2018 DRINKING WATER QUALITY REPORT

Bolton Point Municipal Water System

Bolton Point is providing this Drinking Water Quality Report to our consumers because we want you to be fully informed about your water's quality and the need to protect its source. This overview of last year's water quality includes details about where your water comes from, what it contains, and how it compares to State standards. If you have any questions about this report or your drinking water, please contact Glenn Ratajczak, Production Manager, 277-0660, ext. 241, gratajczak@boltonpoint.org or you may attend any of our regularly scheduled public meetings.

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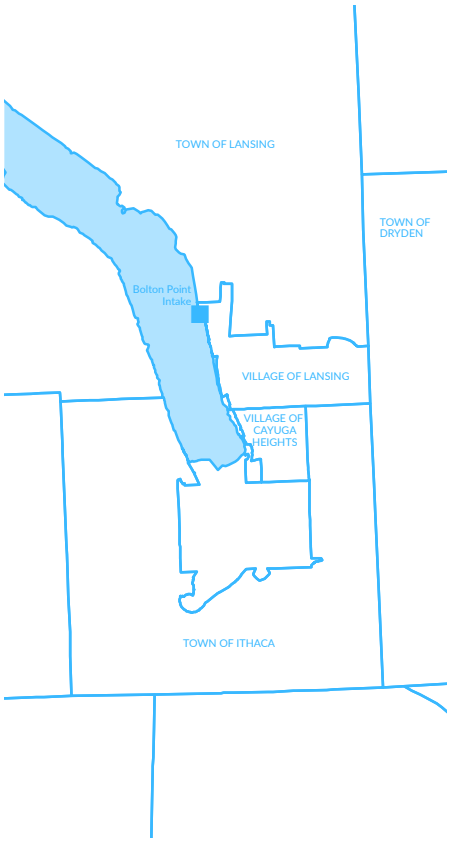
LOCATION AND DESCRIPTION OF WATER SERVICE

Cayuga Lake is the source of water for the Bolton Point Municipal Water System (BP-MWS). The water intake is approximately 3 miles north of Stewart Park, 400 feet out from the eastern shore of Cayuga Lake and 65 feet below the surface of the lake. During 2017, the Bolton Point system did not experience any restriction of its water source.

The system serves residents of the Towns of Dryden, Ithaca and Lansing, and the Villages of Cayuga Heights and Lansing and provides water to some City of Ithaca customers on Oakwood Lane, Hector Street, Warren Place, Sunrise Road and Richards Place. It provides water to other parts of the City and Cornell during emergencies and planned maintenance periods.

Meetings of the Bolton Point Water Commission are held on the first Thursday after the first Tuesday of each month at 4:00 p.m. at the Bolton Point water treatment plant, 1402 East Shore Drive, Ithaca New York, 14850.



COMMON WATER QUALITY DEFINITIONS

ALKALINITY is a measure of the capability of water to neutralize acids. Bicarbonates, carbonates and hydroxides are the most common forms of alkalinity.

HARDNESS is a measure of the calcium and magnesium content of natural waters. The harder the water, the greater the tendency to precipitate soap and to form mineral deposits. Alkalinity and hardness occur naturally due to the contact of water with minerals in the earth's crust.

pH indicates how acidic or alkaline a water sample is. A value of 7 is neutral, 0-6 is acidic and 8-14 is alkaline.

TOTAL ORGANIC CARBON (TOC) is a measure of the organic content of water. A high concentration of TOC in water may lead to high levels of disinfection byproducts.

TURBIDITY is a measure of the cloudiness of water. It is an indication of the effectiveness of water treatment. NYS regulations require that treated water turbidity always be below 1 NTU (nephelometric turbidity unit). For filtered systems 95% of the composite effluent samples must be below 0.3 NTU.

A. WATER TREATMENT PROCESS

Bolton Point uses the following conventional surface water treatment.

PRE-TREATMENT: Coagulating agents such as alum or polymers are added to the water to remove impurities and control taste and odor. A disinfectant is added to destroy microorganisms.

MIXING: The water is rapidly mixed to distribute the treatment chemicals evenly.

