



EPHRATA AREA JOINT AUTHORITY

124 South State Street
Ephrata, PA 17522-2411

Telephone (717) 738-9242

2014 Annual Drinking Water Quality Report

Ephrata Area Joint Authority Water System, PWSID 7360045

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



The **DIRECTORS AWARD** of recognition, issued by the *Partnership for Safe Water Program* (an association of water utilities and government), has been awarded to the **Ephrata Area Joint Authority Water Treatment Plant**, for its' efforts in achieving excellence in water quality beyond what is required by federal regulations.

EAJA Representatives receiving the Directors Award from



the Partnership for Safe Water

The Ephrata Area Joint Authority Water System had **NO** violations of Maximum Contaminant Levels (MCL's) or Treatment Techniques in 2014.

INTRODUCTION

The Ephrata Area Joint Authority Board (EAJA) is pleased to present our 2014 Annual Drinking Water Quality Report. This report is intended to inform you about the quality of the water we deliver to you every day. The Authority routinely monitors the composition of the drinking water in accordance with Federal and State laws. The Detected Contaminants table, included in this report, shows the results of our monitoring for 2014. We did NOT have any violations of Maximum Contaminant Levels (MCL's) or treatment techniques in 2014.

If you have any questions about this report, please contact EAJA at (717) 738-9208, Monday through Friday, 7:00 am to 3:00 pm. If you are interested in learning more about the Authority water system, you are welcome to attend our regularly scheduled meetings held the third Thursday of each month at the Ephrata Borough office starting at 7:00 pm. If interested, please call the Ephrata Borough office at (717) 738-9232 to verify the meeting time and date.

The Ephrata Area Joint Authority Board

Gail M. Bare, Secretary



Water Treatment Plant – Filter Room

KEEPING AHEAD OF THE CURVE WITH CONTINUOUS IMPROVEMENTS

Dear Ephrata Area Joint Authority Customers:

Once again, we're delighted to inform you that the results of our federally mandated water quality study confirm that the water delivered to your home or business here in Ephrata Borough, Clay Township and Ephrata Township meets or surpasses all U.S. standards for safeguarding human health. The details of those tests appear in this report, but the bottom line is that you can continue to have confidence in the quality of your municipal water supply. We don't take these results for granted. For one thing, the standards keep getting more demanding; water that would have been perfectly acceptable ten years ago, would not make the grade today. We've been investing in new technologies, and expanding our capabilities, to enable us to keep ahead of more stringent standards, rising demand, and emerging threats to the water supply.

For example, with the new Long Term Surface Water Treatment Rule (LT2 Rule) and stricter NTU limits, EAJA's operators performed research and planning, followed by pilot trials, which resulted in design and implementation of **major plant upgrades to exceed the new requirements**. Upgrades included new filter media, repair of filters and underdrains, an Aries blower system, and use of a new coagulant. After thoroughly researching coagulant alternatives, EAJA's operators recommended a new coagulant for our water treatment plant. This coagulant has proven effective for all water conditions but especially for our winter water conditions. Combined with a proportional-integral-derivative (PID) controlled delivery system, our use of coagulant is optimized to meet all water conditions.

We're also focusing on **system automation**. Operators have transformed the water treatment plant and wells into an automated and efficient system. Use of supervisory control and data acquisition (SCADA) controls have enabled operators to monitor the process remotely. The use of variable frequency drive (VFD) motors and PID controls have provided for precise fine-tuning of critical operating parameters. System performance and efficiency has improved significantly and system reliability is at an all-time high.



Responsible **integration of water resources** is also very important to us. EAJA is fortunate to have both groundwater and surface water resources. Staff has developed an understanding of the well cycles and maximum potency during different seasons. Now the EAJA staff can optimize resources to meet water quality issues and reduce costs by utilizing the lowest cost water given the current conditions. For example, during high rain events when surface water treatment is more challenging, we can switch to ground water. This whole process can be performed remotely by operators through the use of our SCADA system.

