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ANNUAL WATER QUALITY REPORT FOR 2017
 MADEP PUBLIC WATER SUPPLY ID #3073000
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Dedham-Westwood Water District

The Water We Drink

Dedham-Westwood Water District (DWWD) is pleased to present our Annual Water Quality Report for the Calendar year 2017. It is designed to inform you about the quality of your drinking water. We are committed to providing you with high quality drinking water which is so fundamental for our communities and way of life.

The Massachusetts Department of Environmental Protection (MADEP) routinely inspects our water system. MADEP inspects our system for its technical, financial, and managerial capacity to provide safe drinking water to you. To ensure that we provide the highest quality of drinking water available, Massachusetts certified drinking water operators oversee the operations of your water system. In 2017, as part of our ongoing commitment to you, we made many improvements to our system. Highlights include the installation of 6,266 feet of water main, 24 fire hydrants, 60 water services and 409 meters.

Bridge Street Treatment Modernization Project Groundbreaking Ceremony



Dedham Selectman and former DWWD Commissioner Mike Butler, Westwood Selectman Nancy Hyde, Executive Director Eileen Commene, Representative Paul McMurtry, Senator Mike Rush, Marie-Louise Kehoe, Westwood Selectman and former DWWD Commissioner John Hickey, Water Commissioner Steve Mammone and Water Commissioner Rob McLaughlin, Westwood Selectman Mike Walsh, Water Commissioner Jim Galvin

The Bridge Street Water Treatment Plant Modernization Project began construction this past summer. The project is within budget to date. The completion of the project is expected in 2019. The support of the Elected Town Officials and staff is greatly appreciated. The treatment plant is undergoing renovation to the structure, heating and ventilation systems, new emergency generator, some process and pumping equipment improvements, and will include a new building to house filtration equipment. The project was awarded to Barbato Construction of Middleboro MA. The estimated cost of the project is \$8.8 million dollars.



Public Participation

We ask that all our customers help protect our water sources and use water wisely. Important educational information may be found with your bill or on our website. The Board of Water Commissioners, three from Dedham and three from Westwood, appointed by the Selectmen of each town respectively, normally meet on the second and last Tuesday evenings each month. The public is welcome to attend. If you have any questions about this report, please contact Executive Director Eileen Commene at (781) 461-2779.

What Is The Source Of Dedham -Westwood Water?

Your drinking water supply is local. The source of your drinking water is groundwater, water that is present below the earth's surface in sand and gravel pore spaces, from seventeen wells. Five wells are located in Westwood by the Neponset River near University Ave and one well is located by Rock Meadow Brook near Dover Rd. In Dedham, eleven wells are by the Charles River near Bridge Street. We serve a population of about 40,100 through approximately 13,400 meters and customer service lines. The Dedham-Westwood Water District has emergency water connections with Boston, Norwood, Needham and the MWRA. Last year, we obtained about 2% of the water supply from the MWRA. For a copy of the 2017 MWRA Water Quality report, please call us.

How are the Sources of Drinking Water Protected?

The MADEP prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving our water system. The purpose of the report was to determine the susceptibility of our drinking water sources to contamination sources so that protection efforts can be best targeted. The results of the assessment are detailed in the report, which is available online at <http://www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3073000.pdf> or at our office. The report assigns a high susceptibility ranking to the DWWD sources due to hazardous materials storage and use, transportation corridors and residential land use. The high threat activities listed by MADEP are those that typically use, produce or store contaminants of concern, which if improperly managed, are potential sources of contamination.

Both Dedham and Westwood have water resource and aquifer protection zoning bylaws to protect our drinking water sources. Residents and businesses are encouraged to take steps to protect drinking water sources-especially those living and working in proximity to the supply sources. Measures include proper use and disposal of hazardous materials like fertilizers and pesticides, properly disposing of pet waste and using environmentally friendly deicers.

Is My Drinking Water Treated?

Certified drinking water facilities operators continuously treat your drinking water with a multi-step process. The water is first aerated which helps oxidize minerals in the water such as iron and manganese. Next, the water is filtered to remove any suspended material. Chlorine is added to provide disinfection. The pH of the water is adjusted to an optimum level so it is not corrosive to pipes and plumbing fixtures. Finally, fluoride is added to prevent dental cavities.

Substances Found in Tap 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:

- **Inorganic substances-** such as salts and metals, that can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.
- **Organic chemical contaminants-** including synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- **Pesticides and herbicides-** that may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- **Microbial contaminants-** such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

- **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 Department of Environmental Protection (MADEP) and the U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same level of protection for public health. All drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily pose a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

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 and 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 and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).



Dedham-Westwood Water District named as Consistent Performer of 2017 Public Water Systems Award Winner by MADEP

In 2018, The Massachusetts Department of Environmental Protection(MADEP) named Dedham-Westwood Water District as a winner of the annual Public Water Systems Awards. The award was also received for the prior three years!

