Bottled Water Quality Investigation: 10 Major Brands, 38 Pollutants:
Test Results: Chemicals in Bottled Water

The Score Card: Pollutants found in 10 Major Brands	
Disinfection byproducts were found in	4 brands
Fluoride was found in	5 brands
Fertilizer Pollution was found in	6 brands
Drugs and drug breakdown products were found in	3 brands
Synthetic chemicals were found in	9 brands
Bacterial contamination was found in	4 brands
Radioactivity contamination was found in	7 brands
Boron was found in	2 brands

Chemical contaminants in drinking water pose a health risk for all of us, although some people may be more vulnerable to these pollutants than the general population. These more sensitive populations include infants, the elderly, as well as people with weakened immune systems due to viral infections, immune disorders, cancer, chemotherapy or recent organ transplants (CDPH 2008; EPA 2005a). Concerned about tap water quality, some consumers turn to bottled water, hoping to find a guarantee of safety and quality (Doss 2008; IBWA 2008d). But the reality is very different from this expectation: all bottled waters tested by EWG contained some chemical contaminants while bottled waters sold by two national retailers contained signature pollutants at levels very close to water.

While only eleven DBPs are currently regulated in the U.S., up to 600 different chemicals may form as byproducts of disinfection (Richardson 1998, 1999a,b, 2003), including 74 DBPs that are not regulated but that may be associated with either DNA damage or carcinogenicity (Richardson 2007).

WATER TREATMENT CHEMICALS: DISINFECTION BYPRODUCTS AND FLUORIDE

Toxic disinfection byproducts (DBPs) such as chloroform, bromodichloromethane, and haloacetic acids, are formed when disinfectants (chlorine, ozone, chlorine dioxide or chloramine) react with organic matter, urban and agricultural contaminants, bromine, and iodide during the treatment of drinking water (EPA 2008a). While only eleven DBPs are currently regulated in the U.S., up to 600 different chemicals may form as byproducts of disinfection (Richardson 1998, 1999a,b, 2003), including 74 DBPs that are not regulated but that may be associated with either DNA damage or carcinogenicity (Richardson 2007). In 2002, EWG review of DBP health effects found that nearly thirty peer-reviewed epidemiologic studies linked these byproducts to increased risks of cancer, including up to 9,300 cases of bladder cancer (reviewed in EWG 2002). DBP exposure may be also associated with miscarriages or reduced birth weight, a public health risk that is under active

investigation (Hoffman 2008; Savitz 2006; Wright 2004). Additional health problems from DBP exposure may include rectal and colon cancers, kidney and spleen disorders, immune system problems and neurotoxic effects (EPA 2001a; EPA 2007a; Richardson 2007).

Trihalomethanes — Four chemicals found in EWG bottled water tests are in a group of disinfection byproducts called trihalomethanes (THMs) - chloroform, bromoform, bromodichloromethane, and chlorodibromomethane. Together, these chemicals can be present at the same 80 ppb concentration in bottled water as the EPA limit for THMs in tap water (EPA 2008b; FDA 2008b). The legal limit of 80 ppb was set as a compromise between protecting public health and the treatment costs for lowering THM levels in municipal water (EPA 2007a). This limit still equates to several thousands of bladder cancer cases nationwide from people ingesting THMs in drinking water (EPA 2001a; EPA 2005b). Various trihalomethanes were detected in four brands of bottled water, including Sam's Choice and Acadia, at two to three times greater levels than the bottled water industry's voluntary standard of 10 ppb (IBWA 2008).

During the first round of testing, chloroform was found in four brands at concentrations between 3.8 and 19 ppb. The second round of testing identified samples with up to 31 ppb concentration of chloroform. Among all THM-containing bottled waters in this study, average concentrations of 15 ppb chloroform were detected. Both the International Agency for Research on Cancer (IARC) and the U.S. National Toxicology Panel (NTP) state that chloroform is "reasonably anticipated to be a human carcinogen" (NTP 2005). Chloroform is listed as a carcinogen in the California's Safe Drinking Water and Toxic Enforcement Act (also known as Proposition 65), with safety standards for oral ingestion at 10 ppb (OEHHA 2008). The primary routes of human exposure to chloroform are ingestion, inhalation, and dermal contact with water while showering, swimming, cleaning, and cooking, so that practically all humans are exposed to low levels of the chemical (NTP 2005). Moreover, EPA was forced by a court order to weaken its health-based goal for chloroform from 0 ppb to 70 ppb as a result of a legal challenge filed by the Chlorine Chemistry Council and the Chemical Manufacturers Association (now the American Chemistry Council) (EPA 2008c).