COAGULATION AND FLOCCULATION: The water flows into large basins where the coagulants react with impurities in the water (coagulation) causing them to form larger, heavier particles called floc (flocculation).

SEDIMENTATION: Flocculated water flows into basins where the floc particles settle to the bottom, thereby removing impurities and chemicals from the water.

FILTRATION: Following the settling process, water flows through layers of anthracite coal, sand, and garnet where further removal of particulate impurities occurs.

POST-TREATMENT: Chlorine is added to inhibit bacterial growth in the distribution system, and the pH is adjusted to inhibit the corrosion of metal pipes and fixtures.

B. HEALTH EFFECTS AND INDIVIDUALS AT-RISK

All 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 the water poses a health risk.

Some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population. Immuno-compromised persons such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, those with HIV/AIDS or other immune system disorders, some elderly, and some infants can be particularly at risk from infections. These people should seek advice from their health care provider about their drinking water.

Environmental Protection Agency/ Center for Disease Control (EPA/ CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium, giardia, and other microbial pathogens are available from the Safe Drinking Water Hotline (800-426-4791). No trace of either of these pathogens has been detected in previous testing of the treated water of Bolton Point. Individuals who think they may have one of these illnesses should contact their health care provider immediately. For additional information please contact the Tompkins County Health Department, 55 Brown Road, Ithaca, New York 14850 or by phone at 274-6688.

C. WATER QUALITY DATA

INTRODUCTION: The sources of drinking water (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. It also can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include microbial contaminants, inorganic contaminants, pesticides and herbicides, organic chemical contaminants, and radioactive contaminants.

To ensure that tap water is safe to drink, the State and the EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Health Department and Federal Drug Administration regulations also establish limits for contaminants in bottled water, which must provide the same protection for public health.

In accordance with State regulations, Bolton Point routinely monitors your drinking water for numerous contaminants. Table 3 shows the analytical test results for contaminants that were detected. These results are compared to the applicable state guideline or maximum contaminate level (MCL). Table 4 shows the contaminants that were not detected in your water.

The State allows testing less frequently than once per year for some contaminants since the concentrations of these contaminants do not change frequently. Therefore some data, though representative, are more than one year old.

TOTAL COLIFORMS: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present.

D. GENERAL WATER INFORMATION

LEAD AND COPPER: Bolton Point was required to sample for lead in 2017. There were no violations of State standards.

SODIUM: People who are on severely restricted sodium diets should not drink water containing more than 20 mg/l of sodium. Since the 2017 level of sodium in Bolton Point was 30 mg/l, customers on severely restricted sodium diets might wish to consult their health care providers. People who are on moderately restricted sodium diets should not drink water containing more than 270 mg/l of sodium. The sodium levels of the water from Bolton Point are well below this level.

During the course of the year, for maintenance purposes or for emergency help, potable water is exchanged among the three local water systems. If you wish to know if this occurred, the time periods, and the water volumes, please call your water supplier.

Required testing by the EPA for the Unregulated Contaminant Monitoring Rule #3 (UCMR3) was completed by Bolton Point in 2014. Information about the rule and the contaminants can be found on EPA website (epa.gov; search for UCMR3). The results of detected contaminants of UCMR3 can be found in Table 3.

HYDRILLA TREATMENT INFORMATION: Cayuga Lake was treated in 2017 with herbicides after the invasive species Hydrilla was located in Cayuga Inlet in 2011. All monitoring results for sampling related to the Hydrilla Eradication Program can be found at www.StopHydrilla.org.

Table 1: General Water Data – 2017

WATER SYSTEM PUBLIC WATER SUPPLY ID #	BP-MWS 5404423
Water Source	Cayuga Lake
Approximate population served	30,000
Number of service connections	7058
Total production in 2017 (MG[1])	929.3
Average daily withdrawal (MGD[2])	2.558
Average daily delivered (MGD)	2.545
Average daily lost (MGD)	0.013
Annual charge per 1000 gal.	$6.81*

[1]MG = million gallons
[2]MGD = million gallons per day
*Average of the rates charged by the five member municipalities of the BP-MWS.