Dedham-Westwood Water District was among six Public Water Supply systems to receive the Consistent Performer Award. Ron Willey, Chair of the Water District Board in 2017, accepted the award during a State House ceremony from officials from the Office of Environmental Affairs and MADEP and from Representative Paul McMurtry. From left to right William Zahoruiko; MADEP Analyst, Ron Willey; DWWD Water Commissioner, Bob Lexander; retired DWWD Production Superintendent, Rick Mosca; DWWD Production Superintendent, Tabitha Maccalous; DWWD Water Quality Supervisor and Martin Suuberg; Commissioner of the MADEP.



Cross Connection Program

A *cross connection* is any temporary or permanent arrangement or connection between a public water system or consumer's drinking water system and any source or system containing non-potable water or other substances. One example of a cross connection is the piping between a public water system and a customer's lawn irrigation sprinkler system. The garden hose causes the most common cross connection. Learn more at <http://www.dwwd.org/cross-connection-control-program>.

Backflow is the undesirable reversal of flow of non-potable water or other substances through a cross connection and into the piping of a public water system or consumer's potable water system. The best way to prevent backflow is to make sure there is no connection between potable and non-potable sources. Never submerge a hose in soapy water buckets, pools, tubs, sinks, drains or chemicals. Purchase and install a hose bib vacuum breaker for all threaded water fixtures. These inexpensive, easy to install devices are found at local hardware stores. Contact your plumber or call us with any questions.

Dedham-Westwood Water District has a Cross Connection Control Program. See the results for our last year program that we submit to the MADEP on our website- <http://www.dwwd.org/cross-connection-control-program> or call Stephanie Costa at 781-461-2778. We survey all non-residential properties we supply for cross connections and we test all approved backflow prevention devices on approved cross connections.

Water Conservation

All water users are encouraged to conserve water. Additional information may be found on our website including our Rebate Program for low flow toilets and water efficient washing machines. Some general outdoor water conservation tips include using soaker hoses and plenty of mulch, choosing landscaping that does well without supplemental watering and repairing any leaks. Join Dropcountr, found on our website [dwwd.org](http://www.dwwd.org), to get in tune with your water use and see how it compares to others!

DWWD WATER QUALITY TEST RESULTS

The data presented in the following tables are from testing performed in 2017 on the Dedham-Westwood Water District Supply, unless otherwise noted. Over the course of a year, the District takes hundreds of water samples to ensure its quality and your safety. The tables below show only those parameters that were detected in the water.

DEFINITIONS TO HELP YOU UNDERSTAND TEST RESULTS:

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.

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

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 expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

ND : Not Detected

NA: Not Applicable

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.

Action Level: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.

90th Percentile: 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.

Running Annual Average (RAA): The average of four consecutive quarters of data.

mg/L or PPM (parts per million): 1 drop in 10 gallons, 1 inch in 16 miles, or one penny in \$10,000.

ug/L or PPB (parts per billion): 1 drop in 10,000 gallons, 1 inch in 16,000 miles, or one penny in \$10,000,000.

pCi/L: picocuries per liter (a measure of radioactivity)

**REGULATED INORGANIC SUBSTANCES**

PARAMETER units	Range	Max	Average	MCL	MCLG	Compliance achieved?	Source
*Fluoride mg/L	0.10-0.74	0.74	0.52	4	4	Yes	Water additive which promotes strong teeth.
Nitrate mg/L Collected on 1-4-2017	0.50-0.97	0.97	0.74	10	10	Yes	Runoff from fertilizer use, leaching from septic tanks, sewage; erosion of natural deposits.
Chlorine mg/L	0.99-1.88; range of treatment plant effluent values 0.01-3.32; range of individual distribution samples	1.88; 3.32	0.76; highest quarterly running annual average	MRDL= 4	MRDLG= 4	Yes	Water additive used to control microbes.
Perchlorate ug/L data from 8-4-2017	ND-0.05	0.05	0.025	2.0	N/A	Yes	Rocket propellants, fireworks, munitions, flares, blasting agents.

*Fluoride samples are analyzed on a daily basis at our two treatment facilities and on a monthly basis at an independent laboratory.

*Chlorine samples are taken multiple times a day from our water treatment facilities, as well as from various locations throughout the two towns on a weekly basis. It is added to your water for disinfection purposes, and as a safeguard against biological pathogens.

UNREGULATED (SECONDARY) SUBSTANCES

The EPA has not established drinking water standards for the following parameters. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

PARAMETER (units) Dates collected	Range	Max	Average	MCL	SMCL	Source
Hardness as CaCO ₃ (mg/L) 4/20/2017	101-164	164	132	No MCL	No SMCL	Erosion of natural deposits. Primarily composed of calcium and magnesium.
Sodium (mg/L) Quarterly 2017	73.3-135	135	103.7	No MCL. *ORSG guideline = 20 mg/L	No SMCL	Discharge from the use of or improper storage of sodium-containing deicing compounds. Also in water softening agents.
Calcium (mg/L) Quarterly and 4/20/2017	28.1-46.2	46.2	36.7	No MCL	No SMCL	Erosion of natural deposits.

