

CONSUMER CONFIDENCE REPORTS

BUILDING PUBLIC TRUST

Every year, all water suppliers that serve the same people year round must prepare a consumer confidence report, or water quality report, for their customers. The report tells customers where their drinking water comes from, what's in it, and how they can protect it. Below are success stories and tips that show how consumer confidence reports can help build communities' trust in their water utilities.

Contra Costa Water District's Open Door Policy

The Contra Costa Water District serves 450,000 people in California's central and eastern Contra Costa County. When water system officials produced the 2002 Consumer Confidence Report, they knew it was important to their customers. So they included a section, "How to Get Involved in the Quality of Your Water." The section includes the times and places of water district board of directors meetings and city council meetings, and



instructions for requesting agendas. The report also lists names and phone numbers of contact people in each city or water district population.

"This is about the water that our customers get out of the tap every day," says Gina Oltman, public information specialist. "The level of importance of this document to the consumer told us we needed to have an open door policy."



The contact people listed in the report are not public information specialists, Oltman says. Rather, "They're water quality people at the plants, so callers are going directly to the source. They are talking to the people who sample and test the water. They are getting first-hand information."

Oltman says the Contra Costa Water District consistently has public participation in meetings. In addition to listing meeting info in the CCRs,

they include a calendar in their newsletters and other publications. Members of the public have responded by calling and attending meetings. They raise issues of local concern and even respond to news articles on national water issues, such as conservation.

The district also published a Spanish-language report and plans to do it again next year. The English-language CCR states how to request copies and how to reach a bilingual staff member with any questions. "It helps to have somebody speaking Spanish answering the phone," Oltman says.

Regardless of language, what helps Contra Costa connect is a personal touch. "We wanted people to feel comfortable calling up and asking questions about their drinking water. When you have somebody's name, you feel right off the bat more comfortable picking up the phone and calling."

El Paso Water Utilities' Curious Customers

All drinking water contains naturally occurring minerals and other substances. Often, substances have no harmful effects, but lead to interesting questions from the public.

"We receive a number of calls related to lithium," says John Balliew, water systems division manager of El Paso Water Utilities. A small amount of lithium, a chemical sometimes used to treat mental illness, occurs naturally in El Paso's water. Although the amount is much smaller than a medical dose, the lithium does generate interest. "Periodically the newspaper will run an article," Balliew says. "There's speculation that it corresponds with a low rate of violent crime here. People call up, even from other countries, saying they've heard about it, is it correct?"



To put it into perspective, the utility's 2002 Consumer Confidence Report has a Frequently Asked Questions section that includes, "Is lithium present in El Paso's Water? Does it have an effect on people's moods?" The answer puts numbers into context. "To get the same amount of lithium as in one standard capsule, you would have to drink about 600 glasses of water."

Curious reporters and members of the public seem to appreciate the information, Balliew says. "Most people that have called in and talked to us about it find it very helpful."

Another issue the Frequently Asked Questions sets straight is the hardness of El Paso water. "The soft water/hard water issue gets batted around a lot because there are a lot of salespeople around selling water softeners," says Balliew. "Most people, if you ask them, why do you have a water treatment system, or buy bottled water, the number one response is taste. Number two is hardness."

The CCR describes El Paso's water as "moderately hard to hard," based on calcium and magnesium content. The report explains that although *excessively* hard water can cause corrosion in pipes and cause faster wear of certain appliances, the utility does not recommend that customers install water softeners.

"I think it helps the consumer save money," Balliew says. "We're just trying to tell the consumer that they should really think twice about accepting that type of information (from salespeople)."

Des Moines Water Works Promotes Prevention

In Iowa's Des Moines and Raccoon Rivers, nitrate contamination has been on an upward trend for nearly three decades, reaching record levels in 2001. It's been a well-publicized issue, raising concern among community members and prompting farmers to rethink their practices. There have also been beach closings and warnings not to swim in waters because of *E. coli*. So Des Moines Water Works devoted its entire front page to source water contamination and what people can do to prevent it.