Table 2: General Water Quality Data - 2017

ANALYTE	UNITS	BP-MWS ANNUAL AVERAGE
pH (EP)		8.3
Turbidity (EP)	NTU	0.068
Total Hardness	mg/l	148.0
Total Alkalinity	mg/l	109
Chlorine Residual (EP)	mg/l	1.45
Chlorine Residual (POU)	mg/l	0.54
Turbidity (POU)	NTU	0.08
Total Organic Carbon (EP)	mg/l	2.1
Dissolved Organic Carbon (EP)	mg/l	2.0

EP = Entry Point
POU = Point of Use
Definitions of NTU and mg/l found with Table 3

E. DETECTED CONTAMINANTS

Table 3: Detected Contaminants

Contaminant	Units	Violation Y/N	Date of Sample	Maximum Level Detected (Range)	Regulatory Limit	MCLG	Likely Source of Contamination
Microbiological contaminants							
Turbidity	NTU	No	9/28/17	0.149	TT=<1 NTU	N/A	Soil runoff.
Turbidity samples	% below MCL	No	Daily	100%	TT=95% of samples <0.3NTU	N/A	Soil runoff.
Disinfection By-Products							
Total THMs Site 1 Site 2 Site 3 Site 4 Site 5	ug/l	No	2017	 64 (45-67) 71 (52-61) 42 (27-56) 45 (28-62) 56 (32-60)*	MCL = 80 Running Annual Average	N/A	By-product of drinking water chlorination.
Total HAA5 Site 1 Site 2 Site 3 Site 4 Site 5	ug/l	No	2017	 16 (4.6-18) 16 (7.9-26) 17 (6.9-22) 18 (11-27) 19 (13-22)*	MCL = 60 Running Annual Average	N/A	By-product of drinking water chlorination.
Chlorine Residual	mg/l	No	2017	1.60 (0.00-1.60)	MRDL=4	N/A	Due to drinking water chlorination.
Chlorite	mg/l	No	2017	0.310 (ND-0.364)**	MCL = 1.0	0.8	By-product of drinking water chlorination
Inorganics							
Barium	mg/l	No	10/5/17	0.026	MCL=2	2	Drilling wastes; discharge from metal refineries; erosion of natural deposits.
Chromium	ug/l	No	10/5/17	2.3	MCL=100	100	Discharge from steel and pulp mills, erosion of natural deposits.
Copper	mg/l	No	2017	0.072 (0.005-0.300)	AL=1.3	1.3	Household plumbing corrosion; erosion of natural deposits; wood preservatives.
Lead	ug/l	No	2017	4.8 (ND-13)	AL=15	0	Household plumbing corrosion; erosion of natural deposits.
Nickel	mg/l	No	10/5/17	0.0010	N/A	N/A	Discharge from steel and pulp mills, erosion of natural deposits.
Nitrate	mg/l	No	10/5/17	1.0	MCL=10	10	Fertilizer runoff; septic tank leaching; sewage; erosion of natural deposits.
Sodium	mg/l	No	10/5/17	30	See Water Quality, Section C	N/A	Naturally occurring; road salt; animal waste; water softeners; water treatment chemicals.

Notes and Definitions for Table 3:

AL (action level): The concentration of a contaminant that, if exceeded, triggers additional treatment or other requirements that a water system must follow.

HAA5 (haloacetic acids): These are a group of chemicals that are formed when chlorine or other disinfectants used to control microbial contaminants in drinking water react with naturally occurring organic and inorganic matter in water. The regulated haloacetic acids, known as HAA5, are monochloroacetic, dichloroacetic, trichloroacetic, monobromoacetic, and dibromoacetic acids. The maximum level detected of HAA5 is the highest of the four quarterly running annual averages calculated during the year and is the basis of the MCL for these compounds.

Lead and Copper: The maximum level values reported for lead and copper represent the 90th percentile of the samples taken. Testing for these metals is only required every three years.

Maximum Level Detected: The highest measurement detected for the contaminant during the year. For total THMs and HAA5 the maximum level detected is the highest of the four quarterly running annual averages during the year.

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.

