

Our Drinking Water Is Regulated

This report is a summary of the quality of the water we provide our customers. The analysis was made by using the data from the most recent U.S. Environmental Protection Agency (EPA) required tests and is presented in the attached pages. We hope this information helps you become more knowledgeable about what's in your drinking water.

Public Participation Opportunities

This report shows our water quality and what it means. If you have any questions about this report or concerning your water utility, please contact Kim Mazur at 610-406-6300 extension 3616.

We want you to be informed about your water supply. If you want to learn more, please attend any of our regularly scheduled meetings.

Date: Third Tuesday of each month

Time: 4 p.m.

Phone: (610) 406-6300

Location: RAWA main office
1801 Kutztown Rd.
Reading, PA 19604

En Español

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, ó hable con alguien que lo entienda.

Reading Area Water Authority
1801 Kutztown Road
Reading, PA 19604

Reading Area WATER AUTHORITY

PWS ID# 3060059

2018 Annual Drinking Water Quality Report

Source of Drinking Water

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.

Where Do We Get Our Drinking Water?

The water supply for the Reading Area Water Authority (RAWA) service area is obtained from Lake Ontelaunee, located six miles north of the City of Reading. Lake Ontelaunee is a 1,082-acre manmade lake with a drainage (watershed) area of approximately 216 square miles. RAWA controls and maintains 3,142.5 acres around the lake which is owned by the City of Reading. A minimum 500-foot sanitary strip of land surrounds the periphery of the lake in all but one section of the lake at the dam breast. This strip of land was acquired to minimize the potential of pollution entering into the lake from the shoreline.

Surface water enters the lake primarily from Maiden Creek, and its main tributary Sacony Creek, with inputs from numerous other streams, including several small tributaries that flow directly into the lake.

The dam, which is located on Route 73, was constructed in 1926 and raised to its present height in 1935. The dam height

creates an impoundment capacity of 3.88 billion gallons in Lake Ontelaunee. Water from the lake is then delivered to the Maiden Creek Filter Plant by gravity. The Reading Area Water Authority also has the capability of drawing water directly from Maiden Creek. The intake is located at the Filter Plant.

All Drinking Water May Contain Contaminants

In order to ensure that tap water is safe to drink, EPA and DEP prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA and 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).

Required Additional Health Information for 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. Reading Area Water Authority 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 (800-426-4791) or at <http://www.epa.gov/safewater/lead>.

People Who May Be More Vulnerable to Contaminants

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).

Source Water Protection

The Reading Area Water Authority is a leader in protecting their drinking water sources. Reading's original watershed assessment was conducted in 1998, which found that potential contaminants to the Lake included bacterial contamination, sediment, and algae growth. This study prompted RAWA to develop and implement a comprehensive Source Water Protection Plan, which was approved by the PA Department of Environmental Protection in 2007. Since then, RAWA has been very active in source water protection within Berks County, and received the national Exemplary Source Water Protection award from the American Water Works Association in 2013. In 2016, RAWA revised their potential contaminants inventory and time-of-travel studies. and in 2017 developed a 10-year update to their source water protection plan. Sediment and nutrients from agricultural runoff continue to be the highest potential contamination risk to Lake Ontelaunee and the Maiden Creek. RAWA continues to conduct water quality monitoring throughout the watershed. In addition RAWA staff plants trees annually around the lake property to maintain the natural state of the watershed and reduce siltation of the lake. The 1998 watershed study, 2007 Source Water Protection Plan, its 10-year update (2017), and other water protection information can be found on the RAWA website at <http://www.readingareawater.com/source-water/>

Although the Reading Area Water Authority is concerned with protecting its sources of water, current treatment processes are capable of transforming raw water from the lake, into finished water that meets all federal and state drinking water standards.

The water is treated at the filter plant by a conventional treatment method. The process consists of flocculation, sedimentation, filtration and disinfection, along with sequenced chemical additions to optimize treatment of the water.

