Bakersfield District

2008 Water Quality Report for Bakersfield Ground and Surface Water

At California Water Service Company (Cal Water), we are committed to supplying you with high-quality water. We are pleased to provide this annual water quality report, which includes information about where your water comes from, what it contains, how it compares to state and federal standards, and how you can help us conserve water. It also explains the steps we take to protect your water supply. **Most importantly, it confirms that your water met or surpassed all primary and secondary water quality standards during this reporting period.**

If you have any questions, suggestions, or concerns, please contact your local Customer Center. Also, please watch for bill inserts, where you will find announcements of any water-related public meetings or workshops, as well as important information about your water. Additional information and time-sensitive announcements about your water can be found at www.calwater.com.

Where Your Water Comes From

Cal Water has provided high-quality water utility services in the Bakersfield area since 1927. To meet our customers' needs, we use a combination of local groundwater produced by 84 wells (treated where necessary so that it complies with standards) and surface water from the Kern River (treated with highly advanced membrane filtration), as well as water purchased from the Kern County Water Agency.

BK

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

Cal Water proactively maintains and upgrades its facilities to ensure a reliable, high-quality supply. For example, pre-design planning for the South Bakersfield Treatment Plant is underway. This new plant will augment supply in the southern portion of Bakersfield.

Inside Water Quality

A water quality report represents literally hundreds of hours of work by dozens of people. At Cal Water, one of those people is Water Quality Project Manager Tarrah Henrie.

"I've always wanted a career that allows me to do good for the community," says Tarrah. "My first job out of college was working for an environmental consulting firm, and I learned a lot about how interesting and exciting the field is."

Tarrah's bachelor's degree in environmental soil and water science and master's degree in soil chemistry prepared her for a career in water quality. Since college, she has received certifications in water treatment and distribution, as well as backflow tester and backflow specialist certifications. Tarrah joined Cal Water in 2000.

Tarrah is just one of the highly educated and experienced scientists managing water quality at Cal Water. Says Tarrah, "We have a manager of laboratory services and six full-time scientists — two in the microbiology laboratory, two in the

inorganic laboratory, and two in the organic laboratory. There are also six technicians who assist the scientists. Seven additional employees make sure we meet all water quality standards — five water quality project managers who review water-testing data, and two environmental project managers who monitor water discharge. District employees are also very important to water quality. They are the first people to identify an issue, so we certainly rely on them."

Meeting water quality standards means knowing the ins and outs of copious government regulations, but according to Tarrah, this isn't the most difficult part of the job. "Monitoring water quality doesn't stop when the work day ends. Just this month, one of our scientists stayed here until after midnight analyzing samples to ensure that we were meeting standards and doing everything possible to protect public health. Over the Thanksgiving holiday, our microbiologist came in to analyze samples after a water main repair. Project managers have to be available to receive those results and make the best decisions for our customers."

Tarrah says that if she could pass along just one message about water quality, it would be this: "We work hard to protect our customers, but we need the public's help, too. Chemicals that go on lawns, down storm drains, and into the trash can eventually end up in somebody's water. We all have to be vigilant and protect our precious water supply."

What About Fluoride?

Fluoride occurs naturally in many water sources, but **Cal Water does not add fluoride to your water supply.**

California law requires Cal Water to add fluoride as funding from federal grants or other sources becomes available. In the meantime, you might wish to check with your dentist to see if fluoride supplements are recommended for any children in your family. Note that supplements may not be recommended for children who attend a school that has fluoridated water.

Want to know more? For general information on water fluoridation, visit us online at www.calwater.com.

Promoting Water-Use Efficiency

California's population continues to increase, but the amount of water available to Californians has not. We've also experienced several dry water years and now face new restrictions to the Delta, one of California's water sources. And depending upon where it falls, rain may not add significantly to future water supplies.

That's why your efforts to use water wisely are important to ensuring that we have enough clean water for you and future generations.

Cal Water offers a variety of traditional and innovative programs to help you conserve. These include rebates on many water-efficient appliances, high-efficiency fixtures (available at no charge to our customers), educational materials on a variety of topics (conservation gardening, checking for leaks around the house, and more), conservation-related events, and school programs.

Visit www.calwater.com/conservation to learn more about programs available in your area, apply for an appliance rebate, request water-saving fixtures, and find other ways that Cal Water can help you conserve water.

