

Morganfield Water Department Water Quality Report 2022

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Meeting Location and Time: Heffington Municipal Building, 4th Thursday at 5:00 PM

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The City of Morganfield treats surface water from the Ohio River. Activities and land uses upstream of Morganfield's source of water can pose potential risks to your drinking water. These activities, and how they are conducted, are of interest to the entire community because they potentially affect your health and the cost of treating your water. Activities immediately upstream of your water supply intake are of special concern because they provide little response time to the water system operators. An analysis of the susceptibility of Morganfield's water supply to contamination indicates that this susceptibility is generally moderate. However, there are a few areas of high concern. Potential contaminant sources of concern include statewide coverage of row crops, underground injection sites, ten oil and gas wells, and a major road. Each of these are rated as high in the susceptibility analysis table because of the contaminant type, their proximity, and the high chance of release. This is a partial listing of potential contaminant sources. The complete Source Water Assessment Plan is available for review at the Morganfield Water Treatment Plant. 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, (µg/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.

Variations & Exemptions (V&E) - State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

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.

To request a paper copy call (270) 389-1695.

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.

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.**

Regulated Contaminant Test Results Morganfield, City of

Contaminant [code] (units)	MCL	MCLG	Report Level	Range of Detection	Date of Sample	Violation	Likely Source of Contamination
E.coli Bacteria % positive samples	0%	0	1	N/A	2022	Yes	Human and animal fecal waste
Barium [1010] (ppm)	2	2	0.028	0.028 to 0.028	Oct-22	No	Drilling wastes; metal refineries; erosion of natural deposits
Fluoride [1025] (ppm)	4	4	0.79	0.79 to 0.79	Oct-22	No	Water additive which promotes strong teeth
Nitrate [1040] (ppm)	10	10	0.535	0.535 to 0.535	Feb-22	No	Fertilizer runoff; leaching from septic tanks, sewage; erosion of natural deposits
Atrazine [2050] (ppb)	3	3	0.22	BDL to 0.88	Jul-22	No	Runoff from herbicide used on row crops

Disinfectants/Disinfection Byproducts and Precursors

Total Organic Carbon (ppm) (measured as ppm, but reported as a ratio)	TT*	N/A	1.46 (lowest average)	0.97 to 2.13 (monthly ratios)	2022	No	Naturally present in environment.
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*Monthly ratio is the % TOC removal achieved to the % TOC removal required. Annual average must be 1.00 or greater for compliance.

Chlorine (ppm)	MRDL = 4	MRDLG = 4	1.59 (highest average)	0.35 to 2.32	2022	No	Water additive used to control microbes.
HAA (ppb) (Stage 2) [Haloacetic acids]	60	N/A	27 (high site average)	14 to 30 (range of individual sites)	2022	No	Byproduct of drinking water disinfection
TTHM (ppb) (Stage 2) [total trihalomethanes]	80	N/A	60 (high site average)	31 to 64 (range of individual sites)	2022	No	Byproduct of drinking water disinfection.

Household Plumbing Contaminants

Copper [1022] (ppm) Round sites exceeding action level 0	AL = 1.3	1.3	0.024 (90 th percentile)	0 to 0.051	Sep-22	No	Corrosion of household plumbing systems
Lead [1030] (ppb) Round 1 sites exceeding action level 0	AL = 15	0	0 (90 th percentile)	0 to 6	Sep-22	No	Corrosion of household plumbing systems

Other Constituents

Turbidity (NTU) TT * Representative samples	Allowable Levels	Highest Single Measurement	Lowest Monthly %	Violation	Likely Source of Turbidity
Turbidity is a measure of the clarity of the water and not a contaminant.	No more than 1 NTU* Less than 0.3 NTU in 95% of monthly samples	0.193	100	No	Soil runoff

Fluoride (added for dental health)	Average	Range of Detection
	0.7	0.39 to 0.97

Violation 2023-9950622 - On October 7, 2022 we issued a Boil Water Notice after E.coli was detected in one of our routine bacteriological samples. We immediately collected the required additional samples and began the assessment procedures to determine the cause. We changed some of our treatment processes and sample collection procedures and sample sites. The issue has been resolved.

Level 1 Assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

During the past year we were required to conduct two Level 1 assessments. Two Level 1 assessments were completed. In addition, we were required to take four corrective actions and we completed four of these actions.

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found E. coli bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

We were required to complete a Level 2 assessment because we found E. coli in our water system. In addition, we were required to take three corrective actions and we completed three of these actions.