Town of Weymouth
Department of Public Works
Mayor David M. Madden

Year 2005
Annual Water Quality Report

Meeting the requirements of the Safe Drinking Water Act, the Weymouth Water Department is proud to provide you with the Year 2005 Annual Water Quality Report. Our objective is to help keep you abreast of ongoing and upcoming water system projects; local, state and federal drinking water regulations; and Weymouth's annual water quality results. Our Mission Statement is: "To reliably and economically deliver the highest quality, safe drinking water, to all of our customers, emphasizing and practicing: source protection; state of the art water treatment; sound distribution management & maintenance; and water conservation". The Department of Public Works is committed to this mission statement 24 hours per day, 365 days a year. The identification number for the Weymouth Public Water System is 3336000.

Please call the Water Department at **781-337-5100** with any question, concerns, or problems regarding water meters, leaks, water main breaks, fire hydrants, billing, or water quality. Our staff of dedicated drinking water professionals are there to assist you:

Director of Public Works	**Robert F. O'Connor**
Technical Advisor	**Stephen C. Olson, P.E.**
Water Facilities Manager	**James F. Leary**
Treatment & Operations	**Alan R. Cowing**
Asst. Water Superintendent	**Frank E. Sheppard**
Business Manager	**David J. Tower**

In addition, public meetings may be held at the request of the Mayor or the Town Council. Town Council meets at the Town Hall (75 Middle Street) at 7:30 p.m., every other Monday. Supplemental information about drinking water quality and potential health effects can be obtained by calling the Environmental Protection Agency's **Safe Drinking Water Hotline: 1-800-426-4791**

Water System Information

The Department of Public Works, Water Department, supplies the Town of Weymouth with drinking water from two water treatment facilities, the Great Pond Water Treatment Plant (WTP) located off Pine Circle in South Weymouth and the Arthur J. Bilodeau Water Treatment Plant (WTP) located off Winter Street (across from the DPW Building). The Great Pond facility was originally built in 1936, and has been upgraded and expanded over the years. The Town is currently planning to replace the aged treatment plant with a new state of the art treatment facility. The results of pilot scale treatability studies completed in 2005 identified superior treatment processes for producing high quality water which meets and exceeds existing and future proposed drinking water quality standards; exhibit a high degree of reliability; are practical from an operational and maintenance perspective; and, are economically feasible.

The present Great Pond treatment plant can produce up to 8 million gallons a day (MGD) of water from Great Pond (01S) which supplies approximately ninety percent of the Town's drinking water. When full, the usable volume of water in Great Pond is approximately 1 billion gallons. To supplement the water in Great Pond during periods of low precipitation

or drought, the Water Department pumps water from the South Cove of Whitman's Pond (02S), across Town, and into Great Pond. South Cove has a usable volume of approximately 165 million gallons. Together, Great Pond and the South Cove of Whitman's Pond make up the Town's existing surface water supply system. The Town owns the majority of the watershed land around Great Pond and some of the land around Whitman's Pond. Zoning ordinances are in place to limit land uses within the watershed and protect one of the Town's most valuable resources.

The Arthur J. Bilodeau WTP presently treats groundwater from four active wells in the Mill River Aquifer: the Winter Street Well #2 (05G) located adjacent to the treatment facility, the Circuit Avenue Well (01G) located off Upland Road, the Main Street Well (02G) located off Main Street in the vicinity of the Route 3 cloverleaf, and the Libbey Park Well (03G) located off Libbey Industrial Parkway. In addition, the Town has obtained a permit from DEP to utilize a fifth well in the Mill River Aquifer (Winter Street Well #1 (04G), located adjacent to the treatment facility). Existing zoning ordinances for the Groundwater Protection District limit land uses within the groundwater recharge boundary. The Arthur J. Bilodeau WTP was built in 1975 and can treat up to 4 million gallons of water a day (4 MGD). The Town recently completed the fourth and final phase of improvements to this facility including replacing the carbon filtration media and the installation of a new stand-by power generator. The Arthur J. Bilodeau WTP currently supplies approximately ten percent of the Town's drinking water.

Finished water treatment at the Town's two water treatment facilities consists of fluoridation, disinfection using chlorine, pH adjustment using potassium hydroxide, the addition of phosphate for corrosion control, and the addition of sodium bicarbonate for alkalinity adjustment (at the Great Pond WTP only). Customers are invited to contact the Water Department for more specific information regarding the physical and chemical treatment processes employed at the Town's two water treatment facilities. In addition, educational documentaries of the Town's water treatment facilities have aired on the Town's cable television station.

Drinking water is distributed to Weymouth's 15,700 water system customers by means of 200 miles of pipe. In addition, four active water storage tanks (Park Avenue, Reed Avenue, Essex Street, and Great Hill) are utilized to store the Town's finished drinking water so that it is available for periods of high demand, such as fighting fires. In times of emergency, the Town's water system can be supplemented with water from the neighboring communities of Abington, Braintree, Hingham, and Quincy.

The Department of Environmental Protection (DEP) has prepared a Source Water Assessment Program (SWAP) Report for Weymouth's water supply sources described above. The SWAP report indicated a moderate susceptibility to contamination for Great Pond because of current land uses which include residential fuel oil storage and landscaping practices and a high susceptibility for the groundwater sources and for the South Cove surface supply because land uses include many gas stations and industries. Residents can help protect sources by taking hazardous household chemicals to hazardous materials collection days, and by limiting the use of pesticides and fertilizer. The complete SWAP report is available for your review at the Water Department and the Board of Health. Alternately, it can be obtained online from Massachusetts DEP website: http://www.mass.gov/dep/water/drinking/swapreps.htm.

