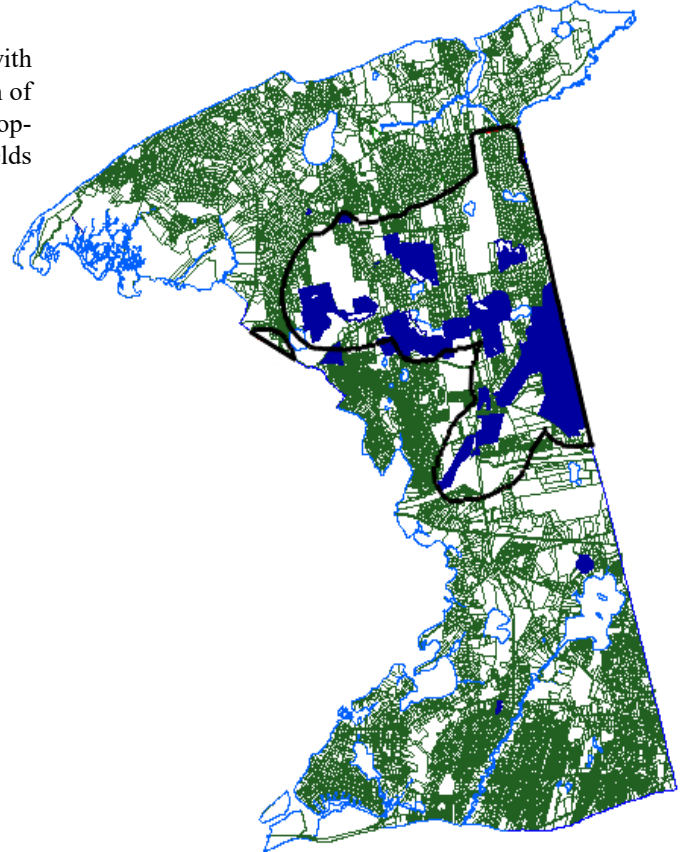


Dennis Water District
Town of Dennis
2022 Annual Water Quality Report
MA Public Water Supplier ID # 4075000

Dear Customer: We are pleased to provide you with our latest water quality summary covering the past year. The Safe Drinking Water Act (SDWA) requires that utilities issue an annual "Annual Water Quality Report" to customers in addition to other notices that may be required by law. This report details our sources of water, what it contains, and the problems and risks our testing and treatments are designed to prevent. The Dennis Water District is committed to providing you with the safest and most reliable water supply possible. Informed consumers are our best allies in maintaining safe drinking water.

Our water supply meets all state and federal water quality standards. We encourage public interest and participation in our community's decisions affecting drinking water. The Board of Water Commissioners meets regularly on the fourth Thursday of each month at 10:00AM in the Stone Hearing Room at the Dennis Town Hall, 685 Route 134, South Dennis. The public is welcome to attend. Meetings are subject to change, so please call ahead or visit our website at www.denniswater.org. You are also invited to express your comments or concerns by phone, mail or email. Meetings are generally televised live and replayed on local Channel 18 on the Town of Dennis website. A link to *On Demand Videos* of meetings are available on our website, also.

Water Sources In 2022, we supplied the properties in Dennis with 1,158,287,400 gallons of groundwater pumped from 22 wells all located north of the Route 6. The wells are situated on more than 1086 acres of watershed property owned or protected by the District. The following is a list of well fields including the wells that operate in those fields.



Wells 1, 2, 3, 12, 23	Old Chatham Road	2,100 GPM
Wells 4, 6, 11, 22	Old Bass River Road	1,600 GPM
Well 5	Route 134	500 GPM
Wells 7, 8, 10	Airline Road	1,300 GPM
Well 9	Grassy Pond Drive	600 GPM
Wells 14, 15	Bakers Pond Road	1,150 GPM
Well 16	Timber Lane	450 GPM
Well 18	Hokum Rock Road	700 GPM
Wells 19, 20	Setucket Road	1,400 GPM
Main Station	80 Old Bass River Road	700 GPM
Well 21	Route 134	700 GPM

Emergency backup supplies would come from surrounding towns if mutual aid was needed. We have three interconnections with the Town of Yarmouth, three with the Town of Harwich and one with the Town of Brewster.

