Evansville
WATER AND SEWER UTILITY

PWS ID: 5282002

2023 Annual Drinking Water Quality Report

The Evansville Water Department is a public utility owned and operated by the City of Evansville. The utility has operated in some capacity since the late 1800s and has evolved as new treatment techniques and contaminants have been discovered. The utility produces drinking water that meets regulatory standards set by the Indiana Department of Environmental Management (IDEM).
More information about the utility can be found at www.ewsu.com.
Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

What is a Water Quality Report?
To comply with state and federal regulations, The Evansville Filtration Plant issues a report annually describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and your awareness of the need to protect your drinking water sources. If you have questions about this report or your drinking water, please call 812-428-0568.

What's in this report?
Answers to questions such as:
Where does my water come from?
How do we treat the water?
What is in my drinking water?
Where can I find additional information?

Where does Evansville's drinking water come from?
The City of Evansville's drinking water comes from the Ohio River. The Evansville filtration plant is located at Ohio River mile marker 791.5 in the Highland-Pigeon Watershed of the Ohio River. All stream and urban runoff within this watershed drains into the Ohio River. For more detailed information on the Highland-Pigeon Watershed, please visit the USEPA's National Assessment Database at www.epa.gov/waters/.

- The Ohio River begins in Pittsburgh, Pennsylvania, where the Monongahela and Allegheny Rivers converge.
- The Ohio River is 981 miles long & borders six states, including Pennsylvania, West Virginia, Ohio, Kentucky, Indiana, and Illinois.
- The Ohio River ends in Cairo, Illinois, and flows into the Mississippi River.
- Almost 10 percent of the U.S. population lives within the Ohio River Basin.

How does the Evansville Water Department treat your drinking water?

River water is pumped in from the Ohio River at the intake structure using vertical turbine pumps that sit a few feet from the bottom of the Ohio River. Potassium Permanganate is added to the water during parts of the year to control zebra mussels and to oxidize manganese and iron that is coming in from the river water. An in-line gas chromatograph (INFICON CMS-5000) monitors this incoming water for petroleum-based compounds and volatile organics that may be present in the river water. In the event that contaminants are detected, powder-activated carbon is added to our process to remove contamination. The intake water is then pumped to a coagulation/flocculation basin where a polyaluminum coagulant is added to manipulate electrostatic charges on suspended particles in the water and cause them to clump together and form floc. Once the particles are clumped, they become dense and can settle out of suspension. The water is pumped from the flocculation basin into a settling basin with adequate time for the floc to settle. When the water leaves the settling basin, chlorine is added to kill pathogens that may be present and potentially cause disease. The water is then sent to a second settling basin where the chlorine has contact time to kill pathogens. After secondary settling, caustic soda may be added to control the pH of the water and prevent corrosive water in the distribution system. Fluoride is also added to protect teeth, and ammonia is added to form a chloramine with the remaining chlorine; chloramine residuals are maintained through our distributed water system to ensure that continuous disinfection can occur. The water is then allowed to filter on dual-media filtration beds to remove any remaining suspended solids. After filtration, we store our finished water in underground reservoirs called clear wells, and the water is pumped from here into the distribution system to meet the demands of our customers. At every point of our process, including the water flowing through the distribution system, the staff tests and monitors the water quality using EPA standardized methods.

In 2023, the average daily demand was approximately 24.4 (MGD) million gallons of water.

What is in my drinking water?

Substances Expected to be in Drinking Water

To ensure that tap water is safe to drink, USEPA sets regulations limiting the amount of certain contaminants allowed 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. 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 Information Hotline at (800) 426-4791.**

The sources of drinking water (both tap 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 are commonly found in surface water sources.

Pesticides and herbicides, also come from a variety of sources such as agriculture, stormwater runoff, and residential uses.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming wastes also are found in source water.

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

Information about Lead in Your 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. The Evansville Water and Sewer Utility is responsible for providing high quality drinking water, but cannot control the variety of materials used in private residence 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 can 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.

Lead in drinking water. Replacing lead service lines is important to protect all Americans from the most common source of lead in drinking water systems. Lead most commonly enters drinking water when lead pipes, faucets, and plumbing fixtures corrode. Lead pipes and plumbing are more likely to be found in older cities and homes built before 1986. The Evansville Water and Sewer Utility advises homes older than 1950 are more likely to have lead pipes that connect a water main to a residence or commercial building.

