Pinehills Water Company, 33 Summerhouse Drive, Plymouth, MA, 508-209-9092; www.pinehills.net

Annual Consumer Confidence Report

JUNE 2023 V. 22

Going Beyond Compliance for Safe and Dependable Water

Pinehills Water Company (PWC) (Public Water Supply #4239055) is proud to report that testing throughout 2022 showed your tap water met or exceeded all US Environmental Protection Agency (EPA) and Massachusetts Department of Environmental Protection (MADEP) drinking water standards. We remain committed to providing safe and dependable drinking water of the highest quality possible to our customers.

As a consumer of water from PWC, understanding the efforts we make to continually improve the water delivery process and safeguard our water resources is very important. As a registered public water supplier in Massachusetts, PWC is required to provide an annual report to our customers regarding water quality, as determined by MADEP and EPA regulations. This report includes general information on groundwater sources in Massachusetts and the potential sources of contamination, as well as specific information about PWC's drinking water supply and our efforts to maintain the highest level of water quality for our customers.

Where Pinehills Water Comes From: Source Water Assessment and Resource Protection

The water that supplies The Pinehills is obtained from 3 gravel packed wells located within the Plymouth-Carver Aquifer. Two of these wells have a pumping capacity of 1460 gallons per minute (gpm) each and one has a capacity of 400 gpm. A two (2) million gallon storage tank constructed in 2006 serves as the primary storage reservoir for The Pinehills water system.

A Source Water Assessment Program (SWAP) report was prepared for the PWC water supply, for which the overall ranking of susceptibility to contamination for the system is moderate, based on residential land uses, commercial uses, and a fire station, high school, and transportation corridors in the Zone II of the wells. A copy of our SWAP report can be found at:
https://www.mass.gov/service-details/the-source-water-assessment-protection-swap-program

Commonwealth of Massachusetts
2021 Public Water System Award Recipient

Certified Operator
Aquarion Water Company of Massachusetts, Inc.
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Bridgeport, CT 06604
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PINEHILLS WATER BY THE NUMBERS*

- 231,687 linear feet of water mains (43.88 miles)
- 468 hydrants
- 2,491 home services
- 44 commercial services
- 19 municipal/non-profit services
- 24 multi-family services
- 1 residential institution
- 31 irrigation services

*(*as of 12/31/2022)*

MEASURE FOR MEASURE

Think of 1 part per billion as:

- *1 inch in 16,000 miles*
- *1 second in 32 years*
- *1 cent in $10 million*

Think of 1 part per million as:

- *1 inch in 16 miles*
- *1 minute in 2 years*
- *1 cent in $10,000*

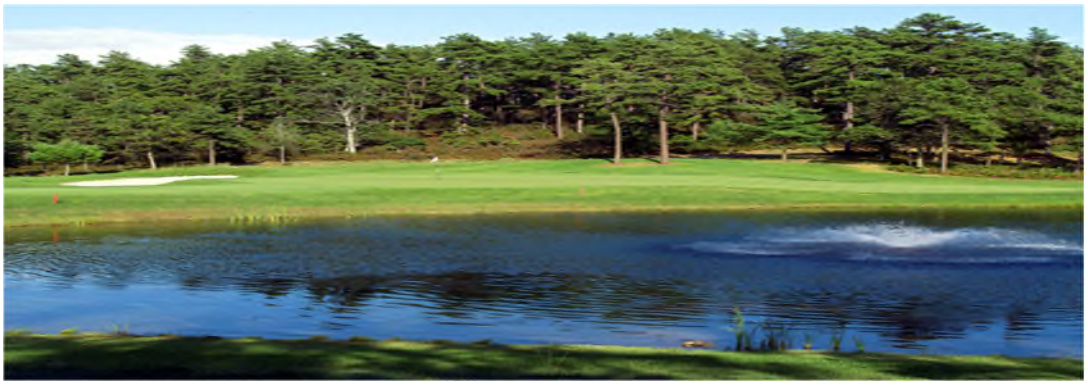
Special Health Considerations

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 Safe Water Drinking Hotline (800-426-4791).

Sampling and Monitoring Your Water Supply

The table on the following page shows monitoring results for the period from January 1 through December 31, 2022. PWC samples for both regulated and unregulated contaminants. The purpose of sampling for unregulated contaminants is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted. In the case where a contaminant is sampled for on less than an annual basis (i.e. once every three years) we have included in the table the last sample result and the year in which the sample was taken.

