

Dennis Water District

Town of Dennis

2016 Annual Water Quality Report

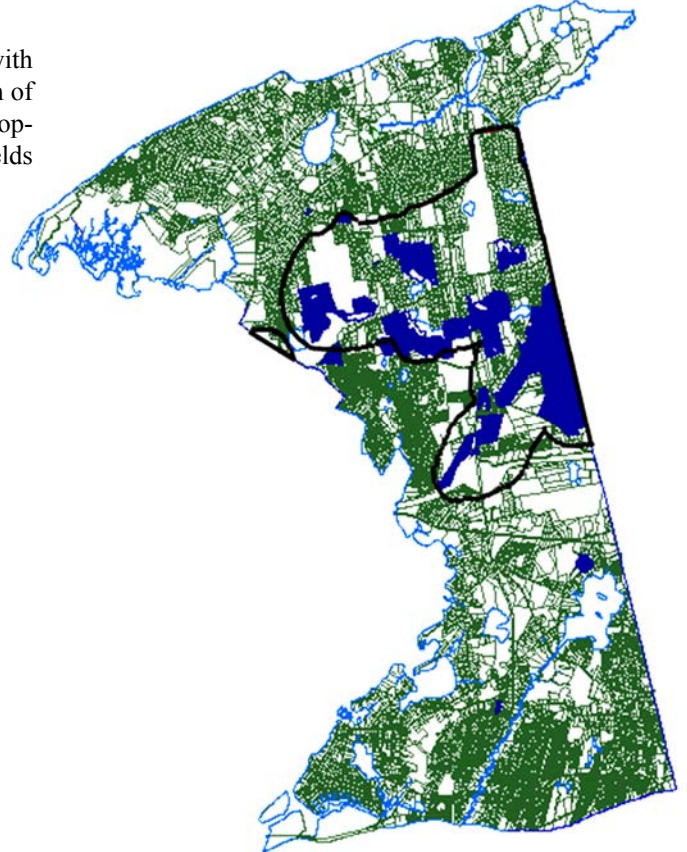
MA Public Water Supplier ID # 4075000

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 "Consumer Confidence 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 6:00 p.m. in the Martin Training Room at the Dennis Police Department, 96 Bob Crowell Rd., South Dennis. Meetings are subject to change, so please call ahead to confirm the date and time (508-398-3351). The public is welcome to attend. The meetings are generally televised live and replayed on local Channel 18. You are also invited to express your comments or concerns by mailing a letter or sending an email. Please visit our website at www.denniswater.org.

Water Sources In 2016, we supplied the properties in Dennis with 1,179,842,500 gallons of groundwater pumped from 22 wells all located north of the Route 6. The wells are situated on more than 1067 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 1067 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 District office and the Town of Dennis Board of Health office. Additional information about the Source Water Assessment can be obtained from the Massachusetts Department of Environmental Protection at <http://www.state.ma.us/dep/brp/dws>.

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 affects 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. Iron and manganese in the remainder of the system are below detection levels. 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.

Lead & Copper The most recent samples were taken during 2014. The District tested for Lead & Copper by taking samples from 30 homes. Lead was detected in 1 sample above the action level however, the total percent was under the limit established by EPA guidelines. A complete list of all results from this testing by the District in 2014 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: <http://www.epa.gov/safewater/lead>."

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.

Contaminant	Date Tested	Unit	MCL	MCLG	Highest Detected Level	Range Lowest to Highest	Major Sources	Violation
Inorganic Contaminants								
Nitrate	March	ppm	10	10	2.1	ND - 2.1	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	NO
Perchlorate	August	ppb	2	2	0.46	ND - .46	Rocket propellant, Fireworks, Munitions, Flares, Blast ingredients	NO
Barium	March	ppm	2	2	0.041	ND - .041	Discharge of drilling wastes, discharge from metal refineries, erosion of natural deposits	NO
Fluoride	March	ppm	4	4	0.55	ND - .55	Erosion of natural deposits; discharge from fertilizer and aluminum factories	NO
Sodium ⁺	March	ppm	NA	NA	100	6 - 100	Run off from use of salt on roads	NO
Radioactive Contaminants								
Gross Alpha Activity	10/28/13	pCi/L	15	0	0.190	ND - .19	Erosion of natural deposits	NO
Radium 228	10/28/13	pCi/L	5	0	1.8	ND - 1.8	Erosion of natural deposits	NO
Volatile Organic Contaminants								
HAAs Haloacetic Acids	August	ppb	60	NA	4.1	52 - 4.1	By-product of drinking water chlorination	NO
THM Trihalomethanes	August	ppb	60	NA	10	1.3 - 10	By-product of drinking water chlorination	NO
Unregulated Contaminants								
Contaminant	Date Tested	Unit	SMCL	ORSG	Average Detected Level	Range Lowest to Highest	Sources	Violation
Chloroform ¹	July	ppb	NA	NA	5	ND - 5	By-product of drinking water chlorination	NO
Bromochloromethane	July	ppb	NA	NA	1.8	ND - 1.8	By-product of drinking water chlorination	NO
Chlorodibromomethane	July	ppb	NA	NA	1.5	ND - 1.5	By-product of drinking water chlorination	NO
MTBE	March	ppb	20 - 40	70	2	ND - 2.0	Fuel Additive, leaks & spills from gasoline storage tanks	NO
Contaminant	Date Tested	Unit	MRDL	MRDLG	Highest Detected Level	Range Lowest to Highest	Sources	Violation
Chlorine	2016	ppm	4	NA	0.32	ND - .32	Product of drinking water chlorination	NO
Secondary Contaminants								
Contaminant	Date Tested	Unit	SMCL	Health Advisory	Highest Detected Level	Range Lowest to Highest	Major Sources	Violation
Manganese ²	March	ppm	0.05	0.3	0.04	0.05 - .04	Naturally present in the environment	NO
Iron ²	March	ppm	0.3	NA	0.53	0.53	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	Aug & Sept 2014	5	1	30	15 ppb	0 ppb	Corrosion of household plumbing Erosion of natural deposits	NO
Copper	Aug & Sept 2014	0.36	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	06/13/16	1 positive detections in 2016		1.3%	5%	0	Naturally present in the environment	NO

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

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 Dennis Water District, especially those who may not have received this notice directly (for example, people living in apartments, nursing homes, or who visit our 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 2016. 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 required limits. It is not possible to include all the contaminants that we test 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.