Iron (ug/L) 4/20/2017	ND	----	-----	No MCL	300	Natural and industrial sources as well as aging and corroding distribution systems and household pipes.
Potassium (mg/L) 4/20/2017	7.26-9.15	9.15	8.2	No MCL	No SMCL	Erosion of natural deposits.
Magnesium (mg/L) 4/20/2017	7.03-12.3	12.3	9.7	No MCL	No SMCL	Erosion of natural deposits.
Chloride (mg/L) Quarterly and 4/20/2017	142-253	253	198	No MCL	250 mg/L	Discharge from the use of or improper storage of sodium or calcium-containing deicing compounds. Run off and leaching from natural deposits; seawater influence.
Manganese (ug/L) Quarterly and 4/20/2017	ND-23	23	-----	No MCL. *ORSG Lifetime health advisory=300 ug/L and Acute HA = 1000 ug/L	50 ug/L	Natural sources as well as discharges from industrial use.
Sulfate (mg/L) 4/20/2017	16.5-17.9	17.9	17.2	No MCL	250 mg/L	Erosion of natural deposits.
Zinc (mg/L) 4/20/2017	ND	-----	-----	No MCL	5 mg/L	Corrosion of household plumbing systems/ erosion of natural deposits.

*ORSG= Office of Research and Standards Guidelines.

* Infants and children who drink water containing manganese at high concentrations may have learning and behavior problems.

People with liver disease who drink water containing manganese at high concentrations may have neurological disorders.

* Some people who drink water containing sodium at high concentrations for many years could experience an increase in blood pressure.

ORGANIC DISINFECTION BYPRODUCTS

PARAMETER (units) Dates collected	Range of Individual Site Results	Maximum Quarterly Running Annual Average (How compliance is calculated)	MCL	MCLG	Compliance Achieved?	Source
Total Trihalomethanes (ug/L) Quarterly	20-94	63	80	0	YES	By-product of drinking water chlorination
Haloacetic Acids (ug/L) Quarterly	13-48	31	60	0	YES	By-product of drinking water chlorination



RADIONUCLIDES

PARAMETER (units) Dates collected	Range of Individual Site Results	Max	MCL	MCLG	Compliance Achieved?	Source
Gross Alpha Activity (pCi/L) 1/15/2014	0.89-0.95	0.95	15	0	YES	Erosion of natural deposits
Radium-226 (pCi/L) 1/15/2014	0.48-0.51	0.51	-----	-----	NA	
Radium-228 (pCi/L) 1/15/2014	0.14-0.35	0.35	-----	-----	NA	
Combined radium (pCi/L) 1/15/2014	ND	-----	5	-----	YES	Erosion of natural deposits



Hundreds of additional tests are performed on your drinking water in addition to the results in the tables provided. In our treatment plants, continuous analyzers provide real time, instantaneous results for pH, chlorine, turbidity and fluoride. Each month, more than fifty samples are collected at approved locations in both Dedham and Westwood and tested for the presence of coliform bacteria and E. coli. Certified treatment facilities operators perform quality control

Lead and Copper

Presented below is data from our 2016 sampling event. Mass DEP has reduced the monitoring requirements for lead and copper to less often than once per year because the source is not at risk of contamination.

Detected Parameter (units)	EPA's Action Level for sampling of customer homes with the highest risk	Maximum contaminant level goal	Results	Compliance Achieved?	Source
*Lead (ug/L)	90% of all homes tested must be below 15 ug/L	0 ug/L	90% of all homes tested measured below 4 ug/L	Yes	Corrosion of household plumbing; erosion of natural deposits. There was 1 site with a value above the AL of 15 ug/L
**Copper (mg/L)	90% of all homes tested must be below 1.3 mg/L	1.3 mg/L	90% of all homes tested measured below 0.26 mg/L	Yes	Corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives. There were no sites with values above the copper AL of 1.3 mg/L



*Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

**Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

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 Dedham Westwood 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>

Bacteria

Detected Parameter	Units	Number of positive samples	MCL	Compliance Achieved?	Source
E. coli in combined <i>raw untreated</i> water sample on 7/12/17	Presence/Absence	1	0	YES- Under the Groundwater Rule public notification was given and the sources were shut off	Human and animal fecal waste

UCMR3 RESULTS (2015 data)

The purpose of the Unregulated Contaminant Monitoring Rule (UCMR) is to provide EPA with data to support decisions concerning whether or not to regulate these contaminants. The District participated in sampling during February and August 2015.

Parameter (units)	Average	Range of Detections	Typical Source
Chromium-6 (ug/L)	0.20	0.13-0.24	Erosion of natural deposits
Chromium total (ug/L)	0.33	0.3-0.4	Erosion of natural deposits
Strontium (ug/L)	236.67	160-360	Erosion of natural deposits

SODIUM Dedham-Westwood Water District continues to press state agencies to reduce the amount of sodium chloride deicer used in the vicinity of the Public Water Supply Wells near University Ave. The sodium and chloride levels have been a concern for twenty years and since the Add-a Lane project was done five years ago the levels have increased. Elected and local officials continue to support these efforts.