

ANNUAL
WATER
QUALITY
REPORT
Water testing performed in 2008



Presented By:
MOUNTAIN WATER
DISTRICT

PWS ID#: KY0980575, KY0983725,
KY0983726, KY0980350, WV3303009

Meeting the Challenge

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2008. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.

Where Does My Water Come From?

Marrowbone Area (PWSID# KY0980575): Your source of water is the Russell Fork of the Big Sandy River. It is a surface water source. You are in the Marrowbone Area if your Mountain Water District account number starts with 0104, 0105, 0106, 0107, 0108, 0109, 0111, 0112, 0113, 0114, 0118, 0119, 0120, 0121, 0122, 0123, 0124, 0125, 0202, 0203, 0204, 0205, 0206, 0207, 0209, 0210, 0211, 0213, 0221, 0409, 0601, 0602, 0603, 0604, 0605, 0701, 0702, 0703, 0705, 0801, 0802, 0803, 0804, 0805, 0806, 0807, 1002, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014.

Pikeville Area (PWSID# KY0980350): Your water is purchased from the Pikeville Water Department. Their source water is the Big Sandy River. It is a surface water source. You are in the Pikeville Area if your Mountain Water District account number starts with 0116, 0117, 0214, 0215, 0216, 0217, 0218, 0401, 0402, 0404, 0405, 0414, 0415, 0416, 0418, 0425, 0427, 0432, 0506, 0507, 0514, 0517, 0518, 0523, 0524, 0526, 1001, 1003, 1004.

Williamson Area (PWSID# WV3303009): Your water is purchased from the Williamson Water Department. Their source water is the Big Sandy River. It is a surface water source. You are in the Williamson Area if your Mountain Water District account number starts with 0302, 0303, 0304, 0306, 0309, 0308, 0311, 0312, 0313, 0314, 0316, 0318, 0320, 0321, 0322, 0324, 0326, 0328, 0330, 0332, 0334, 0336, 0344, 0508, 0509, 0510, 0512, 0520, 0901, 0903, 0904, 0905.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

The sources of drinking water (both tap water and bottled water) 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, in some cases radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may 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 by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

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

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 may be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Source Water Assessment

The Safe Drinking Water Act Amendments of 1996 require every water system to prepare a source water assessment that addresses the system's susceptibility to potential sources of contamination. Summaries of the assessments for the three service areas are as follows.

Marrowbone Area: The source water protection area is highly influenced by coal mining industries and the Breaks Interstate Park. The area is also highly influenced by commercial and industrial businesses, traffic flow, and the location of major railways. Other areas of concern include non-point sources of pollution originating from activities such as agriculture, mining, and road construction. Within the greater source water protection area, potential contaminant sources of concern include 1 major road, 2 railroads, 3 small sewage plants, 2 areas of waste generation or transportation, 10 bridges and culverts, and 2 points of active mining activity. Each of these potential sources of contamination is rated high in a susceptibility analysis because of the contaminant type, its proximity to the intake, and the high chance of release. This completed plan is available for review at the main office of Mountain Water located at 6332 Zebulon Highway.

Pikeville Area: Activities and land uses upstream of Pikeville Water Department's source of water can pose potential risks to your drinking water. An analysis of the susceptibility of the Pikeville Water Department raw water supply to contamination has been completed. The area is highly influenced by commercial and industrial businesses, traffic flow on U.S. 23, and the location of major railways. As with most of Kentucky's surface water sources of supply, Pikeville Water Department is subjected to non-point pollution from various activities, such as agriculture, mining, and road construction. Within the greater source water protection area, potential contaminant sources of concern include 3 major roads, 1 railroad, 4 small sewage plants, 1 active contained landfill, 9 bridges and culverts, and 3 points of active mining activity. Each of these potential sources of contamination is rated high in a susceptibility analysis because of the contaminant type, its proximity to the intake, and the high chance of release. The final source water assessment has been completed by the Big Sandy Area Development District and is available for inspection at their office, the Pike County Judge's office, and the Pikeville/Pike County public library.

Williamson Area: This was completed in 2003 by the West Virginia Bureau for Public Health. The intake that supplies drinking water to Williamson Utility Board has a higher susceptibility to contamination, due to the sensitive nature of surface water supplies and the potential contaminant sources identified within the area. This does not mean that this intake will become contaminated; only that conditions are such that the surface water could be impacted by a potential contaminant source. Future contamination may be avoided by implementing protective measures. The source water assessment report, which contains more information, is available for review. A copy will be provided to you at the Williamson Utility Board office during regular business hours.

