

EASTHAMPTON WATER WORKS

Water Quality Report 2018

No. 21

Spring 2019

“Mr Hendrick decided to make a final by driving well upon land on Hendrick Street ...upon the spot where he had since boyhood observed the water constantly seeping from the ground in a meadow pasture on Broad Brook. Success came with the first well driven there, and within a few days water of excellent quality was sprouting eighteen inches above the tops of five separate pipes driven about thirty feet into the ground”

*Stillman D. Hitchcock
“Easthampton: 1785-1935 Historical Review”*

In 1908 the growing mill town of Easthampton realized the importance of a plentiful supply of high quality drinking water. Over a hundred years later, George Hendrick's original source is still in use supplying Easthampton residents with excellent quality water. The staff here at the water department would like you know that we remain hard at work ensuring that the water you draw from your tap is of the same high quality that Mr. Hendrick found in 1908. We hope that you will find this report informative and helpful but if you should have any questions or comments please do not hesitate to call or send us an email. Your input is always welcome.

DRIVING WELLS AT HENDRICK STREET CIRCA 1908



WATER RESOURCES

CONTACTS

| | |
|--------------------------|-----------------|
| Easthampton Water Works | 1(413) 529-1422 |
| Easthampton City Planner | 1(413) 529-1406 |
| Mass DEP Western Office | 1(413) 784-1100 |

PUBLIC PARTICIPATION

Easthampton Aquifer Protection Committee:
Call the City Clerk @ 529-1460 for meeting times

Barnes Aquifer Protection Advisory Committee:
Call the City Clerk @ 529-1460 for meeting times

Easthampton Board of Public Works:
Call the DPW office @ 529-1410 for meeting times.

WEBSITES

American Water Works Association - www.awwa.org
Barnes Aquifer - www.pvpc.org/bapac/index.html
Mass DEP - www.mass.gov/dep/
Waterwiser - www.waterwiser.org
Groundwater Foundation - www.groundwater.org
National Drinking Water Clearing House - www.ndwc.wvu.edu
U.S. Environmental Protection Agency - www.epa.gov/OGWDW/

IMPORTANT INFORMATION ON: Cross Connection Control and Backflow Prevention

The Easthampton Water Works makes every effort to ensure that the water delivered to your tap is clean, safe and free of contamination. When the water reaches your home or business there is still the need to protect it from contamination caused by a cross-connection.

What is a cross-connection?

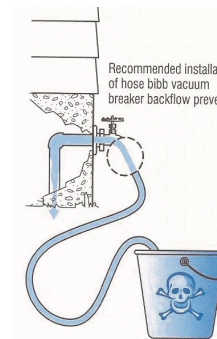
A cross-connection is any actual or potential connection between the drinking water lines and a potential source of pollution or contamination such as a piping arrangement or equipment that allows the drinking water to come in contact with non-potable liquids, solids, or gases, hazardous to humans in the event of a backflow.

What is a backflow?

Backflow is the undesired reverse of the water flow in the drinking water distribution lines. This backwards flow can occur when the pressure created by an equipment or system such as a boiler or air-conditioning is higher than the water pressure inside the water distribution line (backpressure), or when the pressure in the distribution line drops due to routine occurrences such as water main breaks or heavy demand causing the water to flow backward inside the water distribution system (backsiphonage). Backflow is a problem that many water consumers are unaware of, a problem that each and every water customer has a responsibility to help prevent.

What can I do to help prevent a cross-connection?

Without the proper protection something as simple as a garden hose has the potential to contaminate or pollute the drinking water line in your house. In fact over half of the country's cross-connection incidents involve unprotected garden hoses. There are very simple steps that you as a drinking water user can take to prevent such hazards, they are:



- NEVER submerge a hose in soapy water buckets, pet watering containers, pool, tubs, sinks drains, or chemicals.
- NEVER attach a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bib vacuum breaker in any threaded water fixture. The installation can be as easy as attaching a garden hose to spigot. This inexpensive device is available at most hardware stores and home-improvement centers.
- Identify and be aware of potential cross-connections to your water line.
- Buy appliances and equipment with a backflow preventer