Check your drinking water. Contact the Evansville Water and Sewer Utility to find out if you have a lead service line connected to your home. You may also use EPA's tool to help identify service line materials in your home. The tool is available at www.epa.gov/ground-water-and-drinking-water/protect-your-tap-quick-check-lead. You can test your tap water - if there is lead in it, you can take steps to reduce or eliminate exposure.

Reduce your exposure. Removal of lead pipes and plumbing fixtures can significantly reduce the risk of exposure to lead in drinking water. Use only cold water for activities such as drinking, cooking, and making baby formula. Don't boil water to remove lead. Regularly clean your faucet's screen. Consider using a water filter certified to remove lead and know when it's time to replace it. Flush your pipes by running your water, taking a shower, or doing laundry. For more information, see EPA's Basic Information about Lead in Drinking Water at www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water#reducehome.

Table Definitions

AL (Action Level) – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must 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.
MCLGs (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) & MRDLG (Maximum Residual Disinfectant Level Goal) - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of disinfectant is necessary for the control of microbial contaminants.
MRL (Minimum Reporting Level) **BDL (Below Detectable Limit)** **N/A (Not Applicable)**
NTU (Nephelometric Turbidity Units) - The standard measurement of turbidity
ppt (parts per trillion)
1 nanogram in 1 liter Approximately 1 drop in 10,000,000 gallons
ppb (parts per billion)
1 microgram in 1 liter Approximately 1 drop in 10,000 gallons
ppm (parts per million)
1 milligram in 1 liter Approximately 1 drop in 10 gallons
pCi/L (picocuries per liter) - Measurement of the natural rate of disintegration
TTHMs (Total Trihalomethanes) - Disinfection by-product of chlorination
TT (Treatment Technique) - A required process intended to reduce the level of a contaminant in water

Regulated Contaminants							
Substance (unit)	**Year Tested**	**MCL**	**MCLG**	**Average Detected**	**Range (low-high)**	**Violation**	**Source**
Atrazine (ppb)	2023	3	3	0.26** 0.2*	0.0 – 1.79** 0.0-0.2*	No	Herbicide Runoff
**Data is pulled from testing run daily from April through October in the EWSU Filtration Lab. *Data is pulled from SOC testing ran in February, May, August, and November using a third party laboratory.							
2,4-D (ppb)	2023	70	70	0.2	0-0.2	No	Herbicide Runoff
Barium (ppm)	2023	2	2	BDL	BDL	No	Erosion of natural deposits, discharge of drilling wastes
Fluoride (ppm)	2023	4	4	0.68** 0.66	0.37 -- 0.82 ** 0.66	No	Chemical addition for improving dental health
** Data is pulled from testing run daily in the EWSU Filtration Lab. *Data is pulled from IOC testing run in January using a third-party laboratory.							
Nitrate (ppm)	2023	10	10	2.13** 1.09	0.50 -3.60** 1-1.09	No	Runoff from fertilizer use, septic tanks
**Data is pulled from distribution testing run weekly in the EWSU Filtration Lab. *Data is pulled from IOC testing run in January using a third-party laboratory.							
Lead (ppm)[1]	2021	AL= 0.015	0	90 % = ≤0.001	≤ 0.001 - 0.036[2]	No	Corrosion of household plumbing
Copper (ppm)[3]	2021	AL=1.3	0	90 % = ≤0.025	≤ 0.025 - 0.056	No	Corrosion of household plumbing
Total Coliform Bacteria[4] (presence / Absence)	2023	5% or 6 Positive Annual	NA	In September, 0.81% of the sample(s) returned positive		No	Naturally present in the environment
Turbidity (NTU)[5]	2023	0.3 NTU - TT[5]	NA	0.07	0.02-0.16	No	Soil Runoff

Substance (unit)	**Sample Point**	**Year Tested**	**MCL**	**MCLG**	**Locational Running Annual Average**	**Range**	**Violation**	**Source**
Total Haloacetic Acids (ppb)	Airport	2023	60	0	30	15.8 - 47.7	No	Byproduct of Chlorination
Total Haloacetic Acids (ppb)	Ameriqual	2023	60	0	29	17.3 - 41.8	No	Byproduct of Chlorination
Total Haloacetic Acids (ppb)	Caren & W. Haven Dr.	2023	60	0	31	15.5 - 53.9	No	Byproduct of Chlorination
Total Haloacetic Acids (ppb)	Franklin Schissler	2023	60	0	36	16 - 66.5	No	Byproduct of Chlorination
Total Haloacetic Acids (ppb)	Grimm Road Tank	2023	60	0	34	16.5 - 57.3	No	Byproduct of Chlorination
Total Haloacetic Acids (ppb)	Midwest Systems	2023	60	0	26	13.1 - 39	No	Byproduct of Chlorination
Total Haloacetic Acids (ppb)	Rosebud	2023	60	0	25	15.9 - 31.9	No	Byproduct of Chlorination