"DMWW strongly believes that people need to understand the problem before they can become part of the solution," says Melissa Sharer of Des Moines Water Works' communications staff. "DMWW tries to provide its customers with concrete ideas for prevention strategies by explaining the source water contaminants and then suggesting specific steps that can be taken to prevent pollution."

The report explains how nitrates, bacteria and other contaminants can enter ground water and surface water sources, and describes how individuals can make a difference at home and in the community. It also tells readers how to order copies of source water assessments. This

information involves readers personally, enticing them to turn the page and learn about the quality of their drinking water.

In addition to consumer confidence reports, Des Moines Water Works routinely educates customers through its monthly newsletter, annual report, and various fact sheets distributed throughout the year. Information is designed for all ages, from elementary schoolchildren to adult customers.

The education campaign has paid off. In a recent survey of its customers, Des Moines Water Works ranked highest in terms of reliability regarding water quality and safety information sources. The utility ranked ahead of television, newspapers, government agencies, and health care professionals. Customers said they appreciated that the information from the utility came from within, not an outside public relations company repackaging the information with a positive spin. One respondent said the utility was "good in informing public when, and if, there could be any problem in the quality of water."

United Water Delaware: Honesty Wins Trust

United Water Delaware provides water services to 103,000 people in New Castle County. When a treatment technique violation occurred in 2001, public water system officials immediately coordinated with the health department and notified their consumers. The 2002 Consumer Confidence report included detailed information about the turbidity

There's a definite correlation between honesty and building public trust.

— Dave Fournier, United Water Delaware

violation. As required by the CCR regulation, it also included a clear explanation of what happened, what actions were taken immediately to notify customers, locate and fix the

problem. The report explained that the turbidity had not interfered with disinfection, and there was adequate chlorine residual to ensure that there was no risk to public health.

Plant manager Dave Fournier says that years ago, most public water system officials were reluctant to disclose information on violations, wary of backlash from a frightened public. Today, with annual CCRs and improved public notification requirements and customer relations, "there is much more focus on ethics and reporting."

"There's a definite correlation between honesty and building public trust," Fournier says. "When something does go wrong, they want to know if a utility is hiding anything. Our public perception is very important. We find it better to take a proactive approach, rather than sitting there waiting for the public to let us know."

In addition to reassuring customers, Fournier says the CCR is a vehicle for encouraging them to think about their environment and where their water comes from. For example, it helps them understand whether a problem has originated at the treatment plant or pollution of the water source. "It might encourage them to start thinking about taking care of their water sources and environment."

Consumer Confidence Report Major Requirements

Community Water Systems (CWS) with 15 or more connections or serving at least 25 year round residents must prepare and distribute a CCR to all billing units or service connections.

- **April 1**—Deadline for CWS that sells water to another CWS to deliver the information necessary for the buyer CWS to prepare their CCR (req. outlined in 40 CFR 141.152)
- **July 1**—Deadline for annual distribution of CCR to customers and State or local primacy agency for report covering January 1 – December 31 of previous calendar year
- **October 1**—(or 90 days after distribution of CCR to customers, whichever is first)—Deadline for annual submission of proof of distribution to State or local primacy agency
- A system serving 100,000 or more persons must also post its current year's report on a publicly accessible site on the Internet. Many systems choose to post their reports at the following EPA website <http://yosemite.epa.gov/ogwdw/ccr.nsf/america>
- All systems must make copies of the report available on request

Comparisons Help Readers Visualize Numbers

Often the measures used for detected contaminants are confusing to consumers. Terms such as one part per million and one part per billion are hard to visualize and grasp. Consider using comparisons to explain the contaminant amounts found in water:

Think of one part per million as:

- 1 inch in 16 miles
- 1 minute in 2 years
- 1 cent in \$10,000

Think of one part per billion as:

- 1 inch in 16,000 miles
- 1 second in 32 years
- 1 cent in \$10 million

Using these comparisons may help your customers understand the significance of a detected level in your drinking water.

