2001 Water Quality Report
Town of Medfield, Massachusetts

A water conservation poster designed by Wheelock School students.

The Town of Medfield's Water Department is committed to providing customers with a safe and reliable supply of high-quality drinking water that exceeds state and federal standards. To ensure delivery of a quality product, we perform extensive water quality monitoring and continue to make significant improvements to our water system. Safe water is vital to our community, and informed consumers are our best allies in maintaining safe drinking water. This "Water Quality Report," required by the Safe Drinking Water Act, is mailed to you annually and explains where our water comes from, what our tests show about it, and other relevant information you should know about our drinking water.

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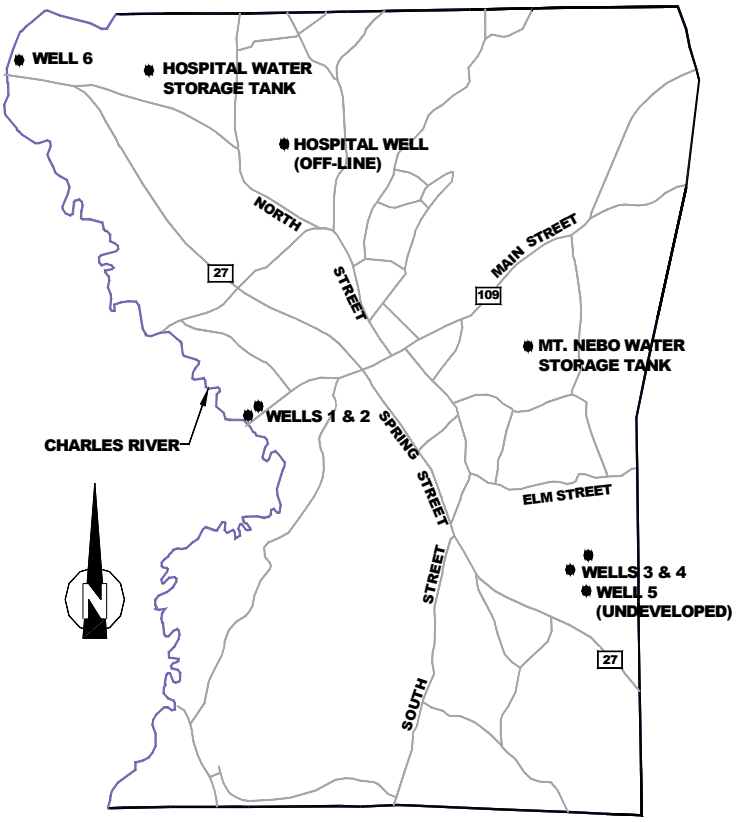
Town of Medfield
Board of Water and Sewerage
Medfield, MA 02052

The Medfield Water System

Where's the water?

The origin of our water is five groundwater supply wells referred to as Wells 1, 2, 3, 4 and 6 (Note: Well 5 was not fully constructed due to high levels of iron and manganese in its water). Wells 1, 2 and 6 are located in the Charles River aquifer while Wells 3 and 4 are located in the Neponset River aquifer. The water system also includes five pumping facilities