These sampling results are reported to the MADEP periodically throughout the year. MADEP reduced the monitoring requirements for Synthetic Organic Compounds (SOCs), Inorganic Compounds (IOCs) and Perchlorate because the source is not at risk of contamination. The last samples for IOCs (taken on 3-5-20) and SOCs (taken on 1-4-11) and Perchlorate (taken on 8-4-20) were found to meet all applicable EPA and MADEP 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, are more than one year old.



The water quality information on the adjacent table is from the most recent round of testing done in accordance with the drinking water regulations.

Important 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.

90th Percentile Value – Out of every 10 homes sampled, 9 were at or below this level. This number is compared to the action level to determine lead and copper compliance. The results of all samples taken for The Pinehills Water Company during a monitoring period are placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sample result is assigned a number starting with the number 1 for the lowest value. The number of samples taken during the monitoring period is multiplied by 0.9. The contaminant concentration in the numbered sample yielded by this calculation is the 90th percentile value.

Office of Research and Standards Guideline (ORSG)- 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

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years.

Parts per billion (ppb) or Micrograms per liter (ug/l) - one part per billion corresponds to one minute in 2,000 years.

Parts per trillion (ppt) or Nanograms per liter (ng/l) - one part per trillion corresponds to thirty seconds out of one million years

PCi/l - picocuries per liter (a measure of radioactivity)

Secondary Maximum Contaminant Level (SMCL) – These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

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

Unregulated Contaminants – Substances 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.

2022 WATER QUALITY TEST RESULTS

The water quality information in this table is from the most recent round of testing done in accordance with the drinking water regulations. All data shown was collected during the last calendar year unless otherwise noted in the table.

Inorganic Contaminants	Highest Level Detected	Range of Detections	MCL	MCLG	Violation Y/N	Major Sources in Drinking Water
Barium (2020)	0.013 ppm	0.013 ppm	2 ppm	2 ppm	NO	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Copper (2022) 20 sites sampled - 0 sites above action level of 1.3	0.167 ppm	0.0 – 0.167 ppm; 90th per-centile is 0.081	AL=1.3 mg/l	1.3 ppm	NO	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (2022) 20 sites sampled - 0 sites above action level of 1.3	4.9 ppb	0 – 4.9 ppb; 90th percentile is 0	AL= 15 ppb	0	NO	Corrosion of household plumbing systems; erosion of natural deposits
Nitrate (2022)	0.64 ppm	0.58 ppm	10	10	NO	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Per-and Polyfluoroalkyl Substance (PFAS)	**Highest Quarterly Average**	**Range of Detections**	**MCL**	**MCLG**	**Violation Y/N**	**Major Sources in Drinking Water**
PFAS6	6.43 ppt	0- 6.43 ppt	20 ppt	N/A	NO	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams
Radioactive Contaminants	**Highest Level Detected**	**Range of Detections**	**MCL**	**MCLG**	**Violation Y/N**	**Major Sources in Drinking Water**
Gross Alpha (2021)	0.182 pCi/L	N/A	15 pCi/L	0	NO	Erosion of natural deposits
Radium 226 / Radium 228 * (2021)	0.51 pCi/l	N/A	5 pCi/L	0	NO	Decay of natural and manmade deposits.

*If the results of this sample had been above 5 pCi/L, our system would have been required to do additional testing for radium.
Because the results were below 5 pCi/L, no testing for radium was required.

Volatile Organic Contaminants	Level Detected	Range of Detections	MCL	MCLG	Violation Y/N	Major Sources in Drinking Water
Total Trihalomethanes (TTHMs) (2022)	0.6 ppb	N/A	80 ppb	N/A	NO	By-product of drinking water disinfection
Unregulated and Secondary Contami-nants	**Highest Level Detected**	**Range of Detections**	**SMCL**	**ORSG**	**Major Sources in Drinking Water**	
Chloroform (2022)	0.64 ppb	0.6 – 0.064 ppb	--	70 ppb	EPA regulations require us to monitor this contaminant while EPA considers setting a limit on it**.** Trihalomethane; by-product of drinking water chlorination. In non-chlorinated sources chloroform may be naturally occurring.	
Chloride (2022)	42 ppm	N/A	250 ppm	--	Runoff and leaching from natural deposits; seawater influence	
Copper (2022)	0.012 ppm	N/A	1 ppm	--	Erosion of natural deposits; internal corrosion of household plumbing	
Iron (2022)	20 ppb	N/A	300 ppb	--	Natural and industrial sources as well as aging and corroding distribution systems and household pipes	
Perfluorohexanoic Acid (PFHxA) (307-24-4) (2022)	6.73 ppt	2.08 – 6.73 ppt	--	--	Furniture and furnishings; stain resistant finish (according to the Nation Institutes of Health, National Center for Biotechnology Information)	
pH (2022)	7.56	N/A	6.5-8.5		Runoff and leaching from natural deposits; seawater influence	
Sodium (2020)	24 ppm	N/A	--	20 ppm	Discharge from the use and improper storage of sodium containing de-icing compounds or in water softening agent. Some people who drink water containing sodium in high concentrations for many years could experience an increase in blood pressure.	
Sulfate (2022)	3.0 ppm	N/A	250 ppm	--	Runoff and leaching from natural deposits; industrial wastes	
Zinc (2022)	0.019 ppm	N/A	5 ppm	-	Corrosion of household plumbing systems; erosion of natural deposits	