Water System Information

- Name/phone number of contact person
- Information on public participation opportunities (time and place for meetings or hearings)
- Information for non-English speaking populations (if applicable)

Source of Water

- Type (ex. ground water or surface water), commonly used name, and location of water sources (ex. Potomac River; Snake River Plain Aquifer, etc.) (Exact locations/coordinates of wells and intakes should not be included for security reasons.)
- Availability of source water assessment
- Brief summary on potential sources of contamination (if available)

Definitions

- Maximum Contaminant Level (MCL)
- Maximum Contaminant Level Goal (MCLG)
- Treatment Technique (TT) (if applicable)
- Maximum Residual Disinfectant Level (MRDL) (if applicable)
- Maximum Residual Disinfectant Level Goal (MRDLG) (if applicable)
- Action Level (AL) (if applicable)
- Variances and Exemptions (if applicable)

Detected Contaminants

- Table summarizing data on detected regulated and unregulated contaminants that were detected during the last round of sampling
- Known or likely source of each detected contaminant
- Health effects language for any violations, exceedances or when Arsenic levels are > 0.010 mg/L or ≤ 0.05 mg/L
- Information on *Cryptosporidium*, Radon, and other contaminants (if applicable)

Compliance with Drinking Water Regulations

- Explanation of violations, length of violations, potential health effects, and steps taken to correct the violations
- Explanation of variance/exemption (if applicable)

Required Educational Information

- Explanation of contaminants and their presence in drinking water including bottled water
- Warning for vulnerable or immunocompromised populations about *Cryptosporidium*
- Informational statements on arsenic, nitrate, lead, and TTHM (if applicable)
- EPA's Safe Drinking Water Hotline 1-800-426-4791

EPA's CCRiWriter: Just Add Data and Customize

The CCRiWriter is a free web-based program that allows water system personnel to enter data and generate a consumer confidence report. After logging in, you answer questions about your system's source water and detected contaminants. After you finish answering, you can edit, customize, and print!

Required information is already included to save you time. As federal drinking water requirements change, the CCRiWriter is updated—no need to worry about new changes. You can add in any additional state requirements.

The information is password protected to make sure only you and people you authorize are able to access or edit your CCR.

If you operate more than one water system, create separate CCRs for as many systems as you need; there is no limit. And by saving reports under different names, you can use CCRiWriter year after year.

To access the program, go to www.ccriwriter.com.