Testing Our Source Water

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Monitoring of the City of Pikeville's water source indicates the presence of *Cryptosporidium* in 1 positive sample out of 12 in 2008. Monitoring of the Mountain Water District's water source indicates the presence of *Giardia lamblia*, 0.01 cysts/L and *E.coli*, 9 to 138 N/100mL for 2008.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. We meet the last Wednesday of each month beginning at 10:00 a.m. at the Mountain Water District offices located at 6332 Zebulon Highway, Pikeville, Kentucky.

For more information about this report, or for any questions relating to your drinking water, please call Tammy Olson or Grondall Potter at the Mountain Water District, (606) 631-9162.

About Our Violations

During the calendar year of 2008 the following violations occurred for the City of Pikeville, Ky., from whom Mountain Water District purchases a portion of the water sold to its customers: failure to submit a sufficient number of analytical results for Sodium during 2007 and failure to submit an adequate number of chlorine results for distribution chlorine summary compliance for May 2008. Both of these violations were monitoring violations. Sodium has to be analyzed semi-annually. The City of Pikeville performed both Sodium samples; however, one was reported on an incorrect form. It was resubmitted on the correct form. Chlorine testing was not done every day in the distribution system and in May 2008 this was changed, making it mandatory to do so, including holidays and weekends. Since May of 2008, the City of Pikeville has collected at least one sample per day. The chlorine levels entering into the distribution system are monitored continuously.

In March of 2008, the Mountain Water District did not meet the treatment technique for total organic carbon (TOC) removal. The calculated running annual average TOC Removal Ratio of 0.99 was less than the regulatory requirement of 1.

Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection by-products. These by-products include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these by-products in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) 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.

Lead and Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Mountain Water District is responsible for providing high-quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES											
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	Mountain Water District		Pikeville Water Dept.		Williamson Water Dept.		VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Antimony (ppb)	2008	6	6	2	2–2	NA	NA	NA	NA	No	Discharge from petroleum refineries; Fire retardants; Ceramics; Electronics; Solder
Arsenic (ppb)	2008	10	0	1	1–1	NA	NA	NA	NA	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2008	2	2	0.05	0.05–0.05	0.059	0.059–0.059	0.0748	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Beryllium (ppb)	2008	4	4	0.2	0.2–0.2	NA	NA	NA	NA	No	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries
Cadmium (ppb)	2008	5	5	0.2	0.2–0.2	NA	NA	NA	NA	No	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteries and paints
Chlorine (ppm)	2008	[4]	[4]	1.453	0.06–3.2	1.24	0.21–1.94	2.4	NA	No	Water additive used to control microbes
Chromium (ppb)	2008	100	100	1	1–1	NA	NA	NA	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Radium (pCi/L)	2008	5	0	NA	NA	0.2	0.2–0.2	NA	NA	No	Erosion of natural deposits
Cyanide (ppb)	2008	200	200	10	10–10	NA	NA	NA	NA	No	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories
Fluoride (ppm)	2008	4	4	0.92	0.66–1.31	1	0.81–1.1	1.28	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2008	60	NA	34	ND–79	32	14–56	39.5	NA	No	By-product of drinking water disinfection
Mercury [inorganic] (ppb)	2008	2	2	0.2	0.2–0.2	NA	NA	NA	NA	No	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland
Nitrate (ppm)	2008	10	10	0.4	0.4–0.4	0.202	0.202–0.202	0.22	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	2008	50	50	2	2–2	3	3–3	NA	NA	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes] (ppb)	2008	80	NA	57	ND–93	57	20–104	58.8	NA	No	By-product of drinking water chlorination
Thallium (ppb)	2008	2	0.5	0.7	0.7–0.7	NA	NA	NA	NA	No	Leaching from ore-processing sites; Discharge from electronics, glass, and drug factories
Total Organic Carbon (ppm)	2008	TT	NA	1.00	1.00–1.22	1.39	1.00–3.27	2.09	NA	Yes'	Naturally present in the environment
Turbidity² (NTU)	2008	TT	NA	0.72	0.05–0.72	0.4	ND–0.4	NA	NA	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2008	TT	NA	94	NA	99	NA	97	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the communities				Mountain Water District		Pikeville Water Dept.			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2008	1.3	1.3	0.01	0/30	0.02	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2008	15	0	6	0/30	ND	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

IDSE SAMPLING RESULTS ³

		Mountain Water District	Pikeville Water Dept.		
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	RANGE LOW-HIGH	RANGE LOW-HIGH	TYPICAL SOURCE	
Haloacetic Acids [HAA]– IDSE Results (ppb)	2008	6.9–61.1	1.6–80	By-product of drinking water disinfection	
TTHMs [Total Trihalomethanes]– IDSE Results (ppb)	2008	15.1–137.2	18–144	By-product of drinking water disinfection	

Footnotes:

¹ This is a Mountain Water District violation only.

² Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

³ We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

Definitions

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

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): 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.

MRDLG (Maximum Residual Disinfectant Level Goal): 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.

NA: Not applicable.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

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