

Garrard County Water Association  
859-792-4501  
PWS ID # KY 0400151

### **What's the Quality of My Water?**

Garrard County Water Association is pleased to share this water quality report with you. It describes to you, the customer, the quality of your drinking water. This report covers January 1 through December 31, 2016. Garrard County Water Association strives to comply with the strict regulations of both the State of Kentucky and the U.S. Environmental Protection Agency (EPA), which requires all water suppliers to prepare reports like this every year.

Our water source is purchased surface water from Berea Municipal Utilities, surface water from Lancaster Treatment Plant and surface water from Danville Water Works. Customers who live south of Highway 52 and east and south of Highway 954 beginning at Narrow Gap Road are served by purchased water from Berea Utilities. Customers along Fork Church Road, the Bryants Camp Area, the Fisher Ford Road Area and along Highway 34 receive water from Danville. Customers north of the intersection of US 27 and Highway 34 receive a combination of Danville and Lancaster water. All other customers of Garrard County Water are served by water purchased from the Lancaster Treatment Plant.

The Berea Municipal (PWS ID# KY0760030), Lancaster (PWS ID# KY0400233) and Danville (PWS ID# KY0110097) Water Treatment Plants treat your water using treatment processes such as flocculation, filtration and chlorine disinfection. Fluoride is also added to the water for dental health.

Berea Municipal Utilities treats surface water from four reservoirs, Upper Silver Creek, Lower Silver Creek, Cowbell and Owsley Fork Lakes. An analysis of the susceptibility of the Berea water supply to contamination indicates that susceptibility is generally moderate. However, there are some areas of high concern within the protection zone of the Upper and Lower Silver Creek reservoirs, as well as with the protection zone of Cowbell Lake. Forested areas within these protection zones hold the potential to generate runoff that could carry natural contaminants from the forest floor. Within the protection zone for Owsley Fork reservoir, forest areas are also present and are noted as a significant contamination threat to this source. Segments of four major roads (KY 2004, KY 3447, US 421, and KY 21) also occur within this protection zone – each perceived as medium-level threats to the reservoir supply. A copy of the completed Source Water Plan (SWAP) is available for review at the Berea Municipal Utilities Office during normal business hours.

Lancaster pumps 90% of its water from the Kentucky River. The pumping station is located at the mouth of Davis Creek. The water is delivered to the head of Lancaster's East Reservoir, located one mile south of Lancaster. The remaining 10% of the water comes from precipitation within the reservoir watershed. Some quality concerns have existed over oil wells, strip mines and the "straight pipes" of some residences in the watershed. A Source Water Assessment Plan (SWAP) has been completed for Lancaster Water Works. An analysis of the susceptibility of the Lancaster water supply to contamination indicates that this susceptibility is generally moderate. There are, however, a few areas of high concern. Several bridges, agricultural areas, a hazardous materials handler and impaired water body occur in the immediate vicinity of the intake. An accidental release of toxic substances at some sites or mismanagement of activities at other sites

could potentially lead to the contamination of Lancaster's intake. The presence of an impaired water body may indicate that environmental conditions potentially detrimental to source waters already exist within the watershed. Finally, there are numerous permitted operations and activities and other potential contaminant sources within the watershed that cumulatively increase the potential for the release of contaminants. These potential contaminant sources include everything from underground storage tanks and major roadways to forested areas with the potential for logging. A completed SWAP is available for inspection at the Judge-Executive's office.

Danville relies on surface water from Lake Herrington located a few miles northeast of Danville. The lake was constructed in the 1920's and spans through several counties in central Kentucky. Its largest tributary is the Dix River. The Bluegrass Area Development District and Division of Water have performed an assessment of Lake Herrington to determine its susceptibility to contamination. An analysis of the susceptibility of the Danville water supply to contamination indicates that the susceptibility is generally moderate. However, there are some areas of high concern. The Kentucky Division of Water has identified Herrington Lake as impaired. The causes for impairment are listed as follows: Metals, Nutrients, and Organic Enrichment/Low Dissolved Oxygen. Also, forested areas and agricultural areas located in the watershed for Danville's intake introduce the potential for logging and the application of agricultural chemicals-activities that contribute to non-point-source-pollution. Other areas of concern include power line rights-of-way with potential herbicide use, recreational grasses (i.e., golf courses) associated with the potential for chemical usage, major roads and railways, large capacity septic systems and numerous residential septic systems located throughout the watershed. You may obtain a copy of the assessment at the Bluegrass Area Development District, 699 Perimeter Drive, Lexington, KY 40517 and Division of Water, 200 Fair Oaks Lane, Frankfort, KY 40601.