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Be Water-Wise, Not Water-Wasting!

At Cal Water, we worry about water quality so you don't have to. But when it comes to water supply, we all need to do our share to conserve Earth's most precious resource.

So what can a busy person do to contribute to this very important effort? It's easy! By taking a few simple steps, you can reduce your water use *and* lower your water bill. Look how much water a family of four can save…

A standard **showerhead** uses 2.5 gallons per minute (gpm), while a high-efficiency showerhead uses only 2 gpm.

Water-wasting	4 showers/day x	10 minutes/shower x	2.5 gallons	= 100 gallons/day
Water-wise	4 showers/day x	6 minutes/shower x	2 gallons	= 48 gallons/day

Total annual savings = 18,980 gallons!

Tip: *Shorten your showers and install a water-efficient showerhead.*

A pre-1993 **toilet** uses 3.5 to 8 gallons per flush, while a modern high-efficiency toilet uses only 1.28 gallons.

Water-wasting	20 flushes/day x	3.6 gallons	= 72 gallons/day
Water-wise	20 flushes/day x	1.28 gallons	= 26 gallons/day

Total annual savings = 16,790 gallons!

Tip: *Install a high-efficiency toilet.*

A typical **kitchen faucet** uses 4.7 gpm, but a faucet aerator can reduce that to 1.5 gpm.

Water-wasting	15 minutes/day x	2.75 gallons/minute	= 41 gallons/day
Water-wise	10 minutes/day x	1.5 gallon/minute	= 15 gallons/day

Total annual savings = 9,490 gallons!

Tip: *Turn off the faucet whenever possible and use a faucet aerator.*

A typical **washing machine** uses 37.5 gallons per load, while a high-efficiency machine uses 24.2 gallons.

Water-wasting	12 loads/week x	37.5 gallons/load	= 450 gallons/week
Water-wise	8 loads/week x	24.2 gallons/load	= 194 gallons/week

Total annual savings = 13,312 gallons!

Tip: *Wash only full loads and invest in a high-efficiency washing machine.*

If you think that's a lot of savings, think about this — 50% or more of the typical household's water is used **outside**. So you can save even more water by…

- Turning off your sprinklers when it rains.
- Reducing the amount of time you run each station.
- Adjusting sprinklers to avoid watering the sidewalk.
- Installing a weather-based controller.
- Replacing your thirsty lawn with drought-tolerant landscaping.

For more on water conservation — including rebates and free water-efficient hardware — visit www.calwater.com/conservation.

Q&A

Why do Cal Water employees sometimes open fire hydrants? Isn't that a waste of water?
This is a process known as "flushing." When necessary, it is done to remove sediment or sand from the water lines and ensure that water circulates adequately throughout the system. Fire hydrants may also be opened for testing purposes.

How does dirt or sand get in my water?
Dirt or sand can occur naturally in groundwater or enter water lines during water-line repair. Flushing helps remove dirt and sand in the water.

What causes white particles in my water?
Minerals can build up in water lines, home plumbing, and water heaters. If you notice white particles in your water or your pressure is lower than usual, check your faucet aerators for buildup (if your faucets do not have aerators, visit www.calwater.com/conservation to have some sent to you at no charge). It is also important to maintain your water heater as directed by the manufacturer.

What gives my water a milky or cloudy appearance?
This is usually caused by harmless air bubbles. If the water is allowed to sit, the air will dissipate and the water will clear. If it doesn't, contact your local Customer Center.

What causes an odor in my hot water?
If you detect an odor in your hot water that is not present in your cold water, you may need to adjust, flush, or repair your water heater. Check with the manufacturer for details. If you detect an odor in both the hot and cold water, inform your local Customer Center.

What causes color in the water?
Naturally occurring organics and metals can give your water color. These typically do not pose a health hazard, but you should report colored water to your local Customer Center. If a faucet has not been used for a period of time, rust or residue from pipes may have collected, discoloring your water. Let the water run for a minute, and it should return to normal (while the faucet runs, collect the water in a bucket for use in your garden).