Bromodichloromethane was detected in four brands and the total of eleven samples at concentrations between 0.6 and 13 ppb, with average of detected values at 4.5 ppb. EPA's Integrated Risk Information System (IRIS) classifies bromodichloromethane as a probable human carcinogen (EPA 1993) and EPA set a health-based goal (Maximum Contaminant Level Goal) for this cancer-causing chemical at zero (EPA 2008b). California's Safe Drinking Water and Toxic Enforcement Act lists 2.5 ppb as a safety standard for bromodichloromethane, a level that is exceeded by several fold for nine of the eleven THM-containing bottled waters. Two other THMs, chlorodibromomethane and bromoform, were found in Sam's Choice brand water, of which three samples contained chlorodibromomethane at concentrations between 3.7 and 8.2 ppb.

Haloacetic acids - Our tests found two water disinfection byproducts called haloacetic acids in bottled water, dichloroacetic acid and trichloroacetic acid, both at 2 ppb concentration. Haloacetic acids are genotoxic and

carcinogenic; they can also produce significant metabolic disturbances (Robertson 2007). Both EPA and the International Agency for Research on Cancer consider dichloroacetic acid likely to be a carcinogen in humans (EPA 2003). While the available toxicity data for tricloroacetic acid is more limited, EPA IRIS assessment for this chemical reports cancer effects in rodents and classifies it as a possible human carcinogen (EPA 1996). Haloacetic acids are also linked to developmental defects in embryos grown outside the womb (whole embryo cell culture) (Hunter 1996). Prior to 2002, haloacetic acids were not regulated in drinking water at all. Now they are regulated as a group of five acids with a cumulative legal limit of 60 ppb in drinking water, whether tap or bottled (EPA 2008b; FDA 2008b). Similar to regulation of THMs in drinking water, the standard for haloacetic acid is not a health-based limit. Instead, it balances health and treatment cost by placing a dollar amount of the disease and equating that to treatment costs, so it still allows illness (EPA 2007a).

Disinfection byproducts were found in 4 brands

Chemical	Number of Brands	Range of Detections, ppb*	Average of Detected Values, ppb*
Total Trihalomethanes	4	4.4 - 37	21
Chloroform	4	3.8 - 31	15
Bromodichloromethane	4	0.6-13	4.5
Bromoform	1	0.8	0.8
Chlorodibromomethane	1	3.7 - 8.2	5.4
Haloacetic Acids			
Dichloroacetic acid	2	2	2
Trichloroacetic acid	1	2	2

*ppb = parts per billion (micrograms per liter)

Fluoride was found in five brands at concentrations between 0.15 and 1.07 ppm (parts per million, same as mg/L). Fluoride in bottled water may be coming from natural sources or, for the bottled water brands that use tap water, fluoride may originate from municipal water treatment (FDA 2008b). The value of fluoride-containing toothpaste to dental health is clear; fluoride is a potent chemical that strengthens teeth and kills microbes on contact, reducing the incidence of cavities (Hellwig 2004; ten Cate 1999; Twetman 2003). But, as recently reviewed by the National Research Council (NRC) a substantial and growing body of peer-reviewed science strongly suggests that ingesting fluoride in drinking water may present serious health risks (NRC 2006). Children who drink fluoridated water are at increased risk of developing fluorosis, a defect of the permanent teeth resulting in dark staining and, in severe cases, substantial corrosion of the enamel (Hong 2006; McDonagh 2000; NRC 2006). The Center for Disease Control (CDC) stated that about 30% of children who drink fluoridated water have some degree of fluorosis (Beltran-Aguilar 2005).

Levels of fluoride now detected in bottled water, 0.15-1.07 ppm, are within legal limits (EPA 1989, FDA 2008b), but emerging science suggests that legal limits may not sufficiently protect health, especially for infants and others who are particularly vulnerable (NRC 2006).