*This report was designed by
Mike Czerwicz of the Easthampton Water Works*

The Story of Easthampton Water

THE SOURCE

Easthampton is one of many communities across the state that relies on groundwater for its source of drinking water. Our drinking water comes from the Barnes Aquifer system, a complex of several productive aquifers extending about twelve miles beneath portions of four communities: Westfield, Holyoke, Southampton, and Easthampton. Over 60,000 area people depend on this aquifer for their drinking water. In acknowledgement of the importance of this source, the EPA designated the Barnes Aquifer in Easthampton, a sole source aquifer on May 12, 1995. To earn this designation, an aquifer must supply more than 50% of the drinking water for the service area, and the communities must have no viable economical source alternative. (To read more about the formation of the Barnes Aquifer please visit the Barnes Aquifer page at bapac.pvpc.org/html/more-aquifer.html)

WELLS

Currently, there are five active wells that draw water from the aquifer in Easthampton; these are 1087000-08G (Nonotuck Park), 1087000-09G (Brook Street), 1087000-04G (Hendrick) and 1087000-05G (Pines), and 1087000-07G (Maloney). The Nonotuck Park well and Brook Street wells, both located in Nonotuck Park, are high quality sources that are pure enough to enter the distribution system without any treatment or chemical additions. These sources account for about 50% of the total daily supply. In the early 1980's the Hendrick Street wellfield and the Pines well, located off Hendrick St. by the Water Treatment Plant, were found to contain the volatile organic compound, Trichloroethylene, or TCE, in amounts that exceeded the maximum contaminant level (MCL) set by the USEPA, therefore that water must undergo treatment. The Maloney well, located off Lovefield Street is used primarily as a back-up source during times of high demand.

TREATMENT

Easthampton treats its water using packed tower aeration technology. Water from the Pines well and the Hendrick wellfield is pumped to the top of an 11-foot diameter, 36-foot high tower, which is filled with a specially designed packing material. As the water drops down the tower, air is blown in from the bottom. This process breaks the water into tiny particles and allows the air to strip away the volatile contaminants. TCE, which is detected in amounts up to 6 parts per billion in the raw water, is not detected in the treated water.

After aeration the treated water collects in a clearwell. This water requires disinfecting prior to entering the distribution system. This is done by the addition of chlorine gas as the water is being pumped into the system. Enough chlorine is added to maintain a residual of 100 ppb as the finished water enters the distribution system. The Easthampton Water Works does not add fluoride or any other chemicals, besides chlorine, to the finished water.

DISTRIBUTION

From the well or the treatment plant, depending on the source, the water enters the distribution system to be delivered to the customers tap. This system consists of three 75 horsepower high head pumps at the Hendrick Street plant, the Brook Street, Nonotuck Park, and Maloney wells each have a 125 horsepower pumps. Depending on demand one or more of these pumps will be drawing water from the ground and into the mains. These pumps also provide system pressure. Approximately 130 miles of underground water main delivers water to all points around town. Over 700 hydrants provide fire protection and access for maintenance activities such as flushing. Service connections, to over 5,400 homes and businesses, bring the water to the tap.

STORAGE

Two storage tanks hold a combined 6 million gallons. These help maintain an adequate supply and system pressure when the pumps are off, demand exceeds pumping capacity, or in an emergency such as a large fire. A 4-million-gallon tank, built in 1989, is located in the Loudville section of Easthampton off Drury Lane. Our newest tank, built in 2000 is located off Burt Street on land donated by the Kuzaja family. This tank has a capacity of 2.0 million gallons

CROSS CONNECTION SURVEY PROGRAM

The Massachusetts Drinking Water Regulations, 310 CMR 22.00, requires all public water systems to have an approved and fully implemented Cross-Connection Control Program (CCCP) The Easthampton Water Works is working diligently to protect the public health of its drinking water customers from the hazards caused by unprotected cross-connection through the implementation of its cross-connection survey program, elimination or proper protection of all identified cross-connections, the registration of all cross-connections protected by a reduced pressure backflow preventer (RPBPs) or a double check valve assemblies (DCVAs), and the implementation of a testing program for all RPBPs and DCVAs.