Total Haloacetic Acids (ppb)	Stringtown and Diamond	2023	60	0	26	15.2 - 40.2	No	Byproduct of Chlorination
Total Haloacetic Acids (ppb)	Plant	2023	60	0	22	14.1-32.8	No	Byproduct of Chlorination
Total Trihalomethanes (ppb)	Airport	2023	80	0	41	21.4 - 56.7	No	Byproduct of Chlorination
Total Trihalomethanes (ppb)	Ameriqual	2023	80	0	42	23.1 - 63.4	No	Byproduct of Chlorination
Total Trihalomethanes (ppb)	Caren & W. Haven Dr.	2023	80	0	39	16.9 - 54.6	No	Byproduct of Chlorination
Total Trihalomethanes (ppb)	Franklin Schissler	2023	80	0	44	21 - 66.7	No	Byproduct of Chlorination
Total Trihalomethanes (ppb)	Grimm Road Tank	2023	80	0	39	22.1 - 52.9	No	Byproduct of Chlorination
Total Trihalomethanes (ppb)	Midwest Systems	2023	80	0	45	24.6 - 63.6	No	Byproduct of Chlorination
Total Trihalomethanes (ppb)	Rosebud	2023	80	0	37	22.2 - 50	No	Byproduct of Chlorination
Total Trihalomethanes (ppb)	Stringtown and Diamond	2023	80	0	44	23.2 - 59.8	No	Byproduct of Chlorination
Total Trihalomethanes (ppb)	Plant	2023	80	0	38	21.4-54.4	No	Byproduct of Chlorination

Disinfectant

Substance (unit)	Year Tested	MRDL	MRDLG	Amount Detected	Range (low-high)	Violation	Source
Total Chlorine/chloramines (ppm)[7]	2023	4	4	3	0.3-3.6	No	Residual Disinfection

Total Organic Carbon (TOC)[8]

Substance (unit)	Year Tested	MRDL	MRDLG	Amount Detected	Range (low-high)	Violation	Source
TOC River (ppm)	2023	TT[6]	NA	3.77	2.40—6.10	No	See Below
TOC Plant (ppm)	2023	TT[6]	NA	2.24	1.30—3.20	No	See Below

Unregulated Contaminants

Substance (unit)	Year Tested	Amount Detected
Nickel (ppb)	2023	BDL
Sodium(ppm)	2023	21.1
Sulfate (ppm)	2023	39.2

Radioactive contaminants – 0.0 % Gross Alpha – footnote 9

Beginning in January 2002, our water system was required to monitor effluents from all filter beds using in-line Turbidimeters constantly. **Water Hardness (Ca, Mg) – Evansville Water's Average Total Hardness concentration for 2022 was 136 ppm (7.9 gr/gal).**

[1] Samples are collected in 61 homes throughout the city every third year (sampled in 2021). Lead and Copper Results are evaluated against an Action Level, not a Maximum Contaminant Level. When concentrations in more than 10% of samples are over the Action Level, there is an Action Level Exceedance that requires

notification to consumers of the health risks of Lead and Copper in drinking water. There was no Action Level Exceedance for the 61 samples tested in 2021 based on the 90th percentile value. Lead and Copper Rules are found in the Indiana Administrative Code at 327 IAC 8-2-36.

[2]One sample site exceeded the action level for lead and was retested; the second test did not exceed the action level, and both results were reported to the homeowner.

[3] Samples are collected annually and in 61 homes throughout the city every third year (sampled in 2021). There was not an Action Level Exceedance based on the 90th Percentile Rule.

[4] A group of bacteria that live in large numbers in the intestines of man and animals. Their presence is an indicator of possible contamination from human or animal waste. On average, 120 samples were collected throughout the city each month and tested for the presence or absence of total coliform bacteria. One sample in September tested positive for total coliform bacteria, and the follow-up sample was negative.

