

City of Lancaster 2022 ANNUAL DRINKING WATER QUALITY REPORT

PWSID #: 7360058



Susquehanna River



Conestoga River

(Photos by Will Parson/Chesapeake Bay Program)

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, ó hable con alguien que lo entienda. (This report contains important information about your drinking water. Have someone translate it for you or speak with someone who understands it).

WATER SYSTEM INFORMATION:

This report describes the City of Lancaster's water quality and what it means. We want you, our customer, to be informed about your water supply. If you have any questions about this report or concerning your water utility, please contact the water quality lab at (717) 291-4818.

SOURCES OF WATER:

Our sources of water are the Conestoga River and the Susquehanna River located in Lancaster County. A Source Water Assessment was completed in 2012 by the PA Department of Environmental Protection (PA DEP). The Assessment found our sources are potentially susceptible to agricultural activity, accidental spills along roads and urban runoff. Overall, our sources have a low risk of significant contamination. The assessment is available at: <http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-59455/RS7360058001%20City%20of%20Lancaster%20BofW.pdf>. Complete reports were distributed to municipalities, water suppliers, local planning agencies and PA DEP offices. Copies of the complete report are available at the PA DEP Regional Office, Records Management Unit at 484-250-5910

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as individuals 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* (800-426-47

MONITORING YOUR WATER:

City staff routinely monitor for contaminants in your drinking water according to federal and state laws. The following tables show the results of our monitoring for the period of January 1 to December 31, 2022. 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 is from prior years, in accordance with the Safe Drinking Water Act. The date has been noted on the sampling results table.

DEFINITIONS:

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

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.

Minimum Residual Disinfectant Level (MinRDL) - The minimum level of residual disinfectant required at the entry point to the distribution system.

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

ppb = parts per billion, or micrograms per liter

pCi/L = picocuries per liter, measure of radiation

ppq = parts per quadrillion or picograms per liter

mrem/year = millirems per year

ppm = parts per million or milligrams per liter **ppt** = parts per trillion or nanograms per liter

EPA – United States Environmental Protection Agency

FDA – United States Food and Drug Administration

PA DEP - Pennsylvania Department of Environmental Protection

DETECTED SAMPLE RESULTS: SUSQUEHANNA PLANT; ENTRY POINT 101

Chemical Contaminants								
Contaminant	MCL in CCR Units	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Fluoride	2*	2	0.68	---	ppm	2022	N	Water additive that promotes strong teeth.
Barium	2	2	0.022	---	ppm	2022	N	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Nitrate	10	10	1.34	---	ppm	2022	N	Runoff from fertilizer use; Leaching from septic tanks, Sewage; Erosion of natural deposits
Nickel	NA ⁺	NA	1	---	ppb	2022	N	Erosion of natural deposits; Discharge from industrial processes

* EPA's MCL for fluoride is 4 ppm. However, Pennsylvania has set a lower MCL to better protect human health.

+EPA does not have an MCL for Nickel, however water systems are still required to test yearly for Nickel.

Turbidity						
Contaminant	MCL	MCLG	Level Detected	Sample Date	Violation Y/N	Source of Contamination
Turbidity	TT=1 NTU for a single measurement	0	0.03 NTU	01/11/22	N	Soil runoff.
	TT= at least 95% of monthly samples ≤ 0.15 NTU		≤ 0.15 NTU 100% of the time	Jan - Dec 2022	N	

DETECTED SAMPLE RESULTS: SUSQUEHANNA PLANT; ENTRY POINT 101 CONTINUED

Total Organic Carbon (TOC)					
Contaminant	Range of percent Removal Required	Range of percent removal achieved	Number of quarters out of compliance	Violation Y/N	Sources of Contamination
TOC	0% - 35%	22% - 35%	0	N	Naturally present in environment.

Entry Point Disinfectant Residual: Susquehanna and Conestoga Treatment Plants							
Contaminant	MinRDL	Lowest Level Detected	Range of Detections	Units	Date of Lowest Sample	Violation Y/N	Sources of Contamination
Susquehanna Plant Chlorine	0.20	0.88	0.88 - 2.13	ppm	02/05/22	N	Water additive used to control microbes.
Conestoga Plant Chlorine	0.20	0.25	0.25 - 1.46	ppm	02/04/22	N	Water additive used to control microbes.