Fluoride was found in 5 brands

Chemical	Number of Brands	Range of Detections, ppm*	Average of Detected Values, ppm*
Fluoride	5	0.15-1.07	0.67

*ppm = parts per million (milligrams per liter, mg/L)

FERTILIZER POLLUTION: NITRATE AND AMMONIA

Nitrate — Nitrate is a fertilizer ingredient that widely pollutes drinking water sources nationwide. It poses particular risks for infants, who are susceptible to a form of methemoglobinemia, or blue-baby syndrome, caused by nitrate replacing the oxygen normally carried by red blood cells (Knobeloch 2000). For babies and small children, the most common source of nitrate exposure is from infant formula, when it is mixed with well water (Kross 1992).

Nitrate was found in six brands, at concentrations between 0.1 - 1.7 ppm, with average level (among the six positive brands) of 0.5 ppm. Although nitrate levels detected in bottled water are below the legal limit of 10 ppm, this limit provides no margin of safety for infants. According to EPA, infants below the age of six months who drink water containing nitrate in excess of the drinking water standard could become seriously ill and, if untreated, may die (EPA 2001b). Moreover, studies of infants in Europe have found that three to four percent of methemoglobinemia cases in infants occur at even lower levels, below the legal limit (Sattelmacher 1964; Simon 1962). Additionally, exposure to nitrates in drinking water for pregnant women has been linked to possible adverse reproductive and developmental effects (Manassaram 2006). While the spectrum of nitrate-associated adverse health outcomes remains a subject of active research, a 2006 review by the Centers for Disease Control and Prevention (CDC) scientists summarized nine different epidemiologic studies conducted between 1982 and 2004 that observed nervous system defects, miscarriage, premature birth, impaired growth of babies in utero, and various birth defects linked to higher nitrate levels in drinking water (Manassaram 2006).

Nitrate pollution is also associated with potential endocrine-disrupting effects. Emerging science suggests that nitrate derived from agricultural run-off is capable of disrupting the functioning of thyroid hormones and reproductive hormones, thus contributing to the overall environmental load of endocrine disrupting chemicals to which humans and animals are exposed (Edwards 2006; Guillette & Edwards 2005; Guillette 2006; Hotchkiss 2008; McDaniel 2008).

Ammonia — One bottled water brand contained ammonia at 0.12 ppm concentration. Ammonia enters water from fertilizer runoff, leaching septic tanks, and erosion of natural deposits. It is also commonly found in household cleaners. Whether present as an ingredient in cleaners or as a pollutant in tap water, ammonia

volatilizes into the air; people are exposed primarily by breathing it in. Ammonia triggers asthma attacks in some people and at high levels of exposure it is linked to a broader range of health problems (Makarovsky 2008). According to a 2004 government review: "We do not know if exposure to ammonia causes birth defects, or if it can pass to the fetus across the placenta or to infants via breast milk" (ATSDR 2004).

Fertilizer Pollution was found in 6 brands

Chemical	Number of Brands	Range of Detections, ppm*	Average of Detected Values, ppm*
Nitrate (Nitrogen as N)	6	0.1 - 1.7	0.51
Ammonia (Nitrogen as N)	1	0.12	0.12

*ppm = parts per million (milligrams per liter, mg/L)

DRUGS

Over the past two years, investigations all around the country found a variety of pharmaceutical residues in streams, lakes, and in drinking water (Kolpin 2002; EPA 2008d). Pharmaceuticals routinely taken by people are not fully absorbed by our bodies, and are excreted and passed first into wastewater and then into surface water. Similarly, medical waste and disposal of unused pharmaceuticals down the drain can add to the load of pharmaceuticals in surface waters (EPA 2008e). Drugs in the environment pose grave ecological risks; they also end up in our drinking water supplies (Hawthorne 2008; Mendoza 2008). EPA has yet to determine what risks to human health may be posed by pharmaceuticals in drinking water, especially for vulnerable subpopulations such as fetuses, infants, and those with weakened immune system (Daughton 2004). Meanwhile, these potential risks cannot be currently dismissed.

Acetaminophen - Shoppers concerned about pharmaceuticals in tap water may consider turning to bottled water as a supposedly safer alternative. However, EWG analysis detected acetaminophen (Tylenol) in two bottled water brands at levels similar to what has been found in tap water in Chicago and Philadelphia (AP 2008; Hawthorne 2008). The concentrations in bottled water are below the average therapeutic dosage; however, effects of life-long, constant exposure to this levels of acetaminophen are not known.