If you have any questions about this report or concerning your water utility, please contact Sean Smith by calling 859-792-4501 or by writing to this address: PO Box 670, Lancaster, KY 40444. We want our valued customers to be informed about their water utility. You can attend Board of Directors meetings on the first Tuesday of each month, at 7:00 PM, at the Association office.

Hard of hearing, speech impaired or deaf users, call the Kentucky Relay Service at (800) 648-6056. Give the communications assistant our phone number to contact us.

### **The U.S. Environmental Protection Agency (EPA) wants you to know:**

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

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 EPA's Safe Drinking Water Hotline (1-800-426-4791).

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 and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from 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 storm water 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 storm water runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

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

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. Garrard County Water Association 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 <http://www.epa.gov/safewater/lead>.

## 2016 Monitoring Results for Garrard County Water

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/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 (1-800-426-4791).

All results are from testing completed during the 2014 monitoring year unless other wise noted.<sup>1</sup>

Contaminant	Unit	MCLG Health Goal	MCL EPA's Limits	Level Detected & Range			Potential Source of Contamination
				Berea	Danville	Lancaster	
<b>Microbiological Contaminants</b>							
Total organic carbon	ppm	NA	TT removal ratio = 1	1.44 LRAA 1.20 - 1.70	1.71 LRAA 0.92 - 3.63	3.13 LRAA 1.95 - 6.00	Naturally present in the environment.
Monthly ratio is the % TOC removal achieved to the % TOC removal required. Annual average of the monthly ratios must be 1.00 or greater for compliance. TOC is measured as a ppm but reported as a ratio.							
Turbidity <sup>2</sup>	NTU	NA	TT / never more than 1 NTU and less than or equal to 0.3 NTU in 95% of samples.	100% met limits.	100% met limits	100% met limits	Soil Runoff.
Total Coliform Bacteria # or % positive samples	MCL		N/A	N/A	2	N/A	Naturally present in the environment.
<b>Radioactive Contaminants</b>							
Beta / photon emitters	pCi/L <sup>3</sup>	0	50	BDL	1.2 (2008)	3.4 (2009)	Decay of natural and man-made deposits.
Alpha emitters	pCi/L	0	15	0.7 (2008)	0.08 (2008)	0.69 (2009)	Erosion of natural deposits.
Combined Radium	pCi/L	0	5	0.05 (2008)	0.3 (2008)	0.96 (2009) 0.16 - 0.96	Erosion of natural deposits.
Uranium	ug/L	0	30	BDL	.23 (2008)	0.33	Erosion of natural deposits.
<b>Inorganic Contaminants</b>							
Barium	ppm	2	2	0.0311	0.02	0.02	Discharge of drilling wastes. Discharge from metal refineries. Erosion of natural deposits.
Fluoride	ppm	4	4	1.01 1.01 - 1.01	0.9 0.9 - 0.9	1 1.00 - 1.00	Erosion of natural deposits. Water additive to promote strong teeth. Discharge from fertilizer and aluminum factories.
Nitrate	ppm	10	10	0.23 0.23 - 0.23	1.6 1.6 - 1.6	0.2 0.2 - 0.2	Runoff from fertilizer use. Leaching from septic tanks, sewage. Erosion of natural deposits.
Arsenic	ppb	N/A	10	N/A	N/A	N/A	Natural erosion; runoff from orchards or glass and electronics production wastes
Lead	PPB	0	15=AL	0	2	2	Corrosion of Household plumbing systems
Copper	PPM	1.3	1.3=AL	0.22	0.12	0.63	Corrosion of Household plumbing systems
<b>Volatile Organic Contaminants &amp; Disinfection Byproducts</b>							
Residual Chlorine	ppm	MRDLG=4	MRDL=4	.95HRAA 0.55 - 1.31	2.15 HRAA 0.59 - 3.4	1.27 (annual avg) . 0.65 - 1.56	Water additive used to control microbes.
Haloacetic Acids (HAA5) (all sites)	ppb	NA	60	51 HRAA 25 - 56	95 HRAA 25 - 59	21 RAA 5 - 33 (Stage II)	Byproduct of drinking water chlorination.
Total Trihalomethanes (TTHMs) (all sites)	ppb	0	80	54 HRAA 21 - 84	51 HRAA 26.3 - 75.5	32 RAA 6 - 55 (Stage II)	Byproduct of drinking water chlorination.