Should I worry about pharmaceuticals in my water?
In 2008, news stories warned about the possibility of trace amounts of pharmaceuticals in tap water. It is important to remember that the quantities of pharmaceutical substances found were measured in parts per trillion — amounts so small that typical water quality laboratories couldn't even detect them. Although these trace amounts of pharmaceuticals do not appear to pose any significant health risk, Cal Water reminds you that you can help protect your water supply by responsibly disposing of drugs that are expired or no longer needed. Do not flush them down the toilet or put them in the sink.

Should I buy a home filtration unit?
Home water-treatment units are often used to improve the aesthetic qualities of the water, but according to the United States Environmental Protection Agency, they are rarely necessary for health reasons. If you choose to install a home treatment unit, be sure to follow the manufacturer's maintenance instructions, because improperly maintained units can cause water quality problems. For example, bacteria can grow in carbon filters that are not replaced as recommended.

Is bottled water safer than tap water?
Both tap and bottled water must meet strict water quality standards, but tap water is subject to more frequent testing. Although bottled water is generally not better quality than what comes out of your tap, a Cal Water customer can get hundreds of gallons of tap water for the average price of a 20-ounce container of bottled water.

If you have any questions, please contact Tim Treloar, District Manager, at (661) 837-7200.

How to Read This Table

We test your water for more than 100 regulated contaminants. **The table in this report lists only those that were detected.**

The table shows water quality test results divided into two main sections: "primary standards" and "secondary standards." Primary standards protect public health by limiting the levels of contaminants in drinking water. Secondary standards are limits for substances that could affect the water's taste, odor, or appearance.

Drinking Water Source Assessment and Protection Program (DWSAPP)

Cal Water has submitted to the California Department of Public Health a DWSAPP report for each water source that is used in the water system. The DWSAPP report identifies possible sources of contamination to aid in prioritizing cleanup and pollution prevention efforts. All reports are available for viewing or copying at our Customer Center.

The water sources in your system are considered most vulnerable to wastewater, stormwater, wastewater and drinking water treatment plants, water supply wells, surface waters, above- and underground storage tanks, known contaminant plumes, existing and historic gas stations, car washes, automobile body/repair shops, motor pools, parking lots, transportation terminals and corridors, airports, historic waste dumps/landfills, junk yards, dredging, agriculture, farm machine repairs, farm chemical distribution, pesticide/fertilizer/petroleum storage, chemical/petroleum processing, parks, golf courses, utility stations, high-density housing, hotels/motels, construction/demolition sites, large equipment storage yards, dry cleaners, appliance repair, furniture repair/manufacturing, lumber industries, hardware stores, photo processing, electrical/electronic manufacturing, and machine shops.

We encourage customers to join us in our efforts to prevent water pollution and protect our most precious natural resource.

Potential Sources of Contamination

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. Environmental Protection Agency (USEPA) Safe Drinking Water Hotline at (800) 426-4791.

The sources of drinking water (both tap and bottled) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity. Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.

Radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the USEPA and the California Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water, which must provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people, such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, those with HIV/AIDS or other immune system disorders, some elderly people, and infants, can be particularly at risk from infections. These people should seek advice from their health care providers about drinking water. USEPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Definitions

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

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 are set by the U.S. Environmental Protection Agency (USEPA).

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as are economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the USEPA.

Maximum Residual Disinfectant Level (MRDL): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Notification Level (NL): A health-based advisory level for an unregulated contaminant in drinking water. It is used by the California Department of Public Health (DPH) to provide guidance to drinking water systems.

Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health, along with their monitoring, reporting, and water treatment requirements.

Regulatory Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Notes

[1]While your drinking water meets the federal and state standard for arsenic, it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The USEPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects, such as skin damage and circulatory problems.

[2]The average nitrate level was 11 ppm, with a maximum level of 39 ppm. We are closely monitoring the nitrate levels. Nitrate in drinking water at levels above 45 ppm is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 45 ppm may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant or you are pregnant, you should seek advice from your health care provider.

[3]For surface water systems, the treatment technique dictates that the turbidity level of the filtered water meets certain criteria in 95% of the measurements taken and shall not exceed 1 NTU at any time. Cal Water's surface water supply is treated by passing it through membranes where the treatment technique requires the filtered water to be less than or equal to 0.1 NTU in 95% of measurements taken. The Kern County Water Agency's surface water is treated with conventional filtration where the treatment technique requires the filtered water to be less than or equal to 0.3 NTU in 95% of measurements taken. Turbidity is a measurement of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

[4]Some people who consume water containing 1,2,3-trichloropropane or tertiary-butyl-alcohol in excess of the notification level (NL) over many years may have an increased risk of getting cancer, based on laboratory studies. An NL is defined as a health-based advisory level for an unregulated contaminant in drinking water. DPH uses NLs to provide guidance to drinking water systems and recommends taking a well out of service if the concentration exceeds 100 times the NL. The concentrations in the system are below this level.