Caffeine pollution of rivers and streams has become so wide-spread that U.S. Geological Survey and Department of Agriculture researchers consider it to be a key indicator for water contaminated by urban waste (Focazio 2008; Moore 2008). An article on the FDA website describes consumer perception that bottled water contains no caffeine, no calories and no sugar (Bullers 2002). And while the last two claims are generally true, the first one is not - EWG testing revealed an unexpected presence of caffeine residues in bottled water. The caffeine levels detected in bottled water are very close to those found in untreated sources of drinking water

and in tap water (Focazio 2008; Grumbles 2008; Hawthorne 2008). Although these levels pose no health concern, being many times below what is found in a cup of coffee or a can of soda (Grumbles 2008), they do indicate likely exposure of the bottled water source to urban wastewater and various other contaminants associated with it.

Drugs and drug breakdown products were found in 3 brands

Chemical	Number of Brands	Range of Detections, ppt*	Average of Detected Values, ppt*
Acetaminophen	2	1.1 - 1.3	1.2
Caffeine	1	51	51
1,7-Dimethylxanthine (breakdown product of caffeine)	1	10	10

*ppt = parts per trillion (nanograms per liter)

SYNTHETIC CHEMICALS USED IN CHEMICAL INDUSTRY AND IN PLASTIC PRODUCTION: ACETALDEHYDE, ISOBUTANE, NONANOIC ACID, TOLUENE

Nine brands contained plastic/industrial synthetic chemicals, for a total of twenty-two chemicals, between one and four detections for each. Ten chemicals were detected once, four were detected twice, five chemicals were present in three brands (2-methyl-1-propene, 3-methyl pentane, isobutane, methylcyclopentane, octane) and hexane, toluene and acetaldehyde were present in four brands each.

How do plastic/industrial synthetic chemicals end up in bottled water? From the moment of production at the manufacturing plant and until the time of consumption, bottled water is exposed to a wide variety of plastic chemicals that leach from packaging. The main type of packaging for bottled water is polyethylene terephthalate or PET, identified by recycling code 1. Besides the PET polymer, plastic packaging for bottled water also contains a variety of additives, catalyst chemicals that are involved in plastic synthesis process, chemicals that impart physical stability and resistance to packaging, sunscreen chemicals that protect the bottle from discoloration caused by exposure to UV light, and odor-scavenger substances that eliminate the smells associated with chemicals leaching from plastic. The FDA Inventory of Effective Food Contact Substance Notifications lists 23 different chemical products or mixes that may be legally added to PET plastics for bottled water packaging (FDA 2008d). Upon long-term storage, some of these chemicals could potentially leach from the plastic into the bottled water itself.

Acetaldehyde is one of the most common contaminants released from PET bottles during overheating or any type of thermal degradation (Cwiek-Ludwicka 2003; Darowska 2003; Eberhartinger 1990; Monarca 1994; Nawrocki 2002). EWG testing detected acetaldehyde in four bottled water brands, in the range of 0.6 - 36 ppb.

Inhaled acetaldehyde poses a risk for genetic mutations and cancer, and it is classified by the EPA IRIS as a probable human carcinogen (EPA 1991). Acetaldehyde ingestion causes adverse health effects ranging from irritation of the digestive tract to liver damage (NAS 1995). Despite these health concerns, FDA has not established a legal limit for acetaldehyde in bottled water.

Hexane, another industrial chemical for which no drinking water standards have been established, was found in four brands. Nationwide tap water analyses conducted by EWG showed that 69 public water suppliers in four states were contaminated with hexane (EWG 2005b). Hexane has been associated with potential health impacts including developmental toxicity, neurotoxicity, reproductive toxicity, respiratory toxicity, and skin sensitivity (EPA 2005c).

Toluene was detected in four brands. Toluene is a petroleum-derived industrial chemical and a solvent for paints, paint thinners, silicone sealants, rubber, printing ink, adhesives (glues), lacquers, leather tanners, and disinfectants (ATSDR 2000). As a result of its extensive use, toluene contaminates water supplies nationwide, so that 31.8 million people in 1,009 communities drank water contaminated with toluene (EWG 2005b). The presence of toluene in drinking water presents a significant public health risk, since health impacts associated with toluene include cardiovascular or blood toxicity, developmental toxicity, gastrointestinal or liver toxicity, immunotoxicity, kidney toxicity, neurotoxicity, reproductive toxicity, respiratory toxicity, and skin sensitivity (EPA 2005d). EPA established a limit for toluene in drinking water at 1 ppm (mg/L), which was adopted by the FDA as a standard for bottled water (FDA 2008b). Although the toluene levels detected in our study were significantly lower than the legal limit, they highlight the issue that surface and ground water nationwide has been contaminated with industrial chemicals. The only reliable, long-term solution to water quality problems is cleaning up our water supplies and making sure that drinking water sources are protected from chemical pollution.