In addition, state-of-the-art **leak detection** in our distribution system has become a high priority. In the past EAJA has struggled with controlling our unaccountable water. An automated leak detection system was purchased for use in our water distribution system. This system has demonstrated the ability to identify small leaks before they become large leaks. By minimizing leaks in the system we have reduced our water production needs by up to 300,000 gallons per day. System demand is at the lowest point ever, while water usage has remained stable. We no longer need to consider the development of additional water resources.

We have also refined our practices for **preventing the formation of disinfection by-products**, referred to as trihalomethanes and haloacetic acids, in the distribution system. Tank Mixers were installed at two storage tanks and the filling/draining schedules of all tanks were altered to facilitate enhanced mixing. Additionally, we installed several auto-flushers – clock-driven devices which attach to fire hydrants at the farthest points of the system – and then flush them on a regular basis to reduce the level of disinfection byproducts which accumulate there.

Finally, in 2014 we also completed construction on a new 12-inch water line that connects the Lincoln Storage Tank with the Apple Street distribution grid. This new pipeline will allow for **improved reliability of the water distribution** system in Clay Township and Ephrata Township.

Our continuous improvements program demonstrates that we are not taking the good results of our current and past water studies for granted. A system serving a community like ours requires constant attention, care, and new investment to continue providing the level of service our residents have a right to expect.

PARTNERSHIP FOR SAFE WATER

In 2014 the Ephrata Area Joint Authority's Filter Plant received the "Directors Award of Recognition" from the *Partnership for Safe Water*, a program developed by EPA, AWWA, and associated *Partner* organizations to guide water suppliers towards improving water quality by optimizing system operations. The Ephrata Area Joint Authority was presented this award for successfully completing the Self-Assessment and Peer Review phase of the *Partnership* program, a phase which includes comprehensive evaluation of treatment plant operations and performance, identification of performance limiting factors, and the development of action plans to achieve optimization. The plant was one of a select group of utilities honored by the *Partnership* at the annual conference of the American Water Works Association, the largest and oldest worldwide organization dedicated to safe water.

Barbara Martin, the Manager of the Partnership for Safe Water, stated in a letter to EAJA, "The *Partnership Steering Committee* and *AWWA Partnership* staff wishes to once more congratulate you on your achievement. Your participation in the *Partnership for Safe Water* and your award accomplishment demonstrates your commitment to providing the highest quality water to your customers."

The *Partnership for Safe Water* is a voluntary self-assessment and optimization program for water treatment plant and distribution system operation. More than 250 utility subscribers, collectively serving more than 100 million people, are committed to the *Partnership's* goals of providing safe, high-quality drinking water through achieving operational excellence in water treatment. *Partnership* members participate in a rigorous four-phase self-assessment and peer review process, developed by industry experts, and are recognized nationally for their commitment to delivering safe water to their communities.

The Partnership for Safe Water is an alliance of the American Water Works Association, Association of Metropolitan Water Agencies, Association of State Drinking Water Administrators, United States Environmental Protection Agency, National Association of Water Companies, and the Water Research Foundation.

WATER SYSTEM INFORMATION

Our water sources produce 1.7 to 2 million gallons per day. These sources include a surface water supply (Cocalico Creek) and three well supplies. The water treatment plant can produce up to one million gallons per day from the surface water supply. Three (3) groundwater supplies can produce from one to two million gallons per day combined. State-certified operators under the direction of Ephrata Borough management operate the water supply and distribution system.

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 the data shown in the table on page 5, though representative, are more than one year old.



We're proud that your drinking water meets Safe Drinking Water Act requirements. Although our monitoring and testing indicates that some constituents have been detected, the EPA has determined that your water has met all State and Federal requirements. The following pages provide additional educational information including a further explanation of the health effects of nitrates, information for certain people who may be more vulnerable to drinking water contaminants, and a commentary about additional monitoring requirements. More information about contaminants and potential health risks can be obtained by calling the EPA Safe Drinking Water Hotline at (800) 426-4791 or by visiting the EPA's drinking water website www.epa.gov/safewater.

