

QUARRYVILLE BOROUGH AUTHORITY

300 Saint Catherine Street

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2017 ANNUAL DRINKING WATER QUALITY REPORT

PWSID #: 7360112

NAME: QUARRYVILLE BOROUGH AUTHORITY

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 shows our water quality and what it means. If you have any questions about this report or concerning your water utility, please contact Kenneth C. Work, Borough Manager at 717-786-2404.

We want you to be informed about your water supply. If you want to learn more, please attend any of our regularly scheduled meetings. They are held the third Tuesday of each month at 7:00 PM at 300 Saint Catherine Street, Quarryville, PA.

SOURCE(S) OF WATER:

Our water sources are: A municipal well located on North Church Street in the Borough and an interconnection with PA American Water Company on East State Street.

A Source Water Assessment of our sources was completed by the PA Department of Environmental Protection (Pa. DEP). The Assessment has found that our sources are potentially most susceptible to road deicing materials, accidental spills along roads and leaks in underground storage tanks. Overall, our sources have high risk of significant contamination. A summary report of the Assessment is available on the Source Water Assessment Summary Reports eLibrary web page: <http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-10045>. Complete reports were distributed to municipalities, water supplier, local planning agencies and PADEP offices. Copies of the complete report are available for review at the Pa. DEP Lancaster District Office, at (717) 299-7601.

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).

MONITORING YOUR 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, 2017. 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. 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.

mrem/year = millirems per year (a measure of radiation absorbed by the body)

pCi/L = picocuries per liter (a measure of radioactivity)

ppb = parts per billion, or micrograms per liter ($\mu\text{g/L}$)

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

DETECTED SAMPLE RESULTS:

Chemical Contaminants								
Contaminant	MCL in CCR Units	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Haloacetic Acid	60.0	0.0	12.8	0.00 -35.6	ppb	2017	No	By-product of chlorination
Trihalomethanes	80.0	0.0	23.3	0.0 – 81.7	ppb	2017	No	By-product of chlorination
Nitrate as Nitrogen	10.0	10.0	6.64	6.28 – 6.64	ppm	2017	No	Run-off from fertilizer, leaching from septic tanks, sewage, erosion of natural deposits
Chlorine	MRDL =4	MRDLG =4	0.60	0.156 -0.60	ppm	2017	No	Water additive used to control microbes
Fluoride Entry Point 101	2	2	0.41	0.25 – 0.41	ppm	2016	No	Erosion of natural deposits
Barium	2	2	0.049	0.049	ppm	2012	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium	100	100	11	11	ppb	2012	No	Discharge from steel and pulp mills; Erosion of natural deposits
cis-1,2- Dichloroethylene	70	70	0.30	0.0 – 1.2	ppb	2017	No	Discharge from industrial chemical factories
Trichloroethylene	5	0	0.47	0.0 -1.9	ppb	2017	No	Discharge from metal degreasing sites and other factories
Tetrachloroethylene	5	0	1.2	0.0 – 5.1	ppb	2017	No	Discharge from factories & dry cleaners

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

Entry Point Disinfectant Residual							
Contaminant	Minimum Disinfectant Residual	Lowest Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Chlorine	0.4	1.03	1.03 – 1.44	ppm	2017	No	Water additive used to control microbes.

Lead and Copper							
Contaminant	Action Level (AL)	MCLG	90 th Percentile Value	Units	# of Sites Above AL of Total Sites	Violation Y/N	Sources of Contamination
Lead	15	0	3.29	ppb	0 of 11	No	Corrosion of household plumbing.
Copper	1.3	1.3	0.246	ppm	0 of 11	No	Corrosion of household plumbing.

Microbial (related to Assessments/Corrective Actions regarding TC positive results)						
Contaminants	TL	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	0	See detailed description under "Detected Contaminants Health Effects Language and Corrective Actions" section	No	Naturally present in the environment.	

OTHER VIOLATIONS:

No violations in the 2017 sampling year.

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, 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).

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 Quarryville Borough 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 or at <http://www.epa.gov/safewater/lead>.

Educational Statement for Nitrate

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.

OTHER INFORMATION:

PENNSYLVANIA AMERICAN WATER COMPANY INFORMATION

Pennsylvania American Water Company
Coatesville System
800 West Hershey Park Drive
Hershey, PA 17033 1-800-565-7292

Water Quality Statement

This annual Water Quality Report is based on testing results between January and December 2017, and you will see that we continue to supply water that meets or surpasses all regulatory drinking water standards. For your information, we have compiled a list in the table below showing what substances were detected in your drinking water during 2017. The Pennsylvania DEP allows us to monitor for some contaminants less than once per year because the concentration of the contaminant does not change frequently. Some of our data, though representative, is more than one year old. Although all of the substances listed below are under the Maximum Contaminant Levels (MCL) set by U. S. Environmental Protection Agency and the Pennsylvania DEP, we feel it is important that you know exactly what was detected and how much of each substance was present in the water.

