ	pCi/l		
Total Alpha	15	4.8-10.5	7.8
Total Beta	50	1.1- 7.0	4.8
Tritium (H3)	20,000	ND-407	149
Uranium (U)	20	5.7-8.5	7.2
Combined Ra 226 & Ra 228	5	ND-1.3	0.7

* Oakley Well is required to be sampled every 3 years.
** Oakley Well was sampled for Regulated Inorganic Chemicals once this year
ø Synthetic Organic Chemicals and Unregulated Organic Chemicals are only required to be sampled in the Oakley Well once every three years. There were no SOCs detected in samples taken in 1996.
ØØ Radiochemistry is only required to be sampled in Oakley Well every 3 years. This data represents the results of samples taken in 1995.

Cal Cities Water Co. — Supplemental Sources

		GROUNDWATER	
	MCL(mg/l)	Range	Average
Regulated Inorganic Chemicals			
Asbestos	7 MFL	NR	-
Arsenic (As)	0.05	ND-0.007	0.004
Nitrate (as NO3)	45	ND-18	9.6
Nitrate + Nitrite (sum as N)	10	ND-4.1	2.2
Sulfate (SO4)	500	290-410	350
Regulated Organic Chemicals			
Volatile Organic Chemicals	No VOCs detected		
Synthetic Organic Chemicals	No SOCs detected		
Dalapon	0.2	NR	
2,3,7,8-TCDD (Dioxin)	0.00000003	NR	
Endothall	0.1	NR	
Radiochemistry ****	pCi/l		
Total Alpha*	15	1.5-2.5	2
Unregulated Organic Chemicals	No UOCs detected		
Dicamba		NR	-
Dinoseb		NR	-
Diuron		NR	-

* Cal Cities monitors for Radionuclides every 4 years. This result is from testing done in 1995

City of Antioch — Supplemental Sources

		SAN JOAQUIN RIVER	
	MCL(mg/l)	Range	Average
Regulated Inorganic Chemicals			
Arsenic (As)	0.05	ND-0.002	<0.002
Chromium (Cr)	0.05	ND-0.01	<0.01
Sulfate (SO4) *	500	-	18
Regulated Organic Chemicals			
Volatile Organic Chemicals	No VOCs detected		
Synthetic Organic Chemicals	No SOCs detected		
Radiochemistry ****	pCi/l		
Total Alpha **	15	-	1.4
Unregulated Organic Chemicals	No UOCs detected		

* One sample taken from San Joaquin River source in 1997
**The City of Antioch is required to monitor for Radionuclides every 4 years. Total Alpha results are from 1994

A Note to Our Customers:

The tables on this page report results of testing on water used by individual providers as a supplement to water they received from CCWD. The City of Martinez is not listed because it does not supplement.

If you receive water from one of the providers on this page or the City of Martinez, the CCWD table on Page 6 also applies to you because your provider receives raw water from CCWD.

City of Pittsburg — Supplemental Sources

		ROSSMOOR WELL (WELL #1)*		BALLPARK WELL*	
Regulated Inorganic Chemicals	**MCL(mg/l)**	**Range**	**Average**	**Range**	**Average**
Arsenic (As)	0.05	-	0.006	-	ND
Nitrate (as NO3)	45	-	6	-	8
Nitrate + Nitrite (sum as N)	10	-	6	-	8
Sulfate (SO4)	500	-	230	-	580
Regulated Organic Chemicals					
Volatile Organic Chemicals	No VOCs detected				
Synthetic Organic Chemicals	No SOCs detected				
2,3,7,8-TCDD (Dioxin)	0.00000003	NR		NR	
Radiochemistry ****	pCi/l				
Total Beta	50	-	5	-	5
Radon 222	30 ††	-	134	-	199
Unregulated Organic Chemicals	No UOCs detected				
Diuron	NR	-	NR	-	NR

* Only 1 sample was taken from each well in 1997 †† Proposed MCL

****** Cal Cities Water Company, The City of Antioch and The City of Pittsburg are not required to test for the following Radionuclides: Total Beta, Strontium-90 (Sr-90), Tritium (H3)**

Contra Costa Water District
P.O. Box H20
Concord, CA 94524

City of Antioch
City of Martinez
City of Pittsburg
Diablo Water District
California Cities Water Co.

Water Treatment

Surface Water Treatment

A tremendous amount of time and technology goes into making surface water safe to drink. Your water provider treats Delta water using methods approved by the California Department of Health Services. At your provider's treatment plant, water from the Contra Costa Canal and supplementary raw water sources is put through a number of purification processes before it reaches a consumer's tap. Customers can be assured that their water is safe and healthy to drink and that the treatment processes used are some of the most advanced in the world.

Coagulation/Flocculation

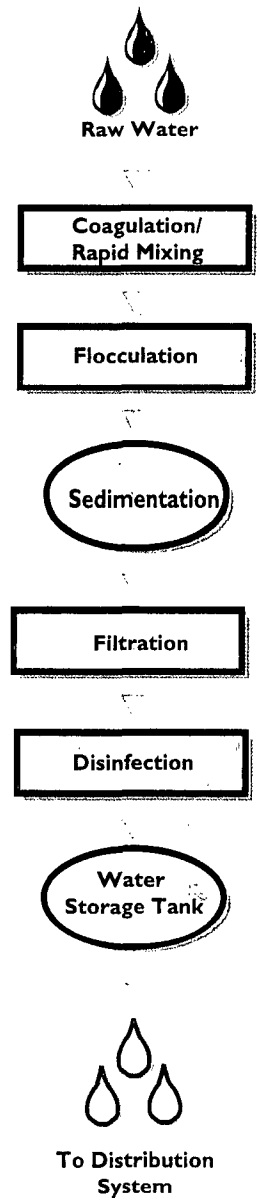
When water enters a treatment plant, the first step is the rapid mixing of coagulants such as aluminum sulfate, and organic polymers into the water. This alters the electrical charges surrounding the suspended particles to make them coagulate (clump together), into larger particles known as floc. In flocculation, water is gently agitated so the floc or particles will collide with each other, stick together and entrap other suspended particles, forming larger, heavier particles that will settle out in the next step.

Sedimentation

The flocculated water moves slowly through a basin or tank to allow the heavy floc particles to settle to the bottom and be removed. The coagulation/flocculation/sedimentation steps work together to reduce turbidity by removing many of the particles that cause water to appear cloudy.

Filtration

Water is passed through a filter made of sand, coal particles, activated carbon, or similar materials that remove particles such as silt, other very fine solids, and some pathogens not settled in the sedimentation process. Filtration further reduces turbidity and results in water that is crystal clear. Filters are "back-washed" frequently to remove accumulated materials. Filtration and sedimentation remove some of the pathogenic organisms that are of such concern in domestic water supplies.



Disinfection

Chlorine, chloramines, ozone or other disinfectants are added to the water to destroy potentially harmful germs such as bacteria, viruses, parasites and other organisms. During the treatment process, an effort is made to add enough disinfectant to leave a residual amount in the water to continue to kill any pathogens in the pipelines that convey the water to users.

Fluoridation

Fluoride is added to the water by most of the suppliers to aid in the prevention of tooth decay. The dosage of fluoride averages 0.8 mg/L. Governmental studies continually reinforce the positive dental benefits of fluoridation, and report no adverse health impacts when applied at recommended levels.

Corrosion Control

Other chemicals may be added to water during the course of treatment for specific purposes. Caustic soda may be added to control the corrosiveness of water by adjusting the water's pH. Sometimes a combination of phosphate or silicate are used for this purpose.

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