Substances in Water and Special Characteristics of Water in New England

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: 1.) *Microbial Contaminants* such as viruses or bacteria which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife; 2.) *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; 3.) *Pesticides and Herbicides,* which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses; 4.) *Organic Chemical Contaminants*, including synthetic and volatile organic 17 chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; and 5) *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, MADEP and EPA set regulations limiting the amount of certain contaminants in public drinking water. Food and Drug Administration (FDA) and the MA Department of Public Health regulations set limits for contaminants in bottled water which must provide the same protection for public health. To understand the possible health effects described for many regulated constituents, a person would have to drink two liters (about one half gallon) of water every day at the permitted Maximum Contaminant Level (MCL) for a life time to have a one-in-a-million chance of having the described health effects.

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).**

Many water sources in New England are naturally corrosive, which can dissolve metal piping resulting in increased levels of copper and lead. For this reason, MADEP requires annual sampling and testing to detect lead and copper and permits the addition of chemicals that make the water neutral or slightly alkaline. As our groundwater has an acidic pH between 5.5 and 6.0, PWC adds Sodium Hydroxide to its water which adjusts to a neutral pH and is effective in reducing lead and copper.

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 18 materials and components associated with service lines and home plumbing. The Pinehills Water Company 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**.

All reservoirs and some ground water sources contain numerous microorganisms some of which can cause people to be sick. To eliminate disease carrying organisms it is necessary to disinfect the water destroying harmful organisms. PWC uses sodium hypochlorite as its primary disinfectant.

Chlorine destroys organisms by penetrating cell walls and reacting with enzymes. Disinfection with chlorine has been proven effective at ensuring that water is free of harmful organisms and safe to drink. Sodium hypochlorite is added to the water on the high-service zone as a preventative disinfectant; this chemical is added at a concentration of approximately 0.5 ppm to ensure safe drinking water.

Committed to Safe Drinking Water

We are closely monitoring a family of chemicals called per- and polyfluoroalkyl substances (PFAS) that have been detected in some public water supplies in Massachusetts and across the nation. PFAS were widely used in manufacturing, many consumer products and firefighting foam. When discarded, PFAS has leached from these products and into water sources. The presence of PFAS is the result of pollution and not any action taken by your water supplier. PFAS can be present in our water, soil, air, and food as well as in materials found in our homes or workplaces, including:

- **Soil and water at or near waste sites** - at landfills, disposal sites, and hazardous waste sites such as those that fall under the federal Superfund and Resource Conservation and Recovery Act programs.
- **Fire extinguishing foam** - in aqueous film-forming foams (or AFFFs) used to extinguish flammable liquid-based fires. Such foams are used in training and emergency response events at airports, shipyards, military bases, firefighting training facilities, chemical plants, and refineries.
- **Manufacturing or chemical production facilities that produce or use PFAS** – for example at chrome plating, electronics, and certain textile and paper manufacturers.
- **Food** – for example in fish caught from water contaminated by PFAS and dairy products from livestock exposed to PFAS.
- **Food packaging** – for example in grease-resistant paper, fast food containers/wrappers, microwave popcorn bags, pizza boxes, and candy wrappers.
- **Household products and dust** – for example in stain and water-repellent used on carpets, upholstery, clothing, and other fabrics; cleaning products; non-stick cookware; paints, varnishes, and sealants.
- **Personal care products** – for example in certain shampoo, dental floss, and cosmetics.
- **Biosolids** – for example fertilizer from wastewater treatment plants that is used on agricultural lands can affect ground and surface water and animals that graze on the land.

There are thousands of PFAS compounds. The U.S. Environmental Protection Agency recommends PFAS concentrations in drinking water not exceed 70 parts per trillion (ppt) for two PFAS compounds: PFOA and PFOS. However, many states are adopting stricter standards. The Massachusetts Department of Environmental Protection has set a limit of 20 ng/L (equals 20 part per trillion) for the sum of six PFAS compounds, which are referred to as the PFAS6.