We 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, 2018. 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.

Chemical Contaminants							
Chemical (Units)	MCL in CCR Units	MCLG	Highest Level Detected	Range of Detections	Sample Date	Violation Y/N	Likely Source of Contamination
*Chlorine (ppm)	MRDL = 4	MRDL = 4	2.81	2.58-2.81	Feb 2018	N	Water additive used to control microbes
**Chlorine (ppm)	MRDL = 4	MRDL = 4	4.6	0.02-4.6	Dec 2018	N	Water additive used to control microbes
Fluoride (ppm)	2^^	4	0.89	0.52-0.89	Nov 2018	N	Water additive which promotes strong teeth
Nitrate (ppm)	10	10	3.98	2.20-3.98	Jan 2018	N	Runoff from fertilizer use
Haloacetic acids Five (HAA5) (ppb)	60	N/A	26.9	10.0-62.9 #	Jan 2018	N	By-product of drinking water disinfection
Total Trihalomethanes (TTHM) Distribution (ppb)	80	N/A	37.2	24.8-62.8	Jul 2018	N	By-product of drinking water disinfection

*Based on the monthly average of all distribution sites tested (Jan-Apr) **Based on all of the individual sites tested (May-Dec) (Both values shown due to a change in reporting requirements for distribution chlorine residuals)

^^ EPA's MCL for fluoride is 4 ppm. However, Pennsylvania has set a lower MCL to better protect human health. # Compliance for HAA5s is based upon the running annual average.

Entry Point Disinfectant Residual						
Contaminant (Units)	Minimum Disinfectant Residual	Lowest Level Detected	Range of Detections	Sample Date	Violation Y/N	Likely Source of Contamination
Chlorine (ppm)	0.20	0.23	0.23-3.44	Jan 2018	N	Water additive used to control microbes

Microbial (related to Assessments/Corrective Actions regarding TC/EC positive results)						
Contaminant	TT	Number of Level 2 Assessments triggered by an E. coli MCL	Number of Level 2 Assessments triggered by Multiple Level 1 Assessments	"Violation Y/N	Likely Source 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	NA	0	N	Naturally present in the environment	
*E. coli	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	2	2	Y	Human and animal fecal waste.	

Reading Area Water Authority is required, based on population served, to do ninety bacteriological samples per month. In May and August 2018, 1 routine samples out of 106 confirmed to be positive for total coliform. In September 2 routine samples out of 105 confirmed to be positive for total coliform. One of the detections in September 2018 also confirmed positive for E. coli. In October that same site again tested positive for total coliform and E. coli.

*E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches or other symptoms. They may pose a special health risk for infants, young children, some of the elderly and people with severely compromised immune systems.

RAWA is required to collect and test water samples at designated locations throughout the distribution system. It's common to access commercial buildings to collect water samples since they are open during normal working hours. One of our test locations is in the 7th and Laurel Streets area of our distribution system. The E. Coli event was caused by a private commercial-use well at this sampling location. The customers on-site commercial-use well was interconnected to the public water system in the internal plumbing of the building. The building backflow preventer prevented the health risk from entering the water distribution system. This was verified by immediately testing the backflow preventer. The commercial-use well interconnections were found and eliminated. Also this water sample location was moved to a separate sampling station solely designated for gathering a water sample.

Turbidity						
Contaminant (Units)	Violation Y/N	Date Sampled	MCL	MCLG	Highest Level Detected	Likely Source of Contamination
Turbidity (NTU)	N	Nov 2018	TT=1 NTU for a single measurement	0	0.130 NTU	Soil runoff
		N/A	TT=at least 95% of monthly samples ≤0.3 NTU		100%	

Total Organic Carbon

Substance(Units)	Range of % Removal Required	Range of percent removal achieved	Numbers of quarters out of compliance	Likely Source of Contamination
Drinking Water (ppm)	0-35	27-52	0	Naturally present in the environment

Total Organic Carbon (TOC) has no health effect. The disinfectant can combine with TOC to form disinfection by-products. Disinfection is necessary to ensure that water does not have unacceptable levels of pathogens. By-products of disinfection include trihalomethanes (THM) and haloacetic acids (HAA), which are reported elsewhere in this report.