Water Demand & Statistics

In 2005, the total amount of gallons produced was 1,481,400,789 from the Great Pond WTP and 7,623,479 from the Arthur J. Bilodeau WTP. The maximum amount of water pumped in one day was 5,412,000 gallons from the Great Pond WTP and 1,403,385 gallons from the Arthur J. Bilodeau WTP (during the Sacred Heart church fire in June 2005). The annual average daily volume of water supplied from the Town's sources was 4.27 MGD, well below the available yield of the Town's water supplies. The total rainfall in 2005 was 68 inches, which was approximately 14 inches greater than average. Lastly, **for the sixth consecutive year, there were no watering bans in Weymouth**, due to the effectiveness of our water conservation programs, water resource management, and annual precipitation.

Water Conservation Tip

Fix Leaks – a little leak loses a lot. Just a slow drip can add up to 15 or 20 gallons a day, while a 1/16-inch faucet leak can waste as much as 100 gallons in a day. Most faucet leaks are caused by worn washers. Household faucets should be checked monthly for drips or leaks. If the drip does not stop once the faucet is firmly closed, replace the washers in the faucet. Toilet leaks are also common. If a toilet tank flapper valve hangs up, hundreds of gallons a day of water could be wasted. Most toilet leaks are at the overflow pipe or at the flapper valve. The potential for un-noticed leaks can be determined by observing your water meter. When all water fixtures are off in the house, the small red low flow indicator dial on your water meter should be stationary. If it is not, either check your water fixtures yourself, or have a plumber check them for you.

Water Quality Summary

The Weymouth Department of Public Works is committed to providing our customers with High Quality Drinking Water which meets or surpasses state and federal drinking water standards for quality and safety. Each year the Water Division conducts over 60,000 water quality tests, examining them for more than 120 potential drinking water contaminants. A summary of the most recent contaminants detected during the past 5 years is provided in the Table below. All of the contaminants detected were below allowed levels. Not listed are contaminants that were tested for but not detected.

Substance (Contaminant)	Range Detected	MCL	MCLG	Violation	Source of Contaminant
Antimony (ppm)	ND - 0.006	0.006	0.001	N	Discharge from fire retardants; ceramics; electronics; solder
Asbestos (MFL)	0.196	7	7	N	Decay of asbestos cement water mains; Erosion of natural deposits.
Barium (ppm)	ND - 0.012	2	2	N	Discharge of drilling waste and metal refineries; erosion of natural deposits.
Chlorine (ppm)	0.2 – 1.29	4 MRDL	MRDLG	N	Water additive used to control microbes.
Copper (ppm) (90^{th} %tile)* 32 Sites	ND – 0.09 (0.079)* 0 > A.L.	A.L. = 90^{th} %tile of 1.3	1.3	N	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives.
Fluoride (ppm)	0.8 – 1.1	4	4	N	Erosion of natural deposits; water additive which promotes strong teeth.
Gross Alpha Particles (pCi/L)	0.77 - 10.1	15	0	N	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Gross Beta Particles** (pCi/L)	12.66	50	0	N	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Lead (ppm) (90^{th} %tile)* 32 Sites	ND – 0.14 (0.0079)* 3 > A.L.	A.L. = 90^{th} %tile of 0.015	0	N	Corrosion of household plumbing; erosion of natural deposits.
Nitrate (ppm)	0.09 – 1.1	10	10	N	Runoff from fertilizer; leaching from septic tanks; sewage; erosion of natural deposits.
Radium 226 + 228 combined (pCi/L)	0.3 – 2.3	5	0	N	Erosion of natural deposits.
Total HAA5s (ppb) (Haloacetic Acids)	21.6 ND - 30	60 RAA	0	N	By-product of water chlorination.
Total THMs (ppb) (Trihalomethanes)	30 – 99 63	80 RAA	0	N	By-product of water chlorination.
Total Organic Carbon	1.8 – 5.8	TT	NA	N	Naturally present in the environment.
Turbidity (NTU) (Nephelometric Turbidity Units)	0.04 – 0.2	TT = 1 NTU	NA	N	Soil Runoff. Turbidity is a measure of the cloudiness in water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
	100%	TT = % <0.3 NTU	NA	N	

Definitions

*** 90^{th} %tile** Out of every 10 homes, 9 were at or below this level

****** Results reported for most recent sampling round completed in 2001 in accordance with the regulations.

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

MCL Maximum Contaminant Level: The highest level of a contaminant 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.

MFL Million fibers per liter

MRDL Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for the control of microbiological contamination.

MRDLG Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NR Not regulated

N/A Not applicable

ND Not detected. Refers to the detection limit of the chemical analysis instrument or procedure.

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

PPB One part per billion

PPM One part per million

RAA Running annual average of quarterly sampling results

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

Town of Weymouth
Department of Public Works
120 Winter Street
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Public Health and Drinking Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. 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.) 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 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).

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, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
Inorganic contaminants, such as salts and metals can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming.
Pesticides and herbicides, may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
Organic chemical contaminants, include 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.
Radioactive contaminants can be naturally occurring or be the result of oil and gas production, and mining activities.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested. Flush your tap for 30 seconds to 2 minutes before using tap water to reduce lead content. Additional information is available from the Safe Drinking Water Hotline (1-800-426-4791).

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water that must provide the same protection for public health.