



ANNUAL  
**WATER**  
QUALITY  
**REPORT**

*Water testing performed in 2009*

*Presented By:*  
**MOUNTAIN WATER  
DISTRICT**

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

## Maintaining High Standards

Once again we are proud to present our annual water quality report. This report covers all testing performed between January 1 and December 31, 2009. The events of the past few years have presented many of us with challenges we could not have imagined. Yet, in spite of this we have maintained our high standards in an effort to continue delivering the best quality drinking water possible. There may be other hurdles in the future but know that we will always stand behind you and the drinking water we work diligently to provide.

We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions, we are always available to assist you.

## 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 or [www.epa.gov/safewater/hotline/](http://www.epa.gov/safewater/hotline/).



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## 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.

## Where Does My Water Come From?

**Marrowbone Area** (MWD #1 - 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** (MWD #2 - PWSID# KY0983725 & 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** (MWD #3 - PWSID# KY0983726 & 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.

## Questions?

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.

## What's Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water are needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water are used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water are required to produce one quart of milk, and 4,200 gallons of water are required to produce two pounds of beef.

According to the U.S. EPA, the average American uses about 100 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet; twice the global per capita average. With water use increasing six-fold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish.

To check out your own water footprint, go to [www.h2oconserve.org](http://www.h2oconserve.org) or visit [www.waterfootprint.org](http://www.waterfootprint.org) to see how the water footprints of other nations compare.

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## 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 we 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](http://www.epa.gov/safewater/lead).

## 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, their 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 the Pikeville Water Department 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, their 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, or a copy will be provided to you at the Williamson Utility Board office during regular business hours.

## About Our Violations

The Mountain Water District was issued a Notice of Violation on August 11, 2009, for failing to submit the final copy of the CCR for 2008 to the Department of Environmental Protection by July 1st. While we contested the violation and had a return receipt signed for on June 11, 2009 by the Department of Environmental Protection, the violation was not rescinded due to lack of proof that the actual CCR original document was in the packet. Another copy was then mailed to the Department for Environmental Protection and, in the future, a copy of the CCR brochure shall be made before mailing via certified mail with a return receipt for all submittals by Mountain Water District.

Mountain Water District failed to meet the treatment technique for total organic carbon (TOC) removal for the compliance period 12/1/09 - 12/31/09. The calculated running annual average TOC Removal Ratio of 0.98 was less than the regulatory requirement of 1. The Russell Fork Water Treatment Plant was undergoing an upgrade during this time.

Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. 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.

## 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 tables below show only those contaminants that were detected in the water. The state allows 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		
Barium (ppm)	2009	2	2	NA	NA	0.54	0.54-0.54	0.0347	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2009	[4]	[4]	1.43	0.4-2.8	1.22	0.26-1.93	1.7	1.5-2.0	No	Water additive used to control microbes
Combined Radium (pCi/L)	2008	5	0	NA	NA	0.2	0.2-0.2	NA	NA	No	Erosion of natural deposits
Fluoride (ppm)	2009	4	4	0.92	0.59-1.36	0.97	0.75-1.44	1.28	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Halocetic Acids [HAA] (ppb)	2009	60	NA	32	ND-50	31	15-45	20.4	7.5-28.9	No	By-product of drinking water disinfection
Nitrate (ppm)	2009	10	10	NA	NA	0.426	0.426-0.426	0.50	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTTHMs [Total Trihalomethanes] (ppb)	2009	80	NA	53	ND-147	61	31-88	26.3	7.7-38.8	No	By-product of drinking water chlorination
Total Organic Carbon (ppm)	2009	TT	NA	0.98	0.90-1.00	1.17	1.00-2.48	2.02	NA	Yes <sup>1</sup>	Naturally present in the environment
Turbidity <sup>2</sup> (NTU)	2009	TT	NA	0.37	0.01-0.37	0.3	NA	NA	NA	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2009	TT	NA	98	NA	100	NA	NA	NA	No	Soil runoff
<b>Tap water samples were collected for lead and copper analyses from sample sites throughout the community</b>											
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 <sup>3</sup>	0/30 <sup>3</sup>	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives		
Lead (ppb)	2008	15	0	6	0/30	ND <sup>3</sup>	0/30 <sup>3</sup>	No	Corrosion of household plumbing systems; Erosion of natural deposits		

### INITIAL DISTRIBUTION SYSTEM EVALUATION (MOUNTAIN WATER DISTRICT RESULTS)<sup>4</sup>

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Halocetic Acids [HAA]-IDSE Results (ppm)	2009	0.0134	0.0069-0.0239	By-product of drinking water disinfection
TTTHMs [Total Trihalomethanes]-IDSE Results (ppm)	2009	0.0250	0.0180-0.0417	By-product of drinking water disinfection

<sup>1</sup> This is a Mountain Water District violation only.

<sup>2</sup> 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.

<sup>3</sup> Sampled in 2007.

<sup>4</sup> 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 TTTHMs) 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 that 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.