[5]Turbidity is the measure of the cloudiness of the water. It is a good indicator of the effectiveness of our filtration system. Combined effluent turbidity is measured every four hours and must be <0.3 NTU in 95% of monthly measurements. All effluent water was completely within the required limits.

[6]Treatment Technique (TT): A required filtration process intended to reduce the level of turbidity and contaminants in drinking water.

[7]Total chlorine includes chloramines. Chloramines have the same effect as chlorine for typical water uses, and both must be removed from water used in kidney dialysis and fish tanks or aquariums. Please contact your doctor regarding kidney dialysis. You may contact your pet store or the Evansville Filtration Plant regarding fish or other aquatic life.

[8] A composite measurement of organic constituents. It is used to track the overall organic content of the water. This is an important measure for surface waters, such as the Ohio River, because it correlates with the production of disinfection by-products during chlorination. Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

[9] -2019 **Gross Alpha** Highest 0.82 pc/L **Radium 228** Avg <0.56 range 0 – 0 pC/L BDL -EWSU is scheduled to test every nine years for Gross Alpha and Radium 228.

Unregulated Contaminant Monitoring Rule 5 (UCMR5)

As part of its responsibilities under the Safe Drinking Water Act (SDWA), the U.S. Environmental Protection Agency (EPA) implements Section 1445(a)(2), Monitoring Program for Unregulated Contaminants. SDWA requires that once every five years, EPA issue a list of priority unregulated contaminants to be monitored by certain public water systems across States, Tribes, and Territories. These contaminants may be present in drinking water but are not yet subject to EPA drinking water standards. Under the Unregulated Contaminant Monitoring Rule (UCMR), EPA collects nationally representative drinking water occurrence data to support EPA's future regulatory determinations and, as appropriate, assist in the development of national primary drinking water regulations (NPDWRs). For each UCMR cycle, EPA establishes a new list of contaminants for monitoring, specifies which systems are required to monitor, identifies the sampling locations, and defines the analytical methods to be used.

Evansville Water and Sewer Utility was required to sample 29 PFAs contaminants and Lithium at the entry point to the distribution system. EWSU sampled on 2/7/23, 5/9/23, 8/14/23, 11/13/23, and 1/24/24 and all tests came back below detection limits for the 29 PFAs contaminants. **Lithium was detected at 14.6 µg/L during the 8/14/23 test and 10.4 µg/L during the 11/13/23 test, the results were below detection limits for the 2/7/23 test.**

Information on Lithium from the EPA's Technical Summary*, Lithium in Drinking Water A Resource for Primacy Agencies* (https://www.epa.gov/system/files/documents/2023-11/ucmr5-technical-fact-sheet-lithium-in-drinking-water.pdf)

- Lithium is a naturally occurring metal, has numerous commercial uses including as a main component of batteries, and is likely found in a variety of foods. Lithium is also used as a pharmaceutical to treat certain medical conditions.
- Lithium is on EPA's Fifth Contaminant Candidate List (CCL 5), a priority list of drinking water contaminants that may require future regulation under the Safe Drinking Water Act. Lithium was selected for the Fifth Unregulated Contaminant Monitoring Rule (UCMR 5) to better inform research and determine whether lithium poses health risks to people through drinking water from public water systems.
- EPA continues to assess the literature for health effects information, identify data gaps, and determine the need for future studies to improve our understanding of the possible health risks associated with lithium in public drinking water.
- Research on the use of lithium as a pharmaceutical indicates that exposure at certain levels may be connected to adverse effects on the body's kidneys and nervous system. While the health effects in patients receiving lithium at therapeutic levels have been documented, there is limited information available to evaluate health risks for people exposed to lower levels of lithium via drinking water.
    - EPA does not currently have an EPA Health Advisory for lithium in drinking water. The screening Health Reference Level (HRL) of 10 µg/L from CCL 5 is based on adverse effects observed in patients administered lithium therapeutically, not at levels expected to be found in drinking water. The occurrence data gathered by UCMR 5 will help inform future steps the Agency may take to protect public health.
- Lithium cannot be removed by heating, boiling, or disinfecting water. Certain drinking water treatment approaches can reduce exposure. The U.S. Food and Drug Administration (FDA) has not established a standard for lithium in bottled water.