Synthetic chemicals were found in 9 brands

Chemical	Number of Brands	Range of Detections, ppb*	Average of Detected Values, ppb*
Acetaldehyde	4	0.6 - 36	9.7
Hexane	4	0.2 - 0.8	0.55
Toluene	4	0.5 - 2.9	1.5
2-Methyl-1-propene	3	0.3 - 0.6	0.47
3-Methyl pentane	3	0.3 - 0.8	0.47
Isobutane	3	2.3 - 13.3	7
Methylcyclopentane	3	0.7 - 1.3	0.9
Octane	3	0.2 - 4	1.7
3-Methyl heptane	2	0.4 - 0.6	0.5
Cyclohexane	2	0.4 - 1.3	0.73

Decane	2	0.6 - 1.5	0.93
Heptadecane	2	0.3 - 1.2	0.75
(Z)-13-Docosenamide	1	1.2	1.2
1-Hexene	1	0.2	0.2
Hexadecanamide	1	0.7	0.7
Hexadecane	1	0.5	0.5
Methyl cyclopentane	1	1.3	1.3
Naphthalene	1	0.3	0.3
Nonadecane	1	0.4	0.4
Nonanoic acid	1	0.4	0.4
o-Hydroxybiphenyl	1	1.0	1.0
Tetrachloroethene	1	0.5	0.5

* ppb = parts per billion (micrograms per liter)

BACTERIAL CONTAMINATION

Four brands had some bacterial contamination, as detected by either total coliform count or heterotrophic plate count (HPC). One brand had particularly high background bacterial levels measured by HPC at 480 Colony-Forming Units (CFU) per milliliter, almost at the EPA's recommended limit of 500 CFU/ml for tap water (EPA 2008c). Although the presence of bacteria detected by the HPC method does not give a direct indication of potential risk for water-borne diseases, it is a measure of overall bacterial contamination that occurs during bottle water production. High HPC signal could indicate unsanitary conditions at the bottled water plant or bottled water collection site, possibly associated with dirty equipment. According to EPA, "the lower the concentration of bacteria in drinking water, the better maintained the water system is" (EPA 2008c).

In addition to heterotrophic plate count, one brand was also positive for total coliform, which could indicate potential exposure of the bottled water sources to fecal contamination (FDA 2008c). While ground water is believed to contain less microbiological pollution compared to surface water, with the increased anthropogenic pressure on the environment, ground water frequently becomes tainted with bacteria from wastewater (EPA 2006). Potential sources of subsurface fecal contamination include improperly stored or managed manure from concentrated animal feeding operations (factory farms), runoff from land-applied manure, leaking sewer lines or failed septic systems, as well as entry of surface contaminants into the well due to improper construction or maintenance. FDA has recently proposed a new set of rules for improved monitoring of bacterial contamination in the sources used for bottled water production (FDA 2008c). However, these new rules would merely bring bottled water regulations in line with the EPA tap water regulations, so that standards for microbiological safety of bottled water would be at least no worse than tap water standards. And currently, all consumers can hope for is voluntary monitoring by the bottled water industry itself.

Bacterial contamination was found in 4 brands

Bacterial Type	Number of Brands	Range of Detections	Average of Detected Values
Heterotrophic Plate Count	4	1-480 CFU*/mL	121 CFU/mL
Total Coliform	1	1 MPN**/100mL	1 MPN/100mL

*CFU, colony-forming units; **MPN, most probable number of microorganisms.

