

This report is intended to provide you with important information about your drinking water and the efforts made by the Columbus Department of Public Works, Water Production Division to provide safe drinking water. For more information regarding this report, contact: Bob Kloke, Water Production Supervisor at 402-562-4248. If you would like to observe in the decision-making processes that affect drinking water quality, please attend the regularly scheduled meeting of the Columbus City Council. If you would like to participate in the process, please contact the Columbus City Clerk to arrange to be placed on the agenda of the City Council.

(Para Clientes Que Hablan Español: Este informe contiene información muy importante sobre el agua que usted bebe. Tradúzcalo o hable con alguien que lo entienda bien.)

Water Meets All Federal and State Requirements:

Our goal is to provide you with high quality, safe drinking water that meets or surpasses every Federal and State standard. Since we do not have the capability or resources to determine the health risk of any chemical compound found in water, we must rely on the U.S. Environmental Protection Agency (EPA) and Nebraska Dept. of Health & Human Services (NDHHS) to tell us what substances are a health risk, and if there is a health risk, what levels are safe for human consumption.

Sources of Drinking Water:

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and groundwater 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.

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 at 800-426-4791.

The source of drinking water used by the City of Columbus is groundwater. This water is pumped from wells maintained by the City of Columbus.

Source Water Assessment Availability:

The Nebraska Department of Environmental Quality (NDEQ) has completed the Source Water Assessment. Included in the assessment are a Wellhead Protection Area map, potential contaminant source inventory, vulnerability rating, and source water protection information. To view the Source Water Assessment or for more information, please contact Bob Kloke, Water Production Supervisor at 402-562-4248, or contact NDEQ at 402-471-6988, or go to www.deq.state.ne.us.

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

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.

Drinking Water Health Notes:

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 (U.S. Centers for Disease Control and Prevention) 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), or the Department of Health and Human Services, Division of Public Health, Office of Drinking Water at 402-471-2541.

Infants, young children, and pregnant women are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested. Flushing your tap for 30 seconds to two (2) minutes before using your tap water will clear the line of any lead that may have leached into the water while the line was idle. Additional information is available from EPA's Safe Drinking Water Hotline (800-426-4791), or the NDHHS, Division of Public Health/Office of Drinking Water (402-471-2541).

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. All Community water systems are 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 drinking water, testing methods, and steps you can take to minimize exposure, is available from the Safe Drinking Water Hotline (800-426-4791) at <http://www.epa.gov/safewater/lead> or at the DHHS/DPH/Office of Drinking Water (402-471-2541.)

Columbus Water Production Staff/System has sampled for a series of unregulated contaminants during the 2015 sampling year. Unregulated contaminants are those that don't yet have a drinking water standard set by the EPA. The purpose of monitoring for these contaminants is to help the EPA decide whether the contaminants should have a standard. Below are the detected monitoring results from our wells and our distribution system. If you wish to see the full set of results, contact Bob Kloke, Water Production Supervisor at 402-562-4248.

Unregulated Contaminants (Well Samples)	Monitoring Period	Average	Range	Unit	Unregulated Contaminants (Distribution System Samples)	Monitoring Period	Average	Range	Unit
MOLYBDENUM	April 2015	3.8	3.8 – 5.8	µg/L	MOLYBDENUM	April 2015	4.95	4.7 – 5.2	µg/L
STRONTIUM	April 2015	466	460 – 480	µg/L	STRONTIUM	April 2015	405	350 – 460	µg/L
VANADIUM	April 2015	2.5	2.1 – 3.0	µg/L	VANADIUM	April 2015	1.4	1.1 – 1.7	µg/L
CHLORATE	April 2015	76	0 – 76	µg/L	CHLORATE	April 2015	62.5	50 – 75	µg/L
CHROMIUM - 6	April 2015	0.072	0 – 0.072	µg/L	CHROMIUM - 6	April 2015	0.046	0 – 0.046	µg/L
1,4-DIOXANE	April 2015	.013	0.12 – 0.14	µg/L	1,4-DIOXANE	April 2015	0	0	µg/L
1,1-DICHLOROETHANE	April 2015	0.36	0 – 0.36	µg/L	1,1-DICHLOROETHANE	April 2015	0	0	µg/L

This report is also available on the state's web site for the Nebraska Department of Health and Human Services System (NDHHS) at http://www.hhs.state.ne.us	Bob Kloke, Water Production Supervisor Chuck Silva, Water Utility Supervisor	402-562-4248 402-562-4246
For this and previous issues of the Annual Water Quality Report / Consumer Confidence Report (CCR), please see the City of Columbus web site at: http://www.columbusne.us/cr	Paper copies of this CCR are available at Columbus City Hall, 2424 14 Street, or for a paper copy to be mailed to you or e-mailed, please contact: Kay Sprunk, Public Works Senior Office Associate at 402-562-4260.	