MCLG (maximum contaminant level goal): The level of a contaminant in drinking water below which there is

Contaminant	Units	Violation Y/N	Date of Sample	Maximum Level Detected (Range)	Regulatory Limit	MCLG	Likely Source of Contamination
Organics							
Bis (2-ethylhexyl) phthalate	ug/l	No	11/9/17	0.72	MCL=6	0	Used in plastic products such as polyvinyl chloride, plastic toys, vinyl upholstery, adhesives and coatings. Compound likely to be released to the environment during production and waste disposal of these products. Also used in inks, pesticides, cosmetics and vacuum pump oil.
Radioactive							
Radium-228	pCi/l	No	10/5/17	0.929	MCL=5	0	Erosion of natural deposits.
Unregulated Contaminants (UCMR3)							
Chlorate	ug/L	No	2014	217 (79.8-217)	Unregulated	N/A	Chlorate ion is a known byproduct of the drinking water disinfection process, forming when sodium hypochlorite or chlorine dioxide are used in the disinfection process.
Hexavalent Chromium	ug/L	No	2014	0.051 (ND-0.051)	Unregulated	N/A	Hexavalent chromium can enter waterways through the erosion of natural deposits or from industrial discharges.
Chromium, Total	ug/L	No	2014	0.34 (ND-0.34)	Unregulated	N/A	Chromium is a metallic element found in rocks, soils, plants, and animals. It is used in steel making, metal plating, leather tanning, corrosion inhibitors, paints, dyes, and wood preservatives.
Strontium, Total	ug/L	No	2014	207 (178-207)	Unregulated	N/A	Strontium occurs nearly everywhere in small amounts. Air, dust, soil, foods and drinking water all contain traces of strontium. Ingestion of small amounts of strontium is not harmful. However, high levels of strontium can occur in water drawn from bedrock aquifers that are rich in strontium minerals.
Vanadium	ug/l	No	2014	0.29 (ND to 0.29)	Unregulated	N/A	Vanadium is a naturally occurring elemental metal. It is used as vanadium pentoxide which is a chemical intermediate and a catalyst.

*See "maximum level detected" below. Range of site in parenthesis.
**Chlorite is the average of 3 distribution samples taken monthly. Range of all samples in parenthesis.

no known or expected risk to health. MCLGs allow for a margin of safety.

mg/L (milligrams per liter): Corresponds to one part in one million parts of liquid (parts per million, ppm).

MRDL (maximum residual disinfection level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary to control microbial contaminants.

MRDLG (maximum residual disinfectant level goal): 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 contamination.

N/A (not applicable).

ND (not detected): Laboratory analysis indicates that the constituent is not present.

NTU (nephelometric turbidity unit): A measure of the clarity of water. Turbidity of approximately 5 NTU is barely noticeable by the average person.

pCi/l (picocuries per liter): A measure of radioactivity in water.

Range: The range of lowest to highest measurements detected for contaminants measured during the year.

THM (trihalomethanes): These are a group of chemicals that are formed when chlorine or other disinfectants used to control microbial contaminants in drinking water react with naturally occurring organic and inorganic matter in water. The regulated trihalomethanes are bromodichloromethane, bromoform, chloroform, and dibromochloromethane. These compounds result from the disinfection of water with chlorine. The maximum level detected of THMs is the highest of the four quarterly running annual averages calculated during the year and is the basis of the MCL for these compounds.

TT (treatment technique): A required process intended to reduce the level of a contaminant in drinking water.

ug/L (micrograms per liter): Corresponds to one part in one billion parts of liquid (parts per billion, ppb).