Dennis Source Water Assessment This assessment was completed by DEP to delineate the boundaries of those areas providing source water to our public water supply wells and identify, to the extent practicable, the origins of any future contaminants in the delineated area. No areas of contamination were found. The conclusions of the report found that the District has done a good job protecting its sources by acquiring or permanently restricting 1077 acres of watershed, working with the Board of Health to update our Wellhead Protection District and sponsoring yearly Household Hazardous Waste Collection Days. The report recommends that the District continue to educate consumers, through its newsletters, about source protection and to work with local businesses to ensure proper storage and handling of hazardous materials. The zones of contributions to our wells are outlined on the map above. A larger more detailed map is available at the Town of Dennis. Additional information about the Source Water Assessment can be obtained from the Massachusetts Department of Environmental Protection. The Dennis Water District's assessment begins on page 293. [Click here to open the file at MassDEP.](#)

Memberships The District is a member of the following organizations: American Water Works Association, Massachusetts Water Works Association, New England Water Works Association, Plymouth County Water Works Association and Barnstable County Water Utilities Association.

Our Goal *The District has provided water and water related services to consumers within the Town of Dennis for more than seventy years. We are committed to supplying our current and future customers with a safe and adequate water supply for fire protection and domestic use at a reasonable cost. We will take all practical measures to protect the water system's assets.*

How To Read This Table The table on the adjacent page shows the results of our water quality analyses. Every regulated contaminant that we detected in the water, even the most minute traces, is listed here. The table contains the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the highest level actually detected, the highest to the lowest ranges detected from all our wells, the usual sources of such contamination, footnotes explaining our findings, and a key to units of measurement. Definitions of MCL and MCLG are important.

- (MCL) Maximum Contaminant Level:** 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.
- (MCLG) Maximum Contaminant Level Goal:** 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.
- (MRDL) Maximum Residual Disinfectant Level:** The highest level of disinfectant (chlorine) allowed in drinking water.
- (MRDLG) Maximum Residual Disinfectant Level Goal:** The level of a drinking water disinfectant below which there is no known expected risk to health.
- (SMCL) Secondary Maximum Contaminant Level:** These levels of a contaminant are developed to protect against the aesthetic qualities of drinking water and are not health based.
- (ORSG) Mass. Office of Research and Standards Guideline:** This is the concentration of a chemical in drinking water, at or below, which adverse, non-cancer health effects are unlikely to occur after chronic (lifetime) exposure.

Water-Quality Table Notes Lead and copper are elements that occur naturally in the environment. When these two elements are found in our drinking water, it is most often the result of water interacting with materials found in plumbing, not from the water source. Since 1993, the water has been treated with potassium hydroxide to raise the pH from 5.5 to 7.0. The reason for this is to minimize the corrosion of plumbing and the consumer's exposure to lead and copper. Due to the effectiveness of this treatment, the District has been placed on a reduced monitoring program. Since treatment began, we continue to meet the requirements of the Safe Drinking Water Act.

¹ Chloroform occurs naturally here on Cape Cod. Future studies by DEP are planned to determine the reasons for this.

² Sodium can occur naturally and can also be attributed to road runoff.

³ The aesthetic limits for iron and manganese are .3 ppm and .05 ppm respectively.

In 2015, the District completed a project that brought two more wells with elevated levels of iron and manganese into the two treatment plants, increasing their capacity to 5 MGD each. Levels above the recommended limits have been known to cause discoloration, taste and odor problems. These two elements have been present in our water system as long as the District has been pumping water. We continue to monitor the iron and manganese in our wells. The District has two iron and manganese removal plants to improve the aesthetics and water quality concerns associated with these minerals in the distribution system. We are proud to say they are working well and conditions in the system continue to improve.

PFAS6 Sample Results

The District sampled for PFAS6 in each quarter of 2021 as required in the new regulations. The South Iron and Manganese Removal Plant had two "No Detections" and two detections. One detection was at 4.7ppt (parts per trillion) and the other at 2.1ppt. Both detections were below the standard of 20ppt. It was determined through further testing that the detections were originating from Wells 5 and 16 which were also below the standard of 20ppt. After consultations with MassDEP, it was determined there was no drinking water violation and the District will be required to continue further sampling to monitor the detection levels.

The District has a unique situation at the South Plant where the water from different wells is combined as it enters the plant which in turn lowers the PFAS6 detection level as it leaves the treatment facility. This is a simple and accepted treatment option at this point. The District will continue to monitor and will provide public updates as important information becomes available.

What is PFAS?

PFAS6 includes perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), perfluorodecanoic acid (PFDA) and perfluoroheptanoic acid (PFHpA). PFAS are man-made chemicals that have been used in the manufacturing of certain fire-fighting foams, moisture and stain resistant products, and other industrial processes. These chemicals are found in everyday commonly used products.