If you are the owner or manager of a property that is being used as a commercial, industrial or institutional facility you must have your property's plumbing system surveyed for cross-connections by your water purveyor. If your property has **NOT** been surveyed for cross-connections contact the water department to schedule a cross-connection survey. If you have any questions, please contact: Michael Czerwiec at 529-1422

MONITORING WAIVERS AND REDUCED MONITORING

The Massachusetts Department of Environmental Protection has reduced the monitoring requirements for the following analytes because these sources are not at risk of contamination: (Date in parenthesis indicates year the last sample was taken)

- ◆ Inorganic Compounds at all of our source water locations. (2011)
- ◆ Synthetic Organic Compounds at the Maloney Well, Brook St. Well, and Nonotuck Well (2015)
- ◆ Volatile Organic Compounds at the Maloney Well and the



HENDRICK STREET PUMPING STATION CIRCA 1915

Nonotuck Well (2017)

The last samples collected for these analytes were found to meet all applicable EPA and MassDEP standards.

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, though representative, is more than one year old. These include: Asbestos, Gross Alpha Particles, Radium 226 & 228, and Lead & Copper. The latest results can be found in the water quality table .

SWAP REPORT AVAILABLE

A source water assessment was conducted of the Easthampton water supply. A susceptibility ranking of HIGH was assigned to this system using the information collected during the assessment by the Mass DEP. The complete SWAP report is available at the water department or DPW office and online at <http://www.mass.gov/dep/water/drinking/swapreps.htm>

Easthampton Water Works

109 Hendrick Street
Easthampton, MA 01027

Phone (413) 529-1422

Fax (413) 529-1431

PWS ID # MA1087000

Primary Water Source

Barnes Aquifer

100% Groundwater

Approved Daily Pumping Volume

6.295 Million Gallons

Gallons Pumped 2018

462 Million Gallons

Daily Average Pumped

1.26 Million Gallons

Population Served

16,053

Number of Services

5734

Supervisor

Greg Nuttelman

greg@easthamptonma.gov

Foreman

Clayton Weglarz

Craftsmen

Daniel Raymond

Matthew Wintle

Water Quality Programs

Mike Czerwiec

mczerwiec@easthamptonma.gov

Customer Billing

Lori Reynolds

Phone (413) 529-1414



DEFINITIONS:

1. 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.

2. 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.

3. PARTS PER MILLION (PPM): ONE PART PER MILLION (OR MILLIGRAMS PER LITER) CORRESPONDS TO ONE PENNY IN \$10,000.

4. PARTS PER BILLION (PPB): ONE PART PER BILLION (OR MICROGRAMS PER LITER) CORRESPONDS TO ONE PENNY IN \$10,000,000.

5. pCi/L=PICOCURIES PER LITER (A MEASURE OF RADIOACTIVITY)

6. ND: NOT DETECTED.

7. ACTION LEVEL (AL): THE CONCENTRATION OF A CONTAMINANT WHICH, IF EXCEEDED, TRIGGERS TREATMENT OR OTHER REQUIREMENTS WHICH A WATER SYSTEM MUST FOLLOW.

8. 90TH PERCENTILE: A STATISTICAL MEASURE USED IN THE LEAD AND COPPER RULE. A TEST RESULT AT THE 90TH PERCENTILE LEVEL MEANS THAT 90 PERCENT OF ALL THE TEST RESULTS FALL BELOW THAT LEVEL.

9. 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.

10. 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.

11. SMCL - SECONDARY MAXIMUM CONTAMINANT LEVEL: THESE STANDARDS ARE DEVELOPED TO PROTECT AESTHETIC QUALITIES OF DRINKING WATER AND ARE NOT HEALTH BASED.

12. ORSG - OFFICE OF RESEARCH AND STANDARDS GUIDELINE: THIS IS THE CONCENTRATION OF A CHEMICAL IN DRINKING WATER AT OR BELOW WHICH ADVERSE HEALTH EFFECTS ARE UNLIKELY TO OCCUR AFTER CHRONIC (LIFETIME) EXPOSURE. IF EXCEEDED, IT SERVES AS AN INDICATOR OF THE POTENTIAL NEED FOR FURTHER ACTION.

