

Annual Water Quality Report - Reporting Year 2016



Meade County Water District
1003 Armory Place
Brandenburg, KY 40108

PWSID#: KY0820369

Honored to provide this Report

The Meade County Water District is honored to present our annual water quality report covering all testing performed between January 1 and December 31, 2016. Over the years we have dedicated ourselves to producing drinking water that meets and exceeds all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available to assist you should you ever have any questions or concerns about your water.

For more information about this report, or for any questions relating to your drinking water, please call Joe Bartley, General Manager, by phone at (270) 422-5006 or by fax at (270) 422-5068. Our e-mail is mcwatjb@bbtel.com.

Board Meetings

You are invited to attend our regular Board of Commissioners meetings. They normally meet monthly on the fourth Tuesday of each month, 6:00 p.m. at the District's Office located at 1003 Armory Place, Brandenburg, KY 40108. For more information about the meetings, contact Joe Bartley at (270) 422-5006.

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 <http://water.epa.gov/drink/hotline>.

Substances That Could Be in Water

To ensure that tap water is safe to drink, 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.

Where Does My Water Come From?

The Meade County Water District purchases water from Hardin County Water District No. 1 and the City of Brandenburg.

Hardin County Water District No. 1

Hardin County Water District No.1 (HCWD1) own and operate both the Ft. Knox Water System (since 2012) as well as the original HCWD1 system (1952). These systems include three water treatment plants (WTPs) and four separate water sources supplying these WTPs. The WTPs are the Pirtle Spring Water Treatment Plant (PWP), and two WTPs on Ft. Knox being Central (CWP) and Muldraugh (MWP). At certain times of the year, the Ft. Knox WTPs provide water to our County system customers. HCWD1 provides the City of Vine Grove 100% of their supply and about 70% of Meade County Water District's supply. HCWD1 can provide a backup supply to the City of Hardinsburg and Hardin County Water District No. 2.

The source waters for the PWP are the Pirtle Spring, located at the plant site, and the Head of Rough Spring, located about 1.5 miles from the plant. Both of these sources are classified as ground water under the influence of surface water, and therefore must follow the guidelines of testing for surface water sources. The MWP is supplied by 15 deep underground water wells located on the West Point aquifer near the Ohio River. This source water is classified as groundwater. The CWP can be supplied by a surface water source near Otter Creek known as McCracken Spring, as well as the same well sources that supply the MWP.

How Is My Water Treated and Purified?

All three WTP's use a three-step treatment process. This includes clarification to remove larger particles in the raw water. The PWP and MWP also add powdered, activated carbon to absorb many other types of chemicals or contaminants. The water then passes through a multimedia filter system that uses four sizes of sand and gravel, plus a layer of anthracite coal. The filters are able to remove many other microscopic particles and contaminants. Finally, the treated water is kept in a holding tank where it is completely disinfected to meet all state and federal requirements. The finished water is then pumped through more than 400 miles of water mains until it reaches 13 storage tanks that can store up to 7 million gallons of treated water.

The PWP was completely rebuilt in 2009 and has won four industry awards since. Tours may be arranged for school and civic groups at any of our WTP's. Contact Ms. Spalding to arrange a tour.

Lead in Home Plumbing

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. We are 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.

City of Brandenburg

The source of drinking water from the City of Brandenburg is three wells near the Ohio River in Flippin Run Park. These wells are classified as ground water. Kentucky Division of Water determined this status. Their well head protection plan and source water assessment has been completed and copies are available. There are a total of three potential sources of contamination within the well head protection area, with the following susceptibility rankings: 2 high, 1 medium and 0 low. Sources of high potential impact include: above ground storage tank and agricultural land use. Sources of moderate potential impact include: agricultural land use. This is a summary of the susceptibility analysis. The complete Susceptibility analysis Report and Source Water Protection Plan are available at the Lincoln Trail Development District, the Division of Water and by contacting Brandenburg City Hall at 270-422-4981 and ask for T.J. Hughes.

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.

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

Source: A=HCWDN1; B=City of Brandenburg; C=Meade County Water District; D= Fort Knox Water Plant

Substance (Unit of Measure)	Year Sampled	Source	MCL [MRDL]	MCLG [MRDLG]	Amount Detected	Range Low-High	Violation	Typical Source
Barium (ppm)	2016	A	2	2	0.028	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2016	D	[4]	[4]	1.36	0.40 - 2.20	No	Water additive used to control microbes
Combined Radium (pCi/L)	2014	A	5	0	1.3	NA	No	Erosion of natural deposits
Fluoride (ppm)	2014	B	4	4	1.41	1.41 - 1.41	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Total Coliform Bacteria (# positive samples)	2016	A	1 positive sample/month	0	1	NA	No	Naturally present in the environment
Haloacetic Acids [HAA] - Stage 2 (ppb)	2016	A	60	NA	22.3	3 - 34	No	By-product of drinking water disinfection
Nitrate (ppm)	2016	A	10	10	1.0	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] - Stage 2 (ppb)	2016	D	80	NA	28.3	12 - 32	No	By-product of drinking water disinfection
Total Organic Carbon (ppm)	2016	A	TT	NA	1.3	.7 - 3.4	No	Naturally present in the environment
Turbidity (NTU)	2016	A	TT = 1 NTU	NA	.630	.020 - .630	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2016	D	TT = 1 NTU	NA	99.46	NA	No	Soil runoff

Substance (Unit of Measure)	Year Sampled	Source	MCL [MRDL]	MCLG [MRDLG]	Amount Detected	Range Low-High	Violation	Typical Source
Uranium (ppb)	2010	B	30	0	0.7	0.14 - 0.2	No	Erosion of natural deposits

**Tap water samples were collected for lead and copper analyses from sample sites throughout the community
Meade County Water District**

Substance (Unit of Measure)	Year Sampled	AL	MCLG	Amount Detected (90th%tile)	Sites Above AL/Total Sites	Violation	Typical Source
Copper (ppm)	2016 Source: C	1.3 mg/l	1.3	0.387	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2016 Source: C	0.015 mg/l	0	0.003	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

Substance (Unit of Measure)	Source	Year Sampled	Amount Detected	Range Low-High	Typical Source
Chromium (ppb)	A	2015	0.374	.427 - .542	NA
Hexavalent Chromium (ppb)	A	2015	0.44	.41 - .46	NA
Strontium (ppb)	A	2015	244	202 - 285	NA
Vanadium (ppb)	A	2015	.388	.381 - .395	NA

Total Organic Carbon Footnote for Meade County Water District

The monthly ratio is the percent of TOC removal achieved compared to the percent of TOC removal required. The annual average of monthly ratios must be 1.0 or greater for compliance. Hardin County Water District No. 1 and Ft. Knox Water achieved this criteria in 100% of the monthly samples.

Turbidity Footnote for Meade County Water District

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. Turbidity cannot exceed 1 NTU and must be <0.3 NTUs in greater than 95% of monthly samples.

Table Definitions

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

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

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

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.

TON (Threshold Odor Number): A measure of odor in water.

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.

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

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