Water Quality Results

Turbidity – A Measure of the Clarity of the Water at the Treatment Facility

Plant	Substance (Units)	Year Sampled	MCL	MCLG	Highest Single Measurement	Compliance Achieved	Typical Source
Rock Run	Turbidity (NTU)	2017	TT	N/A	0.36	Yes	Soil Runoff

Total Organic Carbon Removal - Measured at the Treatment Plant

Substance (units)	Year Sampled	TT	Range of Percent Removal Required	Range of Percent Removal Achieved	Compliance Achieved	Typical Source
Total Organic Carbon (TOC) (% removal) ¹	2017	Meet EPA Removal Requirements	35-45	47-57	Yes	Naturally decaying vegetation

¹Adequate removal of TOC may be necessary to control the unwanted formation of disinfection by-products. Naturally occurring organic matter present in the source water can react with the disinfectants used at the treatment facility to form these by-products.

Regulated Substances - Measured on the Water Leaving the Treatment Facility

Substance (units)	Year Sampled	MCL	MCLG	Highest Amount Detected	Range Low-High	Compliance Achieved	Typical Source
Fluoride (ppm)	2017	2	2	0.92	0.34-0.92	Yes	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Atrazine (ppb)	2017	3	3	.03	ND - 0.3	Yes	Runoff from herbicides used on row crops
Nitrate (ppm)	2017	10	10	2.55	SS	Yes	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Entry Point Disinfection Residual- Measured on the Water Leaving the Treatment Facility

Substance (units)	Year Sampled	Minimum Disinfectant Residual Level Required by DEP	Lowest Amount Detected	Range Low-High	Compliance Achieved	Typical Source
Total Chlorine (ppm)	2017	0.2	0.89	0.89 - 4.16	Yes	Water additive used to control microbes

Bacterial Test Results - Measured in the Distribution System

Substance (units)	Year Sampled	TT	MCLG	Assessments/Corrective Actions	Compliance Achieved	Typical Source
Total Coliforms ²	2017	Any system that has failed to complete all the required assessments or correct all identified sanitary defects, is in violation of the treatment requirement	N/A	See detailed description under "DETECTED CONTAMINANTS HEALTH EFFECTS LANGUAGE AND CORRECTIVE ACTIONS" section	Yes	Naturally present in the environment.

² Treatment Technique requirements became effective on April 1st, 2016 and are based on several criteria depending on the presence of coliform bacteria or E. coli in a series of samples. Depending on the type of bacteria and the samples affected, different types of assessment and corrective actions are required. See "Detected Contaminants Health Effects Language and Corrective Actions" section listed below.

DETECTED CONTAMINANTS HEALTH EFFECTS LANGUAGE AND CORRECTIVE ACTIONS:

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially-harmful bacteria 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 an assessment to identify problems and to correct any problems that were found during these assessments.

During the past year we were required to conduct a Level 1 assessment. One Level 1 assessment was completed. In addition, we were required to take 1 corrective action and we completed 1 corrective action.

Tap Water Samples: Lead and Copper Results-Measured in the Distribution System

Substance (units)	Year Sampled	Action Level	MCLG	Number of Samples	90th Percentile	Number of Samples Above Action Level	Compliance Achieved	Typical Source
Lead (ppb)	2016	15	0	31	2	0	Yes	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	2016	1.3	1.3	31	0.099	0	Yes	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives.

Disinfectant Residual - Measured in the Distribution System

Substance (units)	Year Sampled	MRDL	MRDLG	Highest Result	Range Low - High	Compliance Achieved	Typical Source
Total Chlorine (ppm)	2017	4	4	3.28	1.84 - 3.28	Yes	Water additive used to control microbes

Other Regulated Compounds - Measured in the Distribution System

Substance (units)	Year Sampled	MCL	MCLG	Average Results ³	Range ⁴ Low-High	Compliance Achieved	Typical Source
Total Trihalomethanes (THM) (ppb)	2017	80	N/A	64	24 - 122	Yes	By-product of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	2017	60	N/A	51	24 - 120	Yes	By-product of drinking water disinfection
Total Chromium (ppb)	2015	100	100	0.4	0.3 - 0.6	Yes	Discharge from steel and pulp mills; erosion of natural deposits

³ Highest localized running annual average for individual sample points

⁴ Range represents sampling at individual sample points

Unregulated Compounds - Measured on the Water in the Distribution System

Substance (units)	Year Sampled	MCL / MCLG	Average Amount Detected	Range Low - High	Typical Source
Strontium (ppb)	2015	Not regulated	77	70 - 88	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
Chromium 6 or Hexavalent Chromium (ppb)	2015	Not regulated	0.21	0.11 - 0.29	Naturally-occurring element; used in making steel and other alloys; chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation.
Vanadium (ppb)	2015	Not regulated	0.3	0.2 - 0.4	Naturally occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst
Chlorate (ppb)	2015	Not regulated	148	73 - 240	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chlorine dioxide

Unregulated Compounds - Measured on the Water Leaving the Treatment Facilities

Substance (units)	Year Sampled	MCL / MCLG	Average Amount Detected	Range Low - High	Typical Source
Strontium (ppb)	2015	Not regulated	76	70 - 83	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
Chromium 6 or Hexavalent Chromium (ppb)	2015	Not regulated	0.18	0.13 - 0.21	Naturally-occurring element; used in making steel and other alloys; chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation.
Vanadium (ppb)	2015	Not regulated	0.35	0.3 - 0.4	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst
Chlorate (ppb)	2015	Not regulated	153	69 - 260	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chlorine dioxide
1,4-Dioxane	2015	Not Regulated	0.08	ND - 0.08	Cyclic aliphatic ether; used as a solvent or solvent stabilizer in manufacture and processing of paper, cotton, textile products, automotive coolant, cosmetics and shampoos