National Primary Drinking Water Standards

Contaminant	MCL or TT ¹ (mg/L) ²	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal
Acrylamide	TT ³	OC Nervous system or blood problems; increased risk of cancer	Added to water during sewage/wastewater treatment	zero
Alachlor	0.002	OC Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
Alpha particles	15 picocuries per Liter (pCi/L)	R Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
Antimony	0.006	IOC Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	0.006
Arsenic	0.010 as of 1/23/06	IOC Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards, runoff from glass & electronics production wastes	0
Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	IOC Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
Atrazine	0.003	OC Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
Barium	2	IOC Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2
Benzene	0.005	OC Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills	zero
Benzo(a)pyrene (PAHs)	0.0002	OC Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	zero
Beryllium	0.004	IOC Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	0.004
Beta particles and photon emitters	4 millirems per year	R Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero
Bromate	0.010	DBP Increased risk of cancer	Byproduct of drinking water disinfection	zero
Cadmium	0.005	IOC Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	0.005
Carbofuran	0.04	OC Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04
Carbon tetrachloride	0.005	OC Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	zero
Chloramines (as Cl ₂)	MRDL=4.0 ¹	D Eye/nose irritation; stomach discomfort, anemia	Water additive used to control microbes	MRDLG=4 ¹
Chlordane	0.002	OC Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	zero
Chlorine (as Cl ₂)	MRDL=4.0 ¹	D Eye/nose irritation; stomach discomfort	Water additive used to control microbes	MRDLG=4 ¹
Chlorine dioxide (as ClO ₂)	MRDL=0.8 ¹	D Anemia; infants & young children: nervous system effects	Water additive used to control microbes	MRDLG=0.8 ¹
Chlorite	1.0	DBP Anemia; infants & young children: nervous system effects	Byproduct of drinking water disinfection	0.8
Chlorobenzene	0.1	OC Liver or kidney problems	Discharge from chemical and agricultural chemical factories	0.1
Chromium (total)	0.1	IOC Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits	0.1
Copper	TT ⁷ : Action Level = 1.3	IOC Short term exposure: Gastrointestinal distress. Long term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	1.3
<i>Cryptosporidium</i>	TT ³	M Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and fecal animal waste	zero
Cyanide (as free cyanide)	0.2	IOC Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	0.2
2,4-D	0.07	OC Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	0.07
Dalapon	0.2	OC Minor kidney changes	Runoff from herbicide used on rights of way	0.2
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	OC Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	zero
o-Dichlorobenzene	0.6	OC Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	0.6
p-Dichlorobenzene	0.075	OC Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories	0.075
1,2-Dichloroethane	0.005	OC Increased risk of cancer	Discharge from industrial chemical factories	zero
1,1-Dichloroethylene	0.007	OC Liver problems	Discharge from industrial chemical factories	0.007
cis-1,2-Dichloroethylene	0.07	OC Liver problems	Discharge from industrial chemical factories	0.07
trans-1,2-Dichloroethylene	0.1	OC Liver problems	Discharge from industrial chemical factories	0.1
Dichloromethane	0.005	OC Liver problems; increased risk of cancer	Discharge from drug and chemical factories	zero
1,2-Dichloropropane	0.005	OC Increased risk of cancer	Discharge from industrial chemical factories	zero
Di(2-ethylhexyl) adipate	0.4	OC Weight loss, live problems, or possible reproductive difficulties	Discharge from chemical factories	0.4
Di(2-ethylhexyl) phthalate	0.006	OC Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories	zero
Dinoseb	0.007	OC Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables	0.007
Dioxin (2,3,7,8-TCDD)	0.0000003	OC Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories	zero
Diquat	0.02	OC Cataracts	Runoff from herbicide use	0.02
Endothall	0.1	OC Stomach and intestinal problems	Runoff from herbicide use	0.1
Endrin	0.002	OC Liver problems	Residue of banned insecticide	0.002
Epichlorohydrin	TT ³	OC Increased cancer risk, and over a long period of time, stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	zero
Ethylbenzene	0.7	OC Liver or kidneys problems	Discharge from petroleum refineries	0.7
Ethylene dibromide	0.00005	OC Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries	zero

LEGEND

D Disinfectant	IOC Inorganic Chemical	OC Organic Chemical
DBP Disinfection Byproduct	M Microorganism	R Radionuclides

NOTES

- Definitions
 - 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 allow for a margin of safety and are non-enforceable public health goals.
 - Maximum Contaminant Level (MCL)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
 - 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.
 - 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.
 - Treatment Technique (TT)—A required process intended to reduce the level of a contaminant in drinking water.
- Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).
- EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:
 - Cryptosporidium* (as of 1/1/02 for systems serving >10,000 and 1/14/05 for systems serving <10,000) 99% removal.
 - Giardia lamblia*: 99.9% removal/inactivation
 - Viruses: 99.99% removal/inactivation
 - Legionella*: No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated, *Legionella* will also be controlled.
 - Turbidity: At no time can turbidity (cloudiness of water) go above 5 nephelometric turbidity units (NTU); systems that filter must ensure that the turbidity go no higher than 1 NTU (0.5 NTU for conventional or direct filtration) in at least 95% of the daily samples in any month. As of January 1, 2002, for systems servicing >10,000, and January 14, 2005, for systems servicing <10,000, turbidity may never exceed 1 NTU, and must not exceed 0.3 NTU in 95% of daily samples in any month.
- HPC: No more than 500 bacterial colonies per milliliter
- Long Term 1 Enhanced Surface Water Treatment (Effective Date: January 14, 2005): Surface water systems or (GWUDI) systems serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
- Filter Backwash Recycling: The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.
- No more than 5.0% samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or *E. coli* if two consecutive TC-positive samples, and one is also positive for *E. coli* fecal coliforms, system has an acute MCL violation.
- Fecal coliform and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Disease-causing microbes (pathogens) in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. These pathogens may pose a special health risk for infants, young children, and people with severely compromised immune systems.
- Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:
 - Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
 - Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)
- Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.
- Each water system must certify, in writing, to the state (using third-party or manufacturer certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05% dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01% dosed at 20 mg/L (or equivalent).