Unregulated Contaminant Monitoring Rule 5 (UCMR5)				
Contaminant	**MRL (µg/L)**	**Amount Detected**	**Range (low-high)**	**Additional Information**
25 PFAS: EPA Method 533				
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	0.005	BDL	BDL	PFAS are a group of synthetic chemicals used in a wide range of consumer products and industrial applications including: non-stick cookware, water-repellent clothing, stain resistant fabrics and carpets, cosmetics, firefighting foams, electroplating, and products that resist grease, water, and oil. PFAS are found in the blood of people and animals and in water, air, fish, and soil at locations across the United States and the world.
1*H*,1*H*, 2*H*, 2*H*-perfluorodecane sulfonic acid (8:2FTS)	0.005	BDL	BDL	
1*H*,1*H*, 2*H*, 2*H*-perfluorohexane sulfonic acid (4:2FTS)	0.003	BDL	BDL	
1*H*,1*H*, 2*H*, 2*H*-perfluorooctane sulfonic acid (6:2FTS)	0.005	BDL	BDL	
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	0.003	BDL	BDL	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	0.002	BDL	BDL	
hexafluoropropylene oxide dimer acid (HFPO-DA)(GenX)	0.005	BDL	BDL	
nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0.02	BDL	BDL	
perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0.003	BDL	BDL	
perfluoro-3-methoxypropanoic acid (PFMPA)	0.004	BDL	BDL	
perfluoro-4-methoxybutanoic acid (PFMBA)	0.003	BDL	BDL	
perfluorobutanesulfonic acid (PFBS)	0.003	BDL	BDL	
perfluorobutanoic acid (PFBA)	0.005	BDL	BDL	
perfluorodecanoic acid (PFDA)	0.003	BDL	BDL	
perfluorododecanoic acid (PFDoA)	0.003	BDL	BDL	
perfluoroheptanesulfonic acid (PFHpS)	0.003	BDL	BDL	
perfluoroheptanoic acid (PFHpA)	0.003	BDL	BDL	
perfluorohexanesulfonic acid (PFHxS)	0.003	BDL	BDL	
perfluorohexanoic acid (PFHxA)	0.003	BDL	BDL	
perfluorononanoic acid (PFNA)	0.004	BDL	BDL	
perfluorooctanesulfonic acid (PFOS)	0.004	BDL	BDL	
perfluorooctanoic acid (PFOA)	0.004	BDL	BDL	
perfluoropentanesulfonic acid (PFPeS)	0.004	BDL	BDL	
perfluoropentanoic acid (PFPeA)	0.003	BDL	BDL	
perfluoroundecanoic acid (PFUnA)	0.002	BDL	BDL	
4 PFAS: EPA Method 537.1				
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.005	BDL	BDL	See above for PFAS information.
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.006	BDL	BDL	

perfluorotetradecanoic acid (PFTA)	0.008	BDL	BDL	
perfluorotridecanoic acid (PFTrDA)	0.007	BDL	BDL	
Metal/Pharmaceutical: EPA Method 200.7; SM3 3120 B (2017); SM3 3120 B-99 (1999); ASTM4 D1976-20				
lithium	9	8.3	<9 – 14.6	Naturally occurring metal that may concentrate in brine waters; lithium salts are used as pharmaceuticals, used in electrochemical cells, batteries, and in organic syntheses

Evansville Water & Sewer Utility
Water Filtration Plant
1301 Waterworks Road
Evansville, IN 47713

Special 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 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 at (800) 426-4791.**

Additional Resources

The USEPA Office of Water (https://www.epa.gov/aboutepa/about-office-water), the **USEPA Office of Ground Water and Drinking Water (epa.gov/safewater)**, and the **Center for Disease Control and Prevention (www.cdc.gov)** websites provide a substantial amount of information on many issues relating to water resources, water conservation, and public health.

The Indiana Department of Environmental Management also has a website **(www.in.gov/idem)** that provides complete and current information on water issues in our state.

The Ohio River Valley Sanitation Commission (ORSANCO) (www.orsanco.org), located in Cincinnati, OH, is a wealth of information on the Ohio River and its conditions.

About This Report

This report contains the results of contaminants detected as well as testing parameters. To request a paper copy of this report, please call **Customer Service at 812-436-7846**.

Need Additional Help?

To report a broken water main, call 812-421-2130 24 hours a day. For Boil Advisory status information, go to ewsu.com/projectadvisorymap.

If you have any questions regarding Evansville's water system, contact the **Drinking Water Quality Manager at 812-428-0568.**