DETECTED SAMPLE RESULTS: CONESTOGA WATER PLANT; ENTRY POINT 102

Chemical Contaminants								
Contaminant	MCL in CCR Units	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Fluoride	2*	2	0.58	---	ppm	2022	Y+	Water additive to promote strong teeth.
Nitrate	10	10	5.77	Four samples 2.92 – 5.77	ppm	2022	N	Runoff from fertilizer use.
Barium	2	2	0.053	---	ppm	2022	N	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposit
Atrazine	3	3	0.25	---	ppb	2022	N	Runoff form Herbicides used on row crops

*EPA's MCL for fluoride is 4 ppm. However, Pennsylvania has set a lower MCL to better protect human health.

+There was a Tier 2 Violation for an MCL and monitoring. For further explanation see violation section.

Turbidity						
Contaminant	MCL	MCLG	Level Detected	Sample Date	Violation Y/N	Source of Contamination
Turbidity	TT=1 NTU for a single measurement	0	0.02 NTU	02/04/22	N	Soil runoff.
	TT= at least 95% of monthly samples ≤ 0.15 NTU		≤ 0.15 NTU 100% of the time	Jan - Dec 2022	N	

DETECTED SAMPLE RESULTS: CONESTOGA WATER PLANT; ENTRY POINT 102 CONTINUED

Total Organic Carbon (TOC)					
Contaminant	Range of % Removal Required	Range of percent removal achieved	Number of quarters out of compliance	Violation Y/N	Sources of Contamination
TOC	0% – 35%	-5%* - 42%	0	N	Naturally present in environment.

* The sample in January was out of range but the sample still met compliance by the running annual average being 1.0 or more and performance ratio is 1.0 or more.

DETECTED SAMPLE RESULTS: DISTRIBUTION SYSTEM

Distribution Disinfectant Residual							
Contaminant	MRDL	Highest Average Result	Range of Monthly Avg Results	Units	Month w/ Highest Avg. Result	Violation Y/N	Sources of Contamination
Chlorine	4.0	0.84	0.65 - 0.84	ppm	December 2022	N	Water additive used to control microbes.

Disinfection Byproducts								
Contaminant	MCL in CCR Units	MCLG	Highest LRAA	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Haloacetic Acids	60	n/a	41	0 – 56.2	ppb	2022	N	By-product of disinfection
Trihalomethanes	80	n/a	66	12.9 - 125	ppb	2022	N	By-product of disinfection

*Violation of MCL is based on **Running Annual Average**

Lead and Copper								
Contaminant	Action Level (AL)	MCLG	90th Percentile Value	Units	# of Sites Above AL of Total Sites	Sample Date	Violation Y/N	Sources of Contamination
Lead	15	0	9.9	ppb	2 of 50	2022	N*	Corrosion of home plumbing.
Copper	1.3	1.3	0.283	ppm	1 of 50	2022	N*	Corrosion of home plumbing

*Violation is based on 90th Percentile Value for Lead and Copper.

DETECTED SAMPLE RESULTS: DISTRIBUTION SYSTEM CONTINUED

Microbial (related to Assessments/Corrective Actions regarding TC positive results)					
Contaminants	TT	MCLG	Assessments/ Corrective Actions	Violation Y/N	Sources of Contamination
Total Coliform Bacteria	Any system that has failed to complete all the required assessments or correct all identified sanitary defects, is in violation of the treatment technique requirement	N/A	0	N	Naturally present in the environment.
Microbial (related to E. coli)					
Contaminants	MCL	MCLG	Positive Sample(s)	Violation Y/N	Sources of Contamination
<i>E. coli</i>	Routine and repeat samples are total coliform-positive and either is <i>E. coli</i> -positive or system fails to take repeat samples following <i>E. coli</i> -positive routine sample or system fails to analyze total coliform-positive repeat sample for <i>E. coli</i> .	0	0	N	Human and animal fecal waste.
Contaminants	TT	MCLG	Assessments/ Corrective Actions	Violation Y/N	Sources of Contamination
<i>E. coli</i>	Any system that has failed to complete all the required assessments or correct all identified sanitary defects, is in violation of the treatment technique requirement.	N/A	0	N	Human and animal fecal waste.