ARSENIC

Arsenic was found in one brand, at 1 ppb concentration. Arsenic is a metal that enters water by erosion of natural deposits, as well as industrial runoff. Inorganic arsenic has potent pesticide properties and is very toxic to people upon ingestion or inhalation. Potential health impacts associated with arsenic include cancer, cardiovascular or blood toxicity, developmental toxicity, endocrine toxicity, gastrointestinal or liver toxicity, kidney toxicity, neurotoxicity, reproductive toxicity, respiratory toxicity, and skin sensitivity (EPA 1998). In 2005, EWG investigation revealed that 90 million Americans in 38 states were served tap water contaminated with arsenic at levels above health-based limits between 1998 and 2003 (EWG 2005b). The FDA bottled water regulations allow the presence of arsenic up to 10 ppb concentration (FDA 2008b). However, considering that arsenic is a known human carcinogen, bottled water companies should ensure that their products be completely free from this dangerous pollutant. Nevertheless, the voluntary bottled water industry code allows arsenic contamination at 10 ppb levels (IBWA 2008a), a far cry from the industry claim to have internal guidelines that are more strict than the federal regulations.

RADIOACTIVE POLLUTANTS

Radioactivity — Gross beta particle radioactivity was detected in seven brands with average level of 3.7 pCi/L (picoCuries/liter). In humans and animals exposure to radioactivity causes a wide range of health effects, including lung, bone, liver, kidney and brain tumors, leukemia, skin damage, and blood damage. Two specific radiological contaminants were detected in bottled waters tested, Radium-228 and Strontium-90, and both are known cancer-causing elements. Radium-228 occurs naturally and is usually found around uranium deposits, while Strontium-90 is a radioactive pollutant from nuclear fallout and possibly weapons and power production. FDA regulations for radiological contaminants in bottled water allow the presence of gross beta radioactivity at levels not to exceed 4 millirems per year of human exposure (equivalent to 50 pCi/L (IBWA 2008a)) and the presence of Radium (Radium 226 and 228 combined) up to 5 pCi/L (FDA 2008b). While radiological contaminants detected in bottled water are below this legal limit, there is no level of radioactivity known to be without risk.

Radioactivity contamination was found in 7 brands

Radioactivity Type	Number of Brands	Range of Detections, pCi/L*	Average of Detected Values, pCi/L
Gross Beta	7	1.8-5.8	3.7
Radium-228	1	0.6 +/- 0.7	0.6 +/- 0.7
Strontium-90	1	0.5 +/- 0.4	0.5 +/- 0.4

*pCi/L = picoCuries/liter

BORON

Boron was found in two brands, at 60 and 90 ppb (microgram/L) concentrations. Boron gets into drinking water from naturally-occurring and human sources. Contamination of water can come directly from urban and industrial wastewater and indirectly from soil runoff. People are exposed to this element with both water and food, since boron can be naturally found in some plants. Boron typically combines with oxygen to form various boron compounds that can contaminate drinking water. Boron is an unregulated chemical with no limits established by the EPA, although the World Health Organization, noting potential link between discharge of municipal sewage effluent and boron contamination, published a provisional guideline value for boron at 0.5 mg/L (WHO 2003). In animal studies, ingestion of boron has been linked with toxicity to male reproductive tract (testicular lesions) and developmental toxicity (WHO 2003). Boron has been listed in drinking water Contaminant Candidate Lists 1 and 2, which is a list of priority contaminants for which drinking water standards are urgently needed (EPA 2008f). For a decade, EPA vacillated on issuing tap water regulations for boron (EPA 2008f), even though the Agency acknowledges that lifetime ingestion of boron and boron compounds can increase the health effect risk for the fetuses of pregnant women and the testes of males (EPA 2008g). While the boron concentration found in this study are below the WHO levels, our finding highlights that adequate purification methods are not applied to water before bottling.

CONCLUSION: BOTTLED WATER TAINTED WITH A MIX OF CHEMICAL POLLUTANTS FROM DIFFERENT SOURCES

EWG investigation found chemical contamination in all bottled waters tested. The quality of the samples varied significantly, with some bottled waters exposing consumers to unexpectedly high pollution load. EWG study highlighted that weak FDA regulations are unable to ensure bottled water quality that consumers expect. Bottled water is not a miracle product - it is subjected to the same environmental contamination pressures as tap water. In the information provided by the EPA,

Whether it travels through a pipe to your home or comes packaged in a bottle... all our drinking water comes from similar sources, either from sources we can see, such as rivers and lakes, or from sources we can't see, such as underground aquifers (EPA 2005a).

Bottled water is not an answer to the search for drinking water free of chemical pollutants. Instead, protection of source water quality and better tap water treatment strategies are urgently needed to ensure that all Americans will continue to have access to safe and healthy water.