[5]Some people who drink water containing dichlorodifluoromethane (freon 12) far in excess of the notification level may experience neurological and cardiac effects. Long-term exposures to freon 12 resulted in smaller body weight in laboratory tests.

PRIMARY DRINKING WATER STANDARDS						GROUND AND SURFACE WATER		PURCHASED WATER		
Radiological	**Year Tested**	**Unit**	**MCL**	**PHG (MCLG)**	**Exceeded Standard?**	**Range**	**Average**	**Range**	**Average**	**Source of Substance**
Gross alpha particle activity	2005–2008	pCi/L	15	(0)	No	ND–17	2	n/a		Erosion of natural deposits
Radium 226	2005–2008	pCi/L	5	0.05 (0)	No	ND–1.2	0.02	n/a		Erosion of natural deposits
Radium 228	2005–2008	pCi/L	5	0.019 (0)	No	ND–2	0.3	n/a		Erosion of natural deposits
Uranium	2005–2008	pCi/L	20	0.43	No	ND–22	3	n/a		Erosion of natural deposits
Inorganic Chemicals	**Year Tested**	**Unit**	**MCL (SMCL)**	**PHG (MCLG)**	**Exceeded Standard?**	**Range**	**Average**	**Range**	**Average**	**Source of Substance**
Aluminum	2006–2008	ppm	1 (0.2)	0.6	No	ND–0.34	0.01	ND–0.1	0.05	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic[1]	2006–2008	ppb	10	0.00	No	ND–9	2	ND		Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Barium	2006–2008	ppm	1	2	No	ND–0.17	0.05	ND		Discharges of oil-drilling waste and from metal refineries; erosion of natural deposits
Chromium	2006–2008	ppb	50	(100)	No	ND–10	3	ND		Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride	2006–2008	ppm	2	1	No	ND–0.3	0.2	ND–0.3	0.2	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as nitrate)[2]	2008	ppm	45	45	No	ND–39	11	ND		Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Selenium	2006–2008	ppb	50	(50)	No	ND–5	0.5	ND		Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive)
	Year Tested	**Unit**	**MCL**	**PHG (MCLG)**	**Exceeded Standard?**	**Highest Level**	**Lowest Monthly Percent**	**Highest Level**	**Lowest Monthly Percent**	**Source of Substance**
Turbidity (surface water requiring filtration)[3]	2008	NTU	TT	n/a	No	0.15	99%	0.27	100%	Soil runoff
						TT=95% of samples ≤ 0.1 NTU		TT=95% of samples ≤ 0.3 NTU		
Organic Chemicals	**Year Tested**	**Unit**	**MCL**	**PHG (MCLG)**	**Exceeded Standard?**	**Range**	**Average**	**Range**	**Average**	**Source of Substance**
1,2-Dichloropropane	2006–2008	ppb	5	0.5	No	ND–0.9	0.01	ND		Discharge from industrial chemical factories; primary component of some fumigants
Dibromochloropropane (DBCP)	2006–2008	ppt	200	(0)	No	ND–33	2	ND		Banned nematocide that may still be present in soils due to runoff/leaching from former use on soybeans, cotton, vineyards, tomatoes, and tree fruit
Tetrachloroethylene (PCE)	2006–2008	ppb	5	0.06	No	ND–3.4	0.27	ND		Discharge from factories, dry cleaners, and auto shops (metal degreaser)
Toluene	2006–2008	ppb	150	150	No	ND–0.6	0.01	ND		Discharge from petroleum and chemical factories; underground gas tank leaks
Trichloroethylene (TCE)	2006–2008	ppb	5	0.8	No	ND–3	0.2	ND		Discharge from metal-degreasing sites and other factories
Distribution System Monitoring	**Year Tested**	**Unit**	**MCL**	**PHG (MCLG)**	**Exceeded Standard?**	**Range**	**Highest Annual Average**	**Range**	**Highest Annual Average**	**Source of Substance**