Contaminant	MCL or TT ¹ (mg/L) ²	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal
Fluoride	4.0	IOC Bone disease (pain and tenderness of the bones); Children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	4.0
<i>Giardia lamblia</i>	TT ³	M Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
Glyphosate	0.7	OC Kidney problems; reproductive difficulties	Runoff from herbicide use	0.7
Haloacetic acids (HAA5)	0.060	DBP Increased risk of cancer	Byproduct of drinking water disinfection	n/a ⁴
Heptachlor	0.0004	OC Liver damage; increased risk of cancer	Residue of banned termiticide	zero
Heptachlor epoxide	0.0002	OC Liver damage; increased risk of cancer	Breakdown of heptachlor	zero
Heterotrophic plate count (HPC)	TT ³	M HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment	n/a
Hexachlorobenzene	0.001	OC Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories	zero
Hexachlorocyclopentadiene	0.05	OC Kidney or stomach problems	Discharge from chemical factories	0.05
Lead	TT ⁷ : Action Level = 0.015	IOC Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	zero
<i>Legionella</i>	TT ³	M Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems	zero
Lindane	0.0002	OC Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens	0.0002
Mercury (inorganic)	0.002	IOC Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands	0.002
Methoxychlor	0.04	OC Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	0.04
Nitrate (measured as Nitrogen)	10	IOC Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10
Nitrite (measured as Nitrogen)	1	IOC Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1
Oxamyl (Vydate)	0.2	OC Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	0.2
Pentachlorophenol	0.001	OC Liver or kidney problems; increased cancer risk	Discharge from wood preserving factories	zero
Picloram	0.5	OC Liver problems	Herbicide runoff	0.5
Polychlorinated biphenyls (PCBs)	0.0005	OC Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals	zero
Radium 226 and Radium 228 (combined)	5 pCi/L	R Increased risk of cancer	Erosion of natural deposits	zero
Selenium	0.05	IOC Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines	0.05
Simazine	0.004	OC Problems with blood	Herbicide runoff	0.004
Styrene	0.1	OC Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills	0.1
Tetrachloroethylene	0.005	OC Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
Thallium	0.002	IOC Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	0.0005
Toluene	1	OC Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
Total Coliforms (including fecal coliform and <i>E. coli</i>)	5.0% ⁴	M Not a health threat in itself. It is used to indicate whether other potentially harmful bacteria may be present ⁵	Coliforms are naturally present in the environment as well as feces; fecal coliforms and <i>E. coli</i> only come from human and animal fecal waste.	zero
Total Trihalomethanes (TTHMs)	0.10 0.080 after 12/31/03	DBP Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a ⁴
Toxaphene	0.003	OC Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle	zero
2,4,5-TP (Silvex)	0.05	OC Liver problems	Residue of banned herbicide	0.05
1,2,4-Trichlorobenzene	0.07	OC Changes in adrenal glands	Discharge from textile finishing factories	0.07
1,1,1-Trichloroethane	0.2	OC Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	0.20
1,1,2-Trichloroethane	0.005	OC Liver, kidney, or immune system problems	Discharge from industrial chemical factories	0.003
Trichloroethylene	0.005	OC Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories	zero
Turbidity	TT ³	M Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	n/a
Uranium	30 ug/L as of 12/08/03	R Increased risk of cancer, kidney toxicity	Erosion of natural deposits	zero
Vinyl chloride	0.002	OC Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	zero
Viruses (enteric)	TT ³	M Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
Xylenes (total)	10	OC Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	10

National Secondary Drinking Water Standards

National Secondary Drinking Water Standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, states may choose to adopt them as enforceable standards.

Contaminant	Secondary Standard
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Foaming Agents	2.0 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

For More Information

EPA Office of Ground Water & Drinking Water

www.epa.gov/safewater

Safe Drinking Water Hotline
1-800-426-4791

EPA/OGWDW
(202) 564-3750