2016 Testing completed by Garrard County Water Association								
Contaminant	Unit	MCLG Health Goal	MCL EPA's Limits	Level Detected	Range Detected	Violation (Yes / No)	Year <sup>1</sup> Sampled	Potential Source of Contamination
<b>Inorganic Contaminants</b>								
Copper	ppm	1.3	1.3 = AL	0.150 (90th percentile)	NO	2015	Corrosion of household plumbing systems. Erosion of natural deposits. Leaching from wood preservatives.	
				All sites below AL				
Lead	ppb	0	15 = AL	2 (90 th percentile)	NO	2015	Corrosion of household plumbing systems. Erosion of natural deposits.	
				Two sites above AL				
<b>Disinfection By Products</b>								
Chlorine	ppm	MRDLG=4	MRDL=4	1.16 HAA	1.0 - 1.40	NO		Water additive used to control microbes.
Haloacetic Acids (HAA5) (Stage II)	ppb	NA	0.06	.039 HRAA	.029 - .047	NO	2016	By-product of drinking water chlorination.
Total Trihalomethanes (TTHMs) (Stage II)	ppb	0	0.08	.044 HRAA	.041 - .045	NO	2016	By-product of drinking water chlorination.
<b>Microbiological Contaminants</b>								

The water systems that we purchase from have sampled for a series of unregulated contaminants. Unregulated contaminants are those that don't yet have a drinking water standard set by USEPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard. As our customers, you have a right to know that this data is available. If you are interested in examining the results, please contact our office.

**Notes:**

<sup>1</sup>The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, is more than one year old.

<sup>2</sup>Turbidity is a measure of treatment performance and is regulated as a treatment technique. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

<sup>3</sup>The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

**Violations:**

Danville Water received a monitoring violation and even though this was not an emergency, as our customers, you have a right to know what happened. We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During (1/1/2016-3/31/2016) and (4/1/2016 – 6/30/2016) Danville did not complete all monitoring by failing to report testing for Haloacetic acids (HAA) and Trihalomethanes (THM). Therefore, Danville could not verify the quality of your drinking water to the primacy agency during that time.\*

Danville is required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. For the stage 2 DPBR requirements we monitored for trihalomethanes (THM) and haloacetic acids (HAA).

A calculation of analytical results is part of an Operational Evaluation Level Report (OEL) to determine the potential of exceeding these standards. The operational evaluation requirements are intended as an indicator of operational performance and to allow systems to identify proactive steps to remain in compliance. Failure to submit an evaluation report to the State in the required time frame is a violation and requires a public notification.

There is nothing you need to do. An OEL for the first quarter of 2016 was generated but was submitted late to the Division of Water and a reporting violation was issued. Our calculations for the second quarter did not indicate the necessity for an additional OEL. However, since our HAA averages were still being affected by previous quarterly results, the Division of Water determined that an OEL should have been submitted for the second quarter also. Danville received a reporting violation for failing to submit an OEL for the second quarter.

Testing results showed that Danville exceeded the standard or maximum contaminant level (MCL) for haloacetic acids. The standard for haloacetic acids is 0.060 mg/L. It is determined by averaging all samples at each sampling location for the last 12 months. Haloacetic acids averaged at one of Danville's system locations for: 1/1/2016 – 3/31/2016 was 0.095 mg/L, 4/1/2016 – 6/30/2016 was 0.082 mg/L, and 7/1/2016 – 9/30/2016 was 0.063 mg/L.

Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

The water treatment plant is undergoing major construction. Temporarily, flow patterns and treatment modifications caused the formation of haloacetic acids. That phase of the construction has been completed and this issue has been resolved. Public notices were issued for each quarter Danville was out of compliance.

Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

For more information, please contact Andy Tompkins at 859-238-1241 or P.O. Box 670 Danville, KY 40423.

Berea's water system violated drinking water requirements over the past year by failing to timely report its LT2 (Cryptosporidium) sampling plan to the Kentucky Division of Water (KDOW). Even though this is not an emergency, as our customers, you have a right to know what happened and what we did to correct this situation.

Berea is required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the 7/2/2016 – 8/15/2016 compliance period, Berea did not complete all monitoring requirements by failing to correctly report the LT2 sampling plan on time. Therefore, a violation was issued because the KDOW could not verify our plan to adequately check the quality of your drinking water, before the sampling time. The LT2 sampling plan has since been

submitted to KDOW, and it has been determined that the plan to check the water quality met all federal requirements for monitoring *Cryptosporidium* over the next 2 years.

There is nothing you need to do at this time. There are no potential adverse health effects related to the reporting violation, no population is at risk, and there is no need to use alternative water supplies.

After becoming aware of the omission, Berea immediately completed and submitted its monitoring plan. Berea is currently following its approved monitoring plan schedule. No further actions are required at this time.

For more information, please contact Ed Fortner at 859 986-4391 or P.O. Box 926, Berea, KY 40403-0926.

For more information, please contact Andy Tompkins at 859-238-1241 or P.O. Box 670 Danville, KY 40423.

\*Please share this information with all the other people who drink this water, especially those who may not have received these notices directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.\*

*Cryptosporidium* and *Giardia* are microscopic organisms that are relatively widespread in the environment. Surface waters, such as lakes and rivers that contain a high amount of sewage contamination or animal wastes are more susceptible to increased numbers of these parasites. Berea and Lancaster have both monitored for these organisms (Berea, 2004 – 2006 and Lancaster, 2009; monthly). Lancaster detected *Giardia* in August 2009 in their source water at a level of 0.28 cysts/L; neither organism was found to be present in the water supply during any of the other monthly monitoring.

In March 2005, Berea Municipal Utilities requested that the Drinking Water Branch of the Division of Water review the TOC removal requirement in relation to their treatment process. Based on this review, Berea was granted an exemption from the TOC removal requirement while they pursued other treatment options. Berea chose to install a Dissolved Air Flootation System (DAF) to assist in the removal of TOC from the water before it goes through the filters. They began the process of installing the DAF system and new filter units in January 2009. The renovation and upgrade of the plant was completed in September 2010. They are now meeting the required treatment ratio of 1 or more.

#### **Definitions**

**Maximum Contaminant Level (MCL):** 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.

**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 allow for a margin of safety.

**Maximum Residual Disinfectant Level Goal (MRDLG):** 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.

**Maximum Residual Disinfectant Level (MRDL):** 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.

**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.

**90th Percentile:** 90% of samples are equal to or less than the number in the chart.

**MREM (millirems):** a measure of radiation absorbed by the body.

**NTU (Nephelometric Turbidity Units):** A measure of clarity.

**NA:** Not applicable.

**BDL:** Below detection limits.

**PPB (parts per billion):** micrograms per liter (ug/l).

**PPM (parts per million):** milligrams per liter (mg/l).

**PCi/L (picocuries per liter):** a measure of radioactivity in water.

**HAA:** Highest Annual Average.

**HRAA:** Highest Running Annual Average.

**LRAA:** Lowest Running Annual Average.

**CDC:** Centers for Disease Control.

**EPA:** Environmental Protection Agency.

**RAA:** Running Annual Average.

**SU:** Standard unit.

**Exemption:** State or EPA permission not to meet an MCL or a treatment technique under certain conditions.