Total haloacetic acids	2008	ppb	60	n/a	No	ND–55	19	n/a		Byproduct of drinking water chlorination
Total trihalomethanes	2008	ppb	80	n/a	No	ND–65	24	n/a		Byproduct of drinking water chlorination
Chlorine	2008	ppm	4	4	No	0.6–2.2	1.2	n/a		Drinking water disinfectant added for treatment
Metals	**Year Tested**	**Unit**	**AL**	**PHG**	**Exceeded Standard?**	**90th Percentile**	**Samples > AL**	**90th Percentile**	**Samples > AL**	**Source of Substance**
Copper	2007	ppm	1.3	0.3	No	0.26	0 of 50	n/a		Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
SECONDARY DRINKING WATER STANDARDS AND UNREGULATED COMPOUNDS										
Inorganic Chemicals	**Year Tested**	**Unit**	**SMCL**	**PHG (MCLG)**	**Exceeded Standard?**	**Range**	**Average**	**Range**	**Average**	**Source of Substance**
Boron	2006–2008	ppm	NL=1	n/a	No	ND		ND–0.12	0.03	Erosion of natural deposits
Calcium	2006–2008	ppm	n/a	n/a	No	6–250	37	8–19	14	Erosion of natural deposits
Chloride	2006–2008	ppm	500	n/a	No	7–220	22	6–11	9	Erosion of natural deposits; seawater influence
Color	2006–2008	Units	15	n/a	No	ND–2	0.01	ND–2.5	1.3	Naturally occurring organic matter
Foaming agents (MBAS)	2006–2008	ppb	500	n/a	No	ND–120	4	ND		Municipal and industrial waste discharges
Hardness	2006–2008	ppm	n/a	n/a	No	16–720	115	26–62	45	Erosion of natural deposits
Magnesium	2006–2008	ppm	n/a	n/a	No	ND–24	5	1–3	3	Erosion of natural deposits
Odor	2006–2008	Units	3	n/a	No	ND–1	0.3	1.4		Naturally occurring organic matter
pH	2006–2008	Units	n/a	n/a	No	7.2–8.9	7.9	7.1–7.3	7.2	Inherent characteristic of water
Sodium	2006–2008	ppm	n/a	n/a	No	15–100	26	11–22	17	Erosion of natural deposits; seawater influence
Specific conductance	2006–2008	µS/cm	1600	n/a	No	180–810	325	124–224	182	Erosion of natural deposits; seawater influence
Sulfate	2006–2008	ppm	500	n/a	No	11–140	29	16–32	26	Runoff/leaching from natural deposits; industrial wastes
Total dissolved solids	2006–2008	ppm	1000	n/a	No	ND–4	0.2	75–134	110	Runoff/leaching from natural deposits
Turbidity (groundwater)	2006–2008	NTU	5	n/a	No	ND–1	0.1	n/a		Soil runoff
Vanadium	2006–2008	ppb	NL=50	n/a	No	ND–16	7	ND		Erosion of natural deposits; manufacturing of alloys and steel
Zinc	2006–2008	ppm	5.0	n/a	No	ND		ND–0.2	0.06	Runoff/leaching from natural deposits; industrial wastes
Organic Chemicals	**Year Tested**	**Unit**	**SMCL**	**PHG (MCLG)**	**Exceeded Standard?**	**Range**	**Average**	**Range**	**Average**	**Source of Substance**
1,2,3-Trichloropropane[4]	2006–2008	ppb	NL=0.005	n/a	Yes	ND–0.320	0.01	ND		Pesticide that may still be present in soils due to runoff/leaching; various industrial uses
Tertiary-butyl-alcohol[4]	2006–2008	ppb	NL=12	n/a	No	ND–2.8	0.22	ND		Leaking from underground gasoline storage tanks; discharge from petroleum and chemical factories
Dichlorodifluoromethane (freon 12)[5]	2006–2008	ppb	NL=1000	n/a	No	ND–20	0.17	ND		Refrigerant

µS/cm = measure of specific conductance
n/a = not applicable
ND = not detected
NTU = nephelometric turbidity unit
pCi/L = picoCuries per liter (measure of radioactivity)
ppb = parts per billion (micrograms per liter)
ppm = parts per million (milligrams per liter)
SMCL = secondary maximum contaminant level