DETECTED CONTAMINANTS

Inorganic Contaminants	Highest Result	Range of Detections	MCL	MCLG	Violation	Typical Source of Contaminant
Nitrate (ppm)	6.63	ND – 6.63	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Lead and Copper	90 th Percentile Value	Number of Sites above the AL	AL	MCLG	Violation	Typical Source of Contaminant
Copper (ppm) (2013 Data)	0.187	0	1.3	1.3	No	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (2013 Data)	ND	1	15	0	No	Corrosion of household plumbing systems; erosion of natural deposits
Microbiological Contaminants	Highest Result	Range of Detections	MCL	MCLG	Violation	Typical Source of Contaminant
Total Coliform Bacteria	0 positive samples	ND	0 positive monthly sample	0 positive monthly samples	No	Naturally present in the environment
Disinfectants / Disinfection Byproducts	Result	Range of Detections	MCL or MRDL	MCLG or MRDLG	Violation	Typical Source of Contaminant
Chlorine Residual (ppm)	0.81 ⁽¹⁾	0.81 – 2.8 ⁽¹⁾	4	4	No	Water additive used to control microbes
	1.92 ⁽²⁾	1.53 – 1.92 ⁽²⁾				
Haloacetic Acids (ppb)	30.8 ⁽³⁾	ND – 115.0 ⁽⁴⁾	60	N/A	No	Byproduct of drinking water disinfection
Total Trihalomethanes (ppb)	36.5 ⁽³⁾	ND – 113.0 ⁽⁴⁾	80	N/A	No	Byproduct of drinking water chlorination
TOC	Range of % Removal Required	Range of % Removal Achieved	No. of Samples out of Compliance	MCL	Violation	Typical Source of Contaminant
Total Organic Carbon (ppm)	15 – 25	17.8 – 64.9	0	TT	No	Naturally present in the environment
Secondary Contaminants	Highest Result	Range of Detections	MCL	MCLG	Violation	Typical Source of Contaminant
Alkalinity (ppm CaCO ₃)	189	102 – 189	N/A	N/A	No	Naturally present in the environment
Clarity Characteristics	Level Found		MCL	MCLG	Violation	Typical Source of Contaminant
Turbidity (NTU) ⁽⁵⁾	0.096		TT=0.3 NTU for a single measurement	0	No	Soil runoff, river sediment
	100 % average of monthly samples ≤ 0.3 NTU		TT=95% of samples must be ≤ 0.3 NTU	0	No	
IOC Chemicals	Highest Result	Range of Detections	MCL	MCLG	Violation	Typical Source of Contaminant
Barium (ppm)	0.0784	N/A	2	2	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
SOC Chemical	Highest Result	Range of Detections	MCL	MCLG	Violation	Typical Source of Contaminant
Atrazine (ppb)	0.1	ND – 0.1	3	3	No	Runoff from herbicide used on row crops
Metolachlor (ppb) ⁽⁶⁾	0.1	ND – 0.1	N/A	N/A	No	Commonly used as an herbicide
Methyl-Tert-Butyl-Ether (MTBE) (ppb) ⁽⁶⁾	0.5	ND – 0.5	N/A	N/A	No	Octane enhancer in unleaded gasoline
Radionuclides	Highest Result	Range of Detections	MCL	MCLG	Violation	Typical Source of Contaminant
Gross Alpha (pCi/l)	1.16	N/A	15 pCi/l	15 pCi/l	No	Erosion of natural deposits
Combined Uranium (ug/l) (2011 Data)	2.13	0.64 – 2.13	30 ug/l	30 ug/l	No	Erosion of natural deposits

- (1) Lowest value and range for entry point residuals.
- (2) Highest monthly average and the range of the monthly average results for distribution disinfectant.
- (3) Highest Running Annual Average (based on available data).
- (4) Range represents sampling at individual sample points.
- (5) Turbidity is monitored because it is a good indicator of the effectiveness of our filtration system; it is a measure of the cloudiness of the water.
- (6) Unregulated Contaminant.

As you can see from the Detected Contaminants table, our system had NO water quality violations in 2014.