F. NON-DETECTED CONTAMINANTS

Table 4: Non-Detected Contaminants

CONTAMINANT	BP-MWS 2017
Microbiological	
Total Coliform	X
E. Coli	X
Inorganics	
Antimony	X
Arsenic	X
Beryllium	X
Cadmium	X
Cyanide, total	X
Fluoride	X
Mercury	X
Nitrite	X
Selenium	X
Thallium	X
Synthetic Organics & Pesticides	
Alachlor	X
Aldicarb	X
Aldicarb sulfone	X
Aldicarb sulfoxide	X
Atrazine	X
Carbofuran	X
Chlordane, total	X
Dibromochloropropane	X
1,2-Dibromoethane	X
2,4-D	X
Endrin	X
Heptachlor	X
Heptachlor epoxide	X
Lindane	X
Methoxychlor	X
PCB - aroclor 1016	X
PCB - aroclor 1221	X
PCB - aroclor 1232	X
PCB - aroclor 1242	X
PCB - aroclor 1248	X
PCB - aroclor 1254	X
PCB - aroclor 1260	X
Pentachlorophenol	X
Toxaphene	X
2,4,5-TP (Silvex)	X
Aldrin	X
Benzo(a)pyrene	X
Butachlor	X
Carbaryl	X
Dalapon	X
bis (2-ethylhexyl) adipate	X
Dicamba	X
Dieldrin	X
Dinoseb	X
Hexachlorobenzene	X
Hexachlorocyclopentadiene	X
3-Hydroxycarbofuran	X
Methomyl	X
Metolachlor	X
Metribuzin	X
Oxamyl (Vydate)	X
Picloram	X
Propachlor	X
Simazine	X

CONTAMINANT	BP-MWS 2017
Principal Organics, Vinyl Chloride, and MTBE	
Benzene	X
Bromobenzene	X
Bromochloromethane	X
Bromomethane	X
n-Butylbenzene	X
sec-Butylbenzene	X
tert-Butylbenzene	X
Carbon tetrachloride	X
Chlorobenzene	X
Chloroethane	X
Chloromethane	X
2-Chlorotoluene	X
4-Chlorotoluene	X
Dibromomethane	X
1,2-Dichlorobenzene	X
1,3-Dichlorobenzene	X
1,4-Dichlorobenzene	X
Dichlorodifluoromethane	X
1,1-Dichloroethane	X
1,2-Dichloroethane	X
1,1-Dichloroethene	X
cis-1,2-Dichloroethene	X
trans-1,2-Dichloroethene	X
1,2-Dichloropropane	X
1,3-Dichloropropane	X
2,2-Dichloropropane	X
1,1-Dichloropropene	X
cis-1,3-Dichloropropene	X
trans-1,3-Dichloropropene	X
Ethylbenzene	X
Hexachlorobutadiene	X
Isopropylbenzene	X
p-Isopropyltoluene	X
Methylene chloride	X
n-Propylbenzene	X
Styrene	X
1,1,1,2-Tetrachloroethane	X
1,1,2,2-Tetrachloroethane	X
Tetrachloroethene	X
Toluene	X
1,2,3-Trichlorobenzene	X
1,2,4-Trichlorobenzene	X
1,1,1-Trichloroethane	X
1,1,2-Trichloroethane	X
Trichloroethene	X
Trichlorofluoromethane	X
1,2,3-Trichloropropane	X
1,2,4-Trimethylbenzene	X
1,3,5-Trimethylbenzene	X
m-Xylene	X
o-Xylene	X
p-Xylene	X
Vinyl chloride	X
MTBE	X
Radiological	
Gross Alpha	X
Radium-226	X

X = Monitored, but not detected

G. MAJOR MODIFICATIONS COMPLETED IN 2017

Water Main Replacements

- North Triphammer Road 1,875 ft. of Transmission Main (Bolton Point)
- Mitchell Street water main relocation (Town of Ithaca)
- Christopher Circle water main replacement (Town of Ithaca)
- Sapsucker Woods Road water main replacement (Town of Ithaca)
- Cayuga Meadows water main extension (Town of Ithaca)
- Community Corners water main relocation (Village of Cayuga Heights)
- Nova Lane water main extension (Town of Lansing)

System Improvements

- Addition of chlorination station at Village Circle Pump Station (Town of Lansing)
- Upgrade of Burdick Hill Pump station (Town of Lansing)

Treatment Plant (Bolton Point)

- Replacement of Raw Water Pump 1 and 3 motors
- Replacement of Finished Water Pump 1, 2, and 3 motors.
- Upgrade to the treatment facility's security camera system.
- Roof replacement of the Finished and Raw Water Pump Stations.