For more information - click on the following topics:

[MassDEP Fact Sheet - Questions and Answers for Consumers](#)

[MassDEP Fact Sheet - Home Water Treatment Devices - Point of Entry and Point of Use Drinking Water Treatment](#)

[CDC ATSDR Information on PFAS for consumers and health professionals](#)

[Massachusetts Department of Public Health information about PFAS in Drinking Water](#)

Lead & Copper Lead and copper samples are collected on a three-year cycle. They were collected during 2020. The District collected 30 samples from homes and 6 samples from schools. A complete list of all results from this testing by the District in 2020 is available upon request or by visiting the District office during regular business hours: Monday through Friday 8 a.m. to 4 p.m. **The following is an education statement required under EPA regulations:**

“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 Dennis Water District 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 [EPA’s Basic Information about Lead in Drinking Water](#).”

Total Coliform The Total Coliform Rule requires systems to test for bacteria on a regular monthly schedule based on the population served. Coliforms are bacteria that are naturally present in the environment and are not harmful themselves; however, their presence can be an indicator that other potentially harmful bacteria may also be present.

Emergency Response Plan

The District maintains an Emergency Response Plan (ERP) which meets Massachusetts Departments of Environmental regulations 310 CMR 22.04(13) and Massachusetts Guidelines and Policies for Public Water Suppliers. It serves as a guide for the District in the case of an emergency.

As part of the ERP, District employees receive training to strengthen the District’s ability to quickly identify and respond to emergencies. The training sessions earn education credits for our employees that hold state drinking water operator licenses.

The District partners with the Town of Dennis to provide an emergency calling service, also known as *Reverse 9-1-1*. The service enables the District to notify residents and businesses of water emergencies such as a “boil water” order or a major water main break. Information about *CodeRED* can be found on the District’s website or by calling the District office at 508-398-3351.

The goal of the ERP is to protect the public health of our customers by being prepared to respond immediately to a variety of events that may result in contamination of the water supply or disruption of water service.

WATER EMERGENCY NOTIFICATION SYSTEM

Dennis residents and businesses are encouraged to enter their contact information for home, business, and cell phones so they can receive public notifications of events and emergencies. This system is shared by the **Dennis Police Department and the Dennis Water District** for storms, chemical spills, evacuations, water system problems and other alerts. It is capable of targeting calls to only affected areas as it relates to water main breaks or interruption of service.

It is especially important to register if you have unlisted home number, cell phones, TDD/TTY or VOIP. Please take just a few minutes and make sure your number(s) are registered by calling: **774-352-1474** or online at the Dennis Police Department’s website by [Clicking Here](#).

Key to Table

- AL = Action Level
- MCL = Maximum Contaminant Level
- MCLG = Maximum Contaminant Level Goal
- MFL = Million Fibers per Liter
- MRDL = Maximum Residual Disinfectant Level
- pCi/l = picocuries per liter (a measure of radioactivity)
- ppm = parts per million or milligrams per liter (mg/l)
- ppb = parts per billion, or micrograms per liter (µg/l)
- ppt = parts per trillion, or nanograms per liter
- ND = not detected

Contaminant	Date Tested	Unit	MCL	MCLG	Highest Detected Level	Range Lowest to Highest	Major Sources	Violation
Inorganic Contaminants								
Nitrate	Mar - June	ppm	10	10	2.2	ND - 2.7	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	NO
Radioactive Contaminants								
Gross Alpha Activity	2020	pCi/L	15	0	2.900	ND - 2.9	Erosion of natural deposits	NO
Radium 228	2020	pCi/L	5	0	0.77	.18 - .77	Erosion of natural deposits	NO
Disinfection Contaminants								
HAA5 Haloacetic Acids	August	ppb	60	NA	1.2	ND - 2.49	By-product of drinking water chlorination	NO
TTHM Total Trihalomethanes	August	ppb	80	NA	10	ND - 7.7	By-product of drinking water chlorination	NO
Chlorine	2021	ppm	4	NA	0.21	.07 - .22	Product of drinking water chlorination	NO
Per- and Polyfluoroalkyl (PFAS) Substances								
PFAS6	2021	PPT	20	0	4.7	ND - 4.7	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.	NO
Unregulated Contaminants								
Contaminant	Date Tested	Unit	SMCL	ORSG	Average Detected Level	Range Lowest to Highest	Sources	Violation
Chloroform ¹	June	ppb	NA	70	1.4	ND - 2.46	By-product of drinking water chlorination	NO
Bromochloromethane	June	ppb	NA	90	1.42	ND - 2	Used as a fire-extinguishing fluid, an explosive suppressant, and as a solvent in the manufacturing of pesticides	NO
Chlorodibromomethane	June	ppb	NA	NA	2.41	ND - 3.5	By-product of drinking water chlorination	NO
Bromoform	June	ppb	NA	NA	1.2	ND - 2.2	By-product of drinking water chlorination	NO
Sodium ²	June	ppm	NA	20	68	9.4 - 68	Run off from use of salt on roads	NO
Secondary Contaminants								
Contaminant	Date Tested	Unit	SMCL	Health Advisory	Highest Detected Level	Range Lowest to Highest	Major Sources	Violation
Manganese ³	2022	ppm	0.05	0.3	0.032	ND - .026	Naturally present in the environment	NO
Iron ³	2022	ppm	0.3	NA	0.21	ND - 1.4	Naturally present in the environment	NO
Lead & Copper								
Contaminant	Date Tested	90th Percentile	# of Sites Exceeded Action Level	# of Sites Sampled	MCL (Action Level)	MCLG	Major Sources	Violation
Lead	2020	ND	0	30	15 ppb	0 ppb	Corrosion of household plumbing Erosion of natural deposits	NO
Copper	2020	0.24	0	30	1.3 ppm	1.3 ppm	Corrosion of household plumbing Erosion of natural deposits and leaching of wood preservatives	NO
Microbiological Contaminants								
Contaminant	Date	Highest # positive samples taken in a month	Highest % Positive in a Month	MCL	MCLG	Major Sources	Violation	
Total Coliform Bacteria	2022	0 positive detections in 2022	0.0%	5%	0	Naturally present in the environment	NO	