POTENTIAL CONTAMINANTS

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food & Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. DEP enforces these regulations. We are happy to report that your drinking water is safe and meets Federal and State requirements.

All sources of drinking water are subject to potential contamination by constituents that are naturally occurring or manmade. Drinking water, including bottled water, may contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline at (800) 426-4791 or by visiting the EPA's drinking water website www.epa.gov/safewater.

The raw water 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 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 organics, which are by-products of industrial processes and petroleum production, and can also, come from industrial sites, 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.

DEFINITIONS

The following definitions will help you understand the key terms and abbreviations contained in the Detected Contaminants table:

Action Level (AL) – The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that 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 contamination.

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

Not Applicable (N/A) – Does not apply.

Nephelometric Turbidity Unit (NTU) – A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Non-Detects (ND) – Laboratory analysis indicates that the constituent is not present at detection limit concentration.

Parts per Million (ppm) or Milligrams per Liter (mg/l) – One part per million corresponds to 1 minute in 2 years or a single penny in \$10,000. 1 ppm = 1,000 ppb.

Parts per Billion (ppb) or Micrograms per Liter (µg/l) – One part per billion corresponds to 1 minute in 2,000 years, or a single penny in \$10,000,000. 1,000 ppb = 1 ppm.

Pico Curies per Liter (pCi/L) – A measure of radioactivity.

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

Calcium Carbonate (CaCO₃) – A chemical expression/term used to define water alkalinity and hardness levels.

NITRATE

Nitrate in drinking water at levels above 10 ppm are 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. (As a precaution, we notify physicians and health care providers in this area if there is a higher than normal level of nitrates in the water supply.)

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. EAJA is responsible for providing high quality drinking water but cannot control the materials used in plumbing. 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 safe drinking or cooking. If you are concerned about lead in drinking water, testing methods and steps you can take to minimize exposure are available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

CRYPTOSPORIDIUM

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water but not our finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause an abdominal infection, causing nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, we encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to

avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

SOURCE WATER ASSESSMENT

A Source Water Assessment of our water supply resources was completed in 2003 by DEP. The Assessment found that the Cocalico Creek Intake is potentially susceptible to grazing-related agricultures, point source dischargers and urban stormwater runoff. The groundwater supply wells are potentially susceptible to contaminants resulting from nearby residential, commercial, and industrial land uses, and to a lesser extent, from transportation corridors and agriculture. Overall, the assessment concluded that there was low to moderate risk of significant contamination. A summary report of the Assessment is available on the DEP Source Water Assessment & Protection Web page at (<http://www.dep.state.pa.us/dep/deputate/watermgmt/wc/Subje.cts/SrceProt/SourceAssessment/default.htm>). Complete reports were distributed to municipalities, water suppliers, local planning agencies and DEP offices.

VULNERABILITY

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/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA Safe Drinking Water Hotline at (800) 426-4791 or on-line at <http://www.epa.gov/safewater>.

UNREGULATED CONTAMINANT MONITORING RULE 3 (UCMR3)

To ensure the highest level of water quality for our customers, in 2013 we performed monitoring of non-regulated contaminants in the finished water as required by EPA. Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in the drinking water and whether future regulation is warranted. For more information concerning UCMR visit these websites:

<http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr> or
http://www.drinktap.org/home/water_information/water-quality/ucmr3.aspx.

PUBLIC NOTIFICATION

Beginning in 2010, EAJA was required by the DEP (Public Notification Rule of the Safe Drinking Water Act) to notify its customers of certain water quality concerns through a direct delivery method (hand delivery, electronic mail or automated telephone dialing system). EAJA has partnered with Swiftreach Networks, an automated telephone dialing system to meet this requirement. Customers will be notified by telephone of important news about your drinking water. The EAJA staff is verifying customer contact information and some customers may be contacted to provide additional information.

Please update your emergency notification contact information for inclusion in the notification database:

<http://swift911.swiftreach.com/public/200576/>

We look forward to delivering you high quality water again in 2015!