H. FUTURE PROJECTS AND CAPITAL IMPROVEMENTS (Planned for 2018)

Water Main Replacements

- Ellis Hollow Road water main extension (Town of Ithaca)
- Pine Tree Road water main replacement (Town of Ithaca)
- Six Mile Creek crossing Transmission Main redundancy (Bolton Point)
- Drake Road water main extension (Town of Lansing)
- Northwoods Drive water main extension (Village of Lansing)
- Catherwood Drive water main replacement (Village of Lansing)

System Improvements

- Raw Water Transmission Main redundancy (Bolton Point)

Treatment Plant (Bolton Point)

- Replacement of the treatment plant and distribution system Supervisory Control and Data Acquisition (SCADA) system.
- Media replacement and filter box refurbishment for rapid sand Filter #4

I. SECURITY CONCERNS

Generally, security threats to our water system have consisted of primarily minor vandalism and property damage. However, our security efforts focus to a high degree on the much less likely, but more serious, threat of intentional contamination of the water supply. We have performed security assessments of our entire system and updated our Emergency Response Plans to cover the possibility of terrorism. Weaknesses in procedures have been corrected and improvements to increase the security of the infrastructure have been undertaken. Local police are aware of the security needs of the water systems and have maintained increased patrolling of the facilities. Your awareness and reporting of suspicious activity throughout the system is appreciated.

J. SOURCE WATER PROTECTION

The New York State Health Department is in the process of developing a Source Water Assessment Report for every surface drinking water source in the state. When the report for our source is completed, we will review it and provide a summary. If this report becomes available in 2018, a summary will be posted on our website and provided in next year's Annual Drinking Water Quality Report.

K. WATER CONSERVATION MEASURES

You can play a role in conserving water by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. The following are some ideas that you can apply directly in your own home.

Use your water meter to detect hidden leaks. Turn off all taps and water using appliances, then record the meter reading and check the meter after 15 minutes. If it registers, you have a leak.

Restaurants in the U.S. serve approximately 70 million meals a day. Every glass of water brought to your table requires another two glasses of water to wash and rinse the glass.

Water your lawn only when it needs it. If you step on the grass and it springs back up when you move, it doesn't need water. If it stays flat, it does.

Put 10 drops of food coloring in your toilet tank. If the color shows up in the bowl without flushing, you have a leak to repair. It is common to lose up to 100 gallons a day from a toilet leak. Fix it, and you save more than 30,000 gallons a year.

Do not hose down your driveway or sidewalk. Use a broom to clean leaves and other debris from these areas. Using a hose to clean a driveway can waste hundreds of gallons of water.

If every American home installed low-flow faucet aerators, the United States would save 250 million gallons of water a day.

Fix leaks as soon as they are found. A dripping faucet with a 1/16 inch stream wastes 100 gallons of water per day.

Saving water can lower your power bills by reducing your demand for hot or pumped water. These few simple steps will preserve the resource for future generations and also save up to 30% on your bill.

HIGH QUALITY DRINKING WATER FOR TOMPKINS COUNTY RESIDENTS

CURRENT RESIDENT

Water Trivia

- There are over 58,900 community water systems in the United States processing more than 34 billion gallons per day.
- The average residence in the United States uses 107,000 gallons of water a year.
- It takes 62,600 gallons of water to produce one ton of steel.
- Eighty percent of the earth's surface is covered by water, but only one percent of the earth's water is suitable for drinking.
- It takes 101 gallons of water to make one pound of wool or cotton.
- Water acts as a natural buffer against extreme or rapid changes in the earth's temperature.
- It would take 219 million gallons of water to cover one square mile with one foot of water.
- One gallon of water weighs 8.34 pounds.
- When the weather is very cold outside, let the cold water drip from the faucet served by exposed pipes. Running water through the pipe - even at a trickle - helps prevent pipes from freezing.

Resources

Web sites with more water information and activities for children:

- www.epa.gov/ground-water-and-drinking-water
- www.epa.gov/ground-water-and-drinking-water/drinking-water-activities-students-and-teachers