TEST RESULTS - (COLLECTED IN 2016 UNLESS NOTED)

Microbiological	Highest No. of Positive Samples	MCL				MCLG	Likely Source of Contamination	Violations Present
COLIFORM (TCR)	In the month of May, 2 sample(s) were positive.	MCL Systems that Collect Less Than 40 Samples per Month – No more than 1 positive monthly sample.				0	Naturally present in the environment.	No-RTCR Assessment
Lead and Copper	Monitoring Period	90 th Percentile	Range	Unit	AL	# Sites Over AL	Likely Source of Contamination	
COPPER, FREE	2014 – 2016	0.964	0.047 – 1.77	ppm	1.3	1	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing.	
LEAD	2014 – 2016	1.66	0.636 – 2.37	ppb	15	0	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing.	
Regulated Contaminants	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Likely Source of Contamination	
ARSENIC	08/17/2016	8.16	5.51 - 8.16	ppb	10	0	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.	
BARIUM	01/05/2015	0.379	0.344 - 0.379	ppm	2	2	Discharge from drilling wastes; discharge from metal refineries; Erosion of natural deposits.	
CARBOFURAN	10/03/2016	0.57	0.57	ppb	40	40	Leaching of soil fumigant used on rice and alfalfa.	
CIS-1,2-DICHLOROETHYLENE	01/20/2016	0.629	0.58 - 0.629	ppb	70	70	Discharge from industrial chemical factories.	
FLUORIDE	01/05/2015	0.686	0.285 - 0.686	ppm	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Fertilizer discharge.	
NITRATE -NITRITE	08/10/2016	0.864	0.311 - 0.864	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.	
Disinfection Byproducts	Monitoring Period	Highest RAA	Range	Unit	MCL	MCLG	Likely Source of Contamination	
TOTAL HALOACETIC ACIDS (HAAs)	07/01/2015 - 06/30/2016	5.22544	0.98 - 8.09	ppb	60	0	By-product of drinking water disinfection.	
TTHM	04/01/2015 - 03/31/2016	32.175	15.9 - 47.6	ppb	80	0	By-product of drinking water disinfection.	
Radiological Contaminants	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Likely Source of Contamination	
COMBINED RADIUM (-226 & -228)	10/11/2016	3.6	3.6	pCi/L	5	0	Erosion of natural deposits.	
GROSS ALPHA, INCL. RADON & U	04/07/2015	3.92	3.92	pCi/L	15	0	Erosion of natural deposits.	
RADIUM-226	10/11/2016	0.884	0.884	pCi/L		0	Erosion of natural deposits.	
RADIUM-228	10/11/2016	2.72	2.72	pCi/L		0	Erosion of natural deposits.	
Unregulated Water Quality Data	Collection Date	Highest Value	Range	Unit	Secondary MCL	How to Read the Water Quality Data Table: The EPA and State Drinking Water Program establish the safe drinking water regulations that limit the amount of contaminants allowed in drinking water. The table shows the concentrations of detected substances in comparison to the regulatory limits. Substances not detected are not included in the table. The state requires monitoring of certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Therefore, some of this data may be older than one year.		
NICKEL	09/12/2016	0.00326	0.00311 - 0.00326	mg/L	0.1	The tables above contain scientific terms and measures, some of which may require explanation.		
SULFATE	09/12/2016	64.5	12.2 - 64.5	mg/L	250			
During the 2016 calendar year, we had the below noted violations(s) of drinking water regulations.						The tables above contain scientific terms and measures, some of which may require explanation.		
Type	Category	Analyte	Compliance Period					
NO Violations Occurred in the Calendar Year of 2016.						The tables above contain scientific terms and measures, some of which may require explanation.		
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Units in the Table: ND: Not detectable. ppm (parts per million) = mg/L (milligrams per liter): One ppm or one mg/L corresponds to 1 gallon of water in 1,000,000 gallons of water. ppb (parts per billion): One ppb corresponds to 1 gallon of water in 1,000,000,000 gallons of water. pCi/L (Picocuries per liter): Radioactivity concentration unit. µg/L (micrograms per liter): Measurement of radioactivity. RAA (Running Annual Average): An ongoing annual average calculation of data from the most recent four quarters. 90 th Percentile: Represents the highest value found out of 90% of the samples taken in a representative group. If the 90 th percentile is greater than the action level, it will trigger a treatment or other requirements that a water system must follow. TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.						MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology. MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety. AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow. MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. RAA (Running Annual Average): An ongoing annual average calculation of data from the most recent four quarters. N/A: Not applicable.		