Lead and Copper

Contaminant (Units)	Violation Y/N	Date Sampled	Action Level	MCLG	90th Percentile	# Sites Over AL	Likely Source of Contamination
Copper (ppm)	N	2016	1.3	1.3	0.281	0 out of 35	Corrosion of household plumbing systems
Lead (ppb)	N	2016	15	0	2	0 out of 35	

In September 2016, to comply with the Lead and Copper Rule, Reading Area Water Authority conducted one study of 35 samples. 0 samples out of 35 samples were found to be above the required Action Levels established for lead and copper.

Secondary Substances:

The U.S. EPA has established National Secondary Drinking Water Regulations that set non-mandatory water quality standards for 15 contaminants. Manganese is one of those contaminants. The U.S. EPA does not yet enforce these "secondary maximum contaminant levels" or SMCLs. They are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations such as taste, color and odor. These contaminants are not considered to present a risk to human health at the SMCL.

In July 2018, monitoring of samples from 8 different sites within the distribution

system was performed in response to dirty water complaints. Analysis results at one of these sites showed manganese levels of 59 ppb which is above this secondary contaminant's MCL of 50 ppb.

Other Violations:

We had a late reporting violation for January 2018. Our Entry Point chlorine residuals were due to be reported by February 10th 2018 and we did not report them until March 1st 2018.

Our annual thallium result was also reported late by our contract lab. No thallium was detected.

Upcoming Lead & Copper Monitoring

During the summer of 2019 we will be conducting another Lead & Copper Study.

Do you own a Single Family structure that contain lead pipes or copper pipes with lead solder installed after 1982 and/or are served by lead service lines within the Reading Area Water Authority service area?

The Reading Area Water Authority is looking for customers which fit the above criteria.

Please contact the RAWA office at 610-406-6300 or info@readingareawater.com

Definitions In the table you might find terms and abbreviations you are not familiar with. To help you better understand these terms we've provided the following 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. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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

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.

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

ND (Non-Detectable) - A result below the detection limit for the chemical.

Mrem/year - millirems per year (a measure of radiation absorbed by the body)

pCi/L - Pico curies per liter (a measure of radioactivity)

ppb - parts per billion, or micrograms per liter (µg/L).

ppm - parts per million, or milligrams per liter (mg/L).

ppq - parts per quadrillion, or picograms per liter

ppt - parts per trillion, or nanograms per liter



Partnership for Safe Water

Entering the American Water Works Association Partnership for Safe Water Program is a decision we made to ensure that your water is the cleanest it can be. With the Partnership, we work under even stricter guidelines than we are legally required to. Since joining, we have received both the Director's Award (2015) and the President's Award (2017) for outstanding clarity of our water. The partnership always keeps us going above and beyond for our customers.

Berks County Water and Sewer Association

In 2017, the Berks County Water and Sewer Association (BCWSA), with assistance from the Berks County Planning Commission (BCPC), the Pennsylvania Department of Environmental Protection, and other partners developed a comprehensive Source Water Protection Program for the entire county. RAWA participated in this initiative, after completing an individual source water protection plan in 2017. The goal is to work collaboratively to protect drinking water sources in Berks County like groundwater wells, springs and surface waters like rivers, creeks and lakes. A Source Water Protection Coordinator will assist all participating water systems sustain the watershed improvement strategies described in the SWP Plan such as public outreach, assistance with protection projects and reporting. The Berks County Water Source Water Protection Program will assist us in keeping our raw water, the single most important ingredient in providing service, protected from pollutants.