13. UNREGULATED CONTAMINANTS: UNREGULATED CONTAMINANTS ARE THOSE FOR WHICH EPA HAS NOT ESTABLISHED DRINKING WATER STANDARDS. THE PURPOSE OF UNREGULATED MONITORING IS TO ASSIST EPA IN DETERMINING THEIR OCCURRENCE IN DRINKING WATER AND WHETHER FUTURE REGULATION IS WARRANTED.

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.

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/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 (1-800-426-4791)**

Substances Expected to Be In 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 runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and 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, the Mass-DEP and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and the Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

About Lead in Drinking Water

“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 Easthampton Water Works 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>.”

EASTHAMPTON'S WATER QUALITY

Below is a summary of the contaminants detected in your drinking water during 2018. For contaminants marked with an asterisk sampling was not required or a monitoring waiver was granted for 2018, therefore the most recent detection of the contaminant was included in the chart.

| Regulated Substances (units) | Date | MCL ¹ [MDR] ⁹ | MCLG ² [MDRG] ¹⁰ | Highest Level | Range | Violation | Typical Sources |
|--------------------------------------|-----------|--|---|---------------|----------------------|-----------|--|
| Perchlorate (ppb) ⁴ | 8/23/17 | 2 | N/A | 0.252 | 0.155-0.252 | No | Rocket propellants, fireworks, munitions, flares, blasting agents |
| Nitrates (ppm) ³ | Quarterly | 10 | 10 | 3.7 | 1.6-3.7 | No | Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits. |
| Barium* (ppm) | 5/23/11 | 2 | 2 | 0.39 | 0.222-0.390 | No | Discharge of drilling wastes. Discharge from metal refineries Erosion of Natural Deposits |
| Chromium* (ppb) | 5/23/11 | 100 | 100 | 0.92 | 0.53-0.92 | No | Discharge from steel and pulp mills. Erosion of natural deposits. |
| Trichloroethylene (TCE) (ppb) | 8/22/18 | 5 | 0 | 1.0 | ND ⁶ -1.0 | No | Discharge from metal degreasing sites and other factories. |
| Gross Alpha* (pCi/L) ⁵ | 9/08/15 | 15 | 0 | 2.4 | 0.72-2.4 | No | Erosion of natural deposits |
| Radium 226 & 228* (combined) (pCi/L) | 9/08/15 | 5 | 0 | 1.36 | 0.66-1.36 | No | Erosion of natural deposits |
| Chlorine (ppm) {Monthly Average} | Monthly | [4] | [0] | {0.05} | ND-0.24 | No | Water additive used to control microbes |

| Lead & Copper (units) | Date | Action Level ⁷ | MCLG | 90th Percentile ⁸ | # of Sites found above the action level / # Sites Sampled | Typical Sources |
|-------------------------|-------------------|---------------------------|------|------------------------------|---|---|
| Lead (ppb) ⁴ | September 2017 | 15 | 0 | 7.8 | 1/ 30 | Corrosion of household plumbing systems; Erosion of natural deposits |
| Copper (ppm) | | 1.3 | 1.3 | 0.070 | 0 / 30 | |

| Secondary Contaminants and Unregulated Substances ¹³ (units) | Date | SMCL ¹¹ [ORSG] ¹² | Highest Level | Range | Typical Sources |
|---|-----------|---|---------------|----------------|---|
| Chloride (ppm) | 8/22/2018 | 250 | 41 | 32-41 | Runoff and leaching from natural deposits |
| Copper (ppm) | 8/22/2018 | 1 | 0.230 | 0.0029 - 0.230 | Internal corrosion of household plumbing; erosion of natural deposits |
| Sulfate (ppm) | 8/22/2018 | 250 | 40 | 15-40 | Naturally Occurring |
| Zinc (ppm) | 8/22/2018 | 5 | 0.560 | ND - 0.560 | Corrosion of household plumbing systems; erosion of natural deposits |
| Sodium (ppm) | 5/17/2017 | [20] | 16 | 13 - 16 | Naturally Occurring |

Did you know...

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 (1-800-426-4791).

Want More Information?

Call U.S.EPA's SafeDrinking Water Hotline at 1-800-426-4791

OR VISIT THEM ON THE WORLD WIDE WEB @ www.epa.gov