

## Crab Orchard Water Quality Report 2018

Water System ID: KY0690089  
Manager: Devon Shelton  
606-355-2319

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Meeting location and time:  
Crab Orchard City Hall  
First Thursdays at 6:30 PM

The water for the City of Crab Orchard Water Works is surface water that comes from the Kentucky River and is treated and sold to our customers via the Lancaster Water Works Treatment Plant. A source water assessment has been completed and shows that the susceptibility to contamination from Lancaster Water Works intake on the Kentucky River below the confluence of Davis Creek in pool 8, is considered generally moderate. There are, however a few areas of concern. Several bridges, agricultural areas, a hazardous materials handler and impaired water body occurs in the immediate vicinity of the intake. These potential contaminant sources include everything from underground storage tanks and major roadways to forested areas with no potential for logging. The complete source water assessment is available for inspection at the Garrard County Judge-Executives office 859-426-4791.

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 Environmental Protection Agency's Safe Drinking Water Hotline (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 may 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, (sewage plants, septic systems, livestock operations, or wildlife). Inorganic contaminants, such as salts and metals, (naturally occurring or from stormwater runoff, wastewater discharges, oil and gas production, mining, or farming). Pesticides and herbicides, (stormwater runoff, agriculture or residential uses). Organic chemical contaminants, including synthetic and volatile organic chemicals, (by-products of industrial processes and petroleum production, or from gas stations, stormwater runoff, or septic systems). Radioactive contaminants, (naturally occurring or from oil and gas production or mining activities). 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. FDA regulations establish limits for contaminants in bottled water to provide the same protection for public health.

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 (800-426-4791).

### Information About Lead:

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. Your local public water system 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>.

### Some or all of these definitions may be found in this report:

**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 (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.

**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.

**Below Detection Levels (BDL)** - laboratory analysis indicates that the contaminant is not present.

**Not Applicable (N/A)** - does not apply.

**Parts per million (ppm)** - or milligrams per liter, (mg/l). One part per million corresponds to one minute in two years or a single penny in \$10,000.

**Parts per billion (ppb)** - or micrograms per liter, ( $\mu\text{g/L}$ ). One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

**Parts per trillion (ppt)** - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

**Parts per quadrillion (ppq)** - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.

**Picocuries per liter (pCi/L)** - a measure of the radioactivity in water.

**Millirems per year (mrem/yr)** - measure of radiation absorbed by the body.

**Million Fibers per Liter (MFL)** - a measure of the presence of asbestos fibers that are longer than 10 micrometers.

**Nephelometric Turbidity Unit (NTU)** - a measure of the clarity of water. Turbidity has no health effects. However, turbidity can provide a medium for microbial growth. Turbidity is monitored because it is a good indicator of the effectiveness of the filtration system.

**Action Level (AL)** - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system shall follow.

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

Spanish (Español) Este informe contiene información muy importante sobre la calidad de su agua beber. Tradúzcalo o hable con alguien que lo entienda bien.

**Additional copies of this report are available in our office. If you would like a copy mailed to you, please contact our office.**

The data presented in this report are from the most recent testing done in accordance with administrative regulations in 401 KAR Chapter 8. As authorized and approved by EPA, the State has reduced monitoring requirements for certain contaminants to less often than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data in this table, though representative, may be more than one year old. Copies of this report are available upon request by contacting our office during business hours.

To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

	Allowable Levels	Highest Single Measurement	Lowest Monthly %	Violation	Likely Source of Turbidity
Turbidity (NTU) TT * Representative samples of filtered water	No more than 1 NTU* Less than 0.3 NTU in 95% of monthly samples	0.29	100	No	Soil runoff

**Regulated Contaminant Test Results - Lancaster**

Contaminant [code] (units)	MCL	MCLG	Report Level	Range of Detection	Date of Sample	Violation	Likely Source of Contamination
Barium [1010] (ppm)	2	2	0.02	0.02 to 0.02	2018	No	Drilling wastes; metal refineries; erosion of natural deposits
Fluoride [1025] (ppm)	4	4	1	1 to 1	2018	No	Water additive which promotes strong teeth
Nitrate [1040] (ppm)	10	10	0.2	0.2 to 0.2	2018	No	Fertilizer runoff; leaching from septic tanks, sewage; erosion of natural deposits
Total Organic Carbon (ppm) (measured as ppm, but reported as a ratio)	TT*	N/A	2.37 (lowest average)	0 to 3.67 (monthly ratios)	2018	No	Naturally present in environment.

\*Monthly ratio is the % TOC removal achieved to the % TOC removal required. Annual average must be 1.00 or greater for compliance.

**Source Water Contaminants (untreated water)**

Cryptosporidium [oocysts/L]	0	TT (99% removal)	2 (positive samples)	3 (no. of samples)	2018	See Note Below	Human and animal fecal waste
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Cryptosporidium is a microbial pathogen found in surface water. Cryptosporidium was detected in 2 samples of 3 collected from the raw water source for our water system. It was not detected in the finished water. Current test methods do not enable us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Cryptosporidium must be ingested to cause disease and it may be spread through means other than drinking water.