Relatively recent advances in laboratory testing now enable us to test for PFAS compounds at extremely low levels. Water systems that tested negative for PFAS at parts per billion may now test positive at parts per trillion. However, these tests do not tell us when the PFAS entered the water source or from where.

The new MassDEP standard requires public water systems to test for PFAS, and we have done that. Our tests have shown ranges of PFAS from No Detection to a level of 6.43 parts per trillion (ppt), which is below the MA Drinking Water Standard of 20 ppt of PFAS6.

This is a new issue for water regulators and water suppliers. There is still much we do not know about PFAS and its impact on human health. For every answer we have, a new question arises. No one has all the information, and we are going to try to provide the best information we have based on the best available knowledge.

We wish we had definitive answers on the health impacts, but more research is needed. MassDEP states consuming water with PFAS6 above the drinking water standard does not mean that adverse effects will occur, and that the degree of risk depends on the level of chemicals and the duration of exposure.

There are scientific studies that suggest potential links between exposure to certain PFAS in the environment and health effects. The studies have looked at the effects on the development of fetuses and infants, the thyroid, the liver, kidneys, hormone levels and the immune system, as well as if a cancer risk exists for people exposed to levels well above the drinking water standard.

MassDEP and CDC both note more research is needed and ongoing, and it is important to remember consuming water with high PFAS6 levels does not mean adverse effects will occur. As we await further scientific study, MassDEP has acted to set a drinking water standard, and we are working in the best interest of our consumers to lower PFAS6 levels below 20 ppt.

SOUTH SHORE RECYCLING COOPERATIVE

The Town of Plymouth, together with 13 other towns, is a member of the South Shore Recycling Cooperative (SSRCOOP) which provides residents of the member towns with opportunities for collection and disposal of household hazardous wastes. Household hazardous wastes include common materials from the workbench, the garage, the shed and the home. A listing of these items and locations for collection and disposal through the SSRCOOP can be found at **www.plymouth-ma.gov** and **www.ssrcoop.info** or by calling the cooperative at 781.329.8318.

Saving Water Inside Your Home

Did You Know:

- A single dripping faucet can waste far more water in a single day than one person needs for drinking in an entire week.
- A leaking toilet can waste 200 gallons of water a day. You can test it by putting 10 drops of food coloring in the tank. Don't flush for 15 minutes. If the colored water shows up in the bowl, the tank is leaking.
- Two thirds of the water used in an average home is used in the bathroom, mostly for flushing toilets and for showers and baths.
- Nearly 14 percent of the water a typical homeowner pays for is never even used— it leaks down the drain.

Do you know how much water is used . . .

Washing your hands	2-5 gals per min.
Taking a shower	2-7 gals per min.
Taking a bath	20-60 gals per bath
Washing clothes	25-40 gals per load
Flushing the toilet	1.5-7 gals per flush
Running a dishwasher	10-20 gals per load
Brushing your teeth	2-5 gals per min.
Shaving (tap running)	20 gallons
Running the garden hose	5-10 gals per min.

What's a Cross - Connection?

A cross-connection is formed at any point where a drinking water line connects to equipment (boiler), systems containing chemicals (air conditioning; fire sprinklers; irrigation) or water sources of questionable quality. In certain commercial applications, PWC requires the installation of special valves known as backflow prevention devices and has in place a program for inspecting and testing these backflow prevention devices on a regular basis to ensure that they are properly operating.

What can you do to prevent a cross-connection in your home?

Without the proper protection something as simple as a garden hose has the potential to contaminate or pollute drinking water lines in your home. 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 use, can take to prevent such hazards:

a. Never submerge a hose in soapy water buckets, pet watering containers, pools, tubs, sinks, drains or chemicals;

b. Never attach a hose to a garden sprayer without the proper backflow preventer;

c. Buy and install a hose bib vacuum breaker on every threaded water fixture. The installation can be as easy as attaching a garden hose to a spigot. This inexpensive device is available at most hardware stores and home-improvement centers

For more information, visit the US EPA's website at:

http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm

or call the Safe Drinking Water Hotline at (800) 426-4991.

If you have questions concerning this report or for more information on Pinehills Water Company contact Deborah Sedares, 33 Summerhouse Drive, Plymouth, MA 02360; Tel: 508-209-9000; Email: pwc@pinehills.com
A copy of this report can be viewed at:

https://www.pinehills.net/editor_upload/File/PWC%20Consumer%20Confidence%20Report%202022.pdf