Additional Required Health Effects Language: 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 one Level 1 assessment. One Level 1 assessment was completed. In addition, we were required to take one corrective action and we completed one action. While your drinking water meets EPA standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. There are no additional required health effects violation notices.

The City of Columbus is required to test for the following contaminants: Coliform Bacteria, Antimony, Arsenic, Asbestos, Barium, Beryllium, Cadmium, Chromium, Copper, Cyanide, Fluoride, Lead, Mercury, Nickel, Nitrate, Nitrite, Selenium, Sodium, Thallium, Alachlor, Atrazine, Benzo(a)pyrene, Carbofuran, Chlordane, Dalapon, Di(2-ethylhexyl)adipate, Dibromochloropropane, Dinoseb, Di(2-ethylhexyl)phthalate, Diquat, 2,4-D, Endothal, Endrin, Ethylene dibromide, Glyphosate, Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane, Methoxychlor, Oxamyl (Vydate), Pentachlorophenol, Picloram, Polychlorinated biphenyls, Simazine, Toxaphene, Dioxin, Silvex, Benzene, Carbon Tetrachloride, o-Dichlorobenzene, Para-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, Cis-1,2-Dichloroethylene, Trans-1,2-Dichloroethylene, Dichloromethane, 1,2-Dichloropropane, Ethylbenzene, Monochlorobenzene, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethylene, Vinyl Chloride, Styrene, Tetrachloroethylene, Toluene, Xylenes (total), Gross Alpha (minus Uranium & Radium 226), Radium 226 plus Radium 228, Sulfate, Chloroform, Bromodichloromethane, Chlorodibromomethane, Bromoform, Chlorobenzene, m-Dichlorobenzene, 1,1-Dichloropropene, 1,1-Dichloroethane, 1,1,2,2-Tetrachloroethane, 1,2-Dichloropropane, Chloromethane, Bromomethane, 1,2,3-Trichloropropane, 1,1,1,2-Tetrachloroethane, Chloroethane, o-Chlorotoluene, p-Chlorotoluene, Bromobenzene, 1,3-Dichloropropene, Aldrin, Butachlor, Carbaryl, Dicamba, Dieldrin, 3-Hydroxycarbofuran, Methomyl, Metolachlor, Metribuzin, Propachlor.

BACKFLOW / CROSS-CONNECTION



What is a Cross-Connection?

A cross-connection is a direct arrangement of a piping line which allows the potable water supply to be connected to a line which contains a non-potable source (contaminant such as pesticides, wastewater, or industrial fluids). Examples are: a common garden hose attached to a sill cock with the end of the hose lying in a cesspool, a garden hose attached to a service sink with the end of the hose submerged in a tub full of detergent, supply lines connected to bottom fed tanks, and supply lines to boilers. Note: The City of Columbus has a Cross-Connection Prevention Program.

What is the most common form of Cross-Connection?

Ironically, the ordinary garden hose is the most common offender as it can be easily connected to the potable water supply and used for a variety of potentially dangerous applications. *Remember - never submerge a hose in a bucket, pool, tub, or sink.* Hose Bib Vacuum Breaker: In these examples, cross-connections can be prevented by installing a Hose Bib (Hose Attached) Vacuum Breaker. The HAVB will prevent the contaminant from being drawn back into the drinking water supply if a change in water pressure occurs.



What is Backpressure Backflow?

Backpressure backflow is the reversal of normal flow in a system due to an increase in the downstream pressure above that of the supply pressure.

What factors can cause Back-Siphonage?

Back-siphonage can be created when there is stoppage of the water supply due to nearby fire-fighting, repairs, or breaks in a city main, etc. The effect is similar to the sipping of an ice cream soda by inhaling through a straw, which induces a flow in the opposite direction.

What is potentially dangerous about an unprotected outside faucet?

The purpose of an outside faucet is to permit easy attachment of a hose for outside watering purposes. However, a garden hose can be extremely hazardous when they are left submerged in swimming pools, lay in elevated locations (above the outside faucet) watering shrubs, or chemical sprayers that are attached to hoses for weed-killing, etc.

For more information, review the Cross-Connection Control Manual from the U.S. EPA's Web Site at <http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm>.

Nebraska State Regulations on Cross-Connection Control
Nebraska Health & Human Services, Regulation & Licensure 179 NAC 22
http://www.sos.ne.gov/rules-and-regs/regsearch/Rules/Health_and_Human_Services_System/Title-179/Chapter-22.pdf

You can also call the Safe Drinking Water Hotline at 800-426-4791.