**Regulated Contaminant Test Results Crab Orchard Water Works**

Contaminant [code] (units)	MCL	MCLG	Report Level	Range of Detection	Date of Sample	Violation	Likely Source of Contamination
Copper [1022] (ppm) sites exceeding action level 0	AL = 1.3	1.3	0.145 (90 <sup>th</sup> percentile)	0.0174 to 0.222	Jul-18	No	Corrosion of household plumbing systems
Chlorine (ppm)	MRDL = 4	MRDLG = 4	0.82 (highest average)	0.47 to 1.15	2018	No	Water additive used to control microbes.
HAA (ppb) (Stage 2) [Haloacetic acids]	60	N/A	73 (high site average)	22 to 102 (range of individual sites)	2018	YES	Byproduct of drinking water disinfection
TTHM (ppb) (Stage 2) [total trihalomethanes]	80	N/A	88 (high site average)	17 to 93 (range of individual sites)	2018	YES	Byproduct of drinking water disinfection.

HAA(ppb) Individual Site	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Violation
SM1	73.00	66.00	63.50	53.75	Yes
SM2	69.75	64.00	57.50	39.75	Yes

## Violations

Testing results show that our system exceeded the standard, or maximum contaminant level (MCL), total trihalomethanes (THM) and for haloacetic acids (HAA). The standard for trihalomethanes is 0.080 mg/L and haloacetic acids is 0.060 mg/L. It is determined by averaging all samples at each sampling location for the previous 12 months.

2018-9950533	1/1/2018 – 3/31/2018	HAA	0.073 mg/L
2018-9950534	1/1/2018 – 3/31/2018	THM	0.088 mg/L
2018-9950536	4/1/2018 – 6/30/2018	HAA	0.066 mg/L
2018-9950537	4/1/2018 - 6/30/2018	THM	0.083 mg/L
2019-9950544	7/1/2018 – 9/30/2018	HAA	0.064 mg/L

Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

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

We are working to minimize the formation of trihalomethanes and haloacetic acids while ensuring we maintain an adequate level of disinfectant. We have increased flushing of water lines and we are also monitoring water storage tank levels and water flow patterns within the distribution system. We anticipate resolving the problem within the current year. Public notices were distributed for each of these violations.

2018-9950531 MOR - The public water system failed to submit the Monthly Operating Report for the January 2018 monitoring period to arrive at Division of Water by the February 10, 2018 deadline. This violation was detailed in the 2017 CCR.

2018-9950532 Chlorine - The public water system failed to submit the Monthly Operating Report for the January 2018 monitoring period to arrive at Division of Water by the February 10, 2018 deadline. The distribution system daily residual chlorine results were included in the MOR. This violation was detailed in the 2017 CCR.

2018-9950535 OEL – The public water system failed to submit an Operational Evaluation Level report (OEL) by the required deadline for the period 1/1/2018 – 3/31/2018. The report has since been submitted and this violation was detailed in the 2017 CCR.

2019-9950538 PN Link – This violation was issued because the public notification for violation 2017-9950525 (Jan.2017 chlorine) was completed after the one year time frame required. It should have been completed no later than 3/27/2018. The public notice was distributed in June 2018.

2019-9950539 PN Link - This violation was issued because the public notification for violation 2017-9950527 (fourth quarter 2016 HAA OEL) was completed after the one year time frame required. It should have been completed no later than 3/27/2018. The public notice was distributed in June 2018 after the 6/5/2018 deadline.

2019-9950540 PN Link - This violation was issued because the public notification for violation 2018-9950528 (third quarter 2017 HAA MCL) was completed after the 30 day time frame required. It should have been completed no later than 1/4/2018.

2019-9950541 PN Link - This violation was issued because the public notification for violation 2018-9950530 (fourth quarter 2017 HAA MCL) was completed after the 30 day time frame required. It should have been completed no later than 3/22/2018.

2019-9950542 PN Link - This violation was issued because the public notification for violation 2018-9950533 (first quarter 2018 HAA MCL) was completed after the 30 day time frame required. It should have been completed no later than 6/21/2018.

2019-9950543 PN Link - This violation was issued because the public notification for violation 2018-9950534 (first quarter 2018 TTHM MCL) was completed after the 30 day time frame required. It should have been completed no later than 6/21/2018.

2019-9950545 MOR – The public water system failed to submit the Monthly Operating Report for the October 2018 monitoring period to arrive at Division of Water by the November 10, 2018 deadline.

2019-9950546 Chlorine - The public water system failed to submit the Monthly Operating Report for the October 2018 monitoring period to arrive at Division of Water by the November 10, 2018 deadline. The distribution system daily residual chlorine results were included in the MOR.

2019-9950547 MOR - The public water system failed to submit the Monthly Operating Report for the November 2018 monitoring period to arrive at Division of Water by the December 10, 2018 deadline.

2019-9950548 CCR – The public water system failed to submit the 2017 CCR by the required deadline of July1, 2018. The CCR was not placed in the mail until July 3, 2018.

2019-9950549 Chlorine - The public water system failed to submit the Monthly Operating Report for the November 2018 monitoring period to arrive at Division of Water by the December 10, 2018 deadline. The distribution system daily residual chlorine results were included in the MOR.

2019-9950550 MOR - The public water system failed to submit the Monthly Operating Report for the December 2018 monitoring period to arrive at Division of Water by the January 10, 2019 deadline. The MOR was mailed 1/10/2019 and was received by Division of Water on 1/14/2019.

All of the above-mentioned documents have been submitted. We will establish procedures to submit documents by required deadlines.