Unregulated contaminants are those for which there are no established drinking water standards. The purpose of unregulated contaminant monitoring is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted.

Water Treatment Techniques

Corrosion Control through pH Adjustment Many drinking water sources in New England are naturally corrosive (i.e. they have a pH of less than 7.0). The water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason it is beneficial to add chemicals that make the water neutral or slightly alkaline. This is done by adding any one, or a combination of several, approved chemicals. The Dennis Water District adds potassium hydroxide to its water. This adjusts the water to a non-corrosive pH. Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations.

Iron & Manganese Removal Iron and Manganese are often present in groundwater at levels that can discolor the water or cause it to take on unpleasant odors or tastes. Although the water may still be safe to drink, treatment is often desirable. Our treatment consists of adding sodium hypochlorite (chlorine) to the water which makes the iron and manganese precipitate out of solution and finally removed by running the water through one of our two filtration plants. Finish water results show nearly no detections of iron or manganese.

Disinfection The District uses sodium hypochlorite, also known as chlorine, in the distribution system. Initially it was only routinely used during our flushing program in the spring and fall of each year. Since 2007, the District has year-round chlorination of the distribution system. Chlorine is added at a rate of .5 ppm as a preventative measure to eliminate microorganisms.

All chemicals used by the District are approved for water treatment by one of the following organizations; National Sanitation Foundation International or United Laboratories, both accredited by the American National Standards Institute. Chemicals also meet performance standards established by the American Water Works Association.

Mandatory EPA Health Statement To ensure that tap water is safe to drink, the Massachusetts Department of Environmental Protection and the Environmental Protection Agency (EPA) prescribe limits on the amount of certain contaminants in water provided by public water systems. The Federal Food and Drug Administration and the Massachusetts Department of Public Health Regulations establish limits for contaminants in bottled water.

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 the 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) or by visiting their general website at <http://www.epa.gov>.

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 radioactive material, and can absorb substances resulting from the presence of animals or human activity. Contaminants that may be present in source water include:

- (A) Microbial contaminants such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- (B) Inorganic contaminants, such as salts and metals, can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- (C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, storm water runoff, and residential uses.
- (D) Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, can also come from gas stations, urban storm water runoff and septic systems.
- (E) Radioactive contaminants can be naturally occurring or the result of oil and gas production and mining activities.

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, persons 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 are available from the Safe Drinking Water Hotline (800-426-4791).

Please share this information with other people who you know drink water provided by the District, especially those who may not have received this notice directly (for example, people living in apartments, nursing homes, or who visit schools and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail. Your cooperation by sharing this information is appreciated.

What does this all mean? *Our water supply is safe!* As you can see in our table, the District experienced no violations during 2022. The District takes more than 1,000 test samples for various contaminants each year as required by EPA and DEP. Some detections are made at low levels yet, all were within regulated limits. It is not possible to include all the contaminants that are tested for in the space provided; nor, is it required. A complete list can be obtained on request by contacting the District.

How Will You Be Notified In An Emergency In the event of a non-acute violation, the District must submit notices within 14 days for publication in local newspapers explaining the violation. The notices will contain important information for consumers and what actions are being taken by the District to achieve compliance.

In the event of an acute violation or an immediate emergency, the District must issue a public notice for release through *CodeRED* and electronic media (radio, television, etc.) within 24 hours. The notice must explain the situation, including actions or precautions consumers may need to take. The notice will also describe the actions being taken by the District to resolve the problem. While regulations require a 24-hour public notice, our goal is to release the information as soon as possible.

This report was prepared by David Larkowski, Superintendent of the Dennis Water District. For more information call 508-398-3351.