VIOLATIONS:

Tier 2 Fluoride Violation: Lancaster routinely tests Fluoride levels due to Fluoride being an additive for cavity prevention. Fluoride levels were not tested **December 24 to December 27, 2022**. Results on **December 28, 2022**, from the Conestoga Treatment Plant exceeded PA DEP MCL of 2.0 mg/L. The level measured on **December 28, 2022**, was **2.31 mg/L**.

A Tier 2 Violation Notice (Letter) was sent **1/20/22** to all customers that could have been affected by this Fluoride violation.

Since then, the City implemented multiple daily fluoride tests and established dosage control. Since the violation all Fluoride levels are in compliance.

Fluoride Health Information:

At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/L) of fluoride may develop cosmetic discoloration or their permanent teeth (dental fluorosis) over a prolonged exposure period.

Dental fluorosis is caused by taking in too much fluoride over a prolonged period when the teeth are forming under the gums. Only children aged 8 years and younger are at risk because this is when permanent teeth are developing; children older than 8 years, adolescents, and adults cannot develop dental fluorosis. This problem occurs only in developing teeth before they erupt from the gums. Dental fluorosis, in its moderate or severe forms, may result in a brown staining and or pitting of the permanent teeth. Drinking water containing more than 4 mg/L of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Please note that the recorded Lancaster Fluoride level was 2.31 mg/L. Most Toothpaste sold in the United States contains fluoride in the form of sodium fluoride or monofluorophosphate, most commonly at a level of 1,000 to 1,000 mg/L (about 1.3 mg in a quarter teaspoon used for one brushing). The amount of fluoride ingested from toothpaste depends on the amount used, the person's swallowing control, and how often the person uses toothpaste. Please see the links below for more information on fluoride.

NIH-[https://ods.od.nih.gov/factsheets/Fluoride-HealthProfessional/#:~:text=Most%20toothpaste%20sold%20in%20the,one%20brushing\)%20%5B3%5D](https://ods.od.nih.gov/factsheets/Fluoride-HealthProfessional/#:~:text=Most%20toothpaste%20sold%20in%20the,one%20brushing)%20%5B3%5D).

CDC-

https://www.cdc.gov/fluoridation/faqs/dental_fluorosis/index.htm#:~:text=Dental%20fluorosis%20is%20caused%20by,adults%20cannot%20develop%20dental%20fluorosis

ADA-<https://www.ada.org/resources/community-initiatives/fluoride-in-water>

EDUCATIONAL INFORMATION:

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 stormwater run-off, 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 can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA and PA DEP prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. FDA and PA DEP 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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

CRYPTOSPORIDIUM MONITORING:

Cryptosporidium monitoring was performed for both sources of drinking water, Conestoga River and Susquehanna River. Cryptosporidium is a microbial pathogen found in source water throughout the US. The monitoring took place from April 2015 to March 2017. Results indicated that Cryptosporidium was present in both sources of water. This was only for our source water. Cryptosporidium was not detected in the finished water delivered to customers. Our water plants do everything to try to ensure NO Cryptosporidium is in our finished water. Ultrafiltration Membrane technology is used by both plants to ensure the removal of this pathogen. This type of filtration can filter out particles and microorganisms much smaller than conventional filtration. Log Inactivation monitoring is also implemented to ensure proper disinfection. Even though 100 percent removal and disinfection of Cryptosporidium cannot be guaranteed, there is no reason to be concerned, based on the results of the Cryptosporidium monitoring of the source water.

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. The City of Lancaster, Bureau of Water is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. Lead was not detected in City drinking water when it leaves the treatment plants and underground pipes. When your water has been sitting for several hours, you can minimize the potential for lead exposure from pipe materials by flushing your tap for 2 to 5 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>. For information about lead, go to the city web site: <https://www.cityoflancafterpa.gov/services/water-sewer/>. If you have questions about City drinking water, contact the water quality lab at 717-291-4818.

OTHER INFORMATION:

About Nitrate: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

Sodium:

Sodium levels were tested on February 2, 2022, the results were 46.7 mg/L. This is above the recommended level of 20 mg/L. This may be a concern for those on sodium restricted diets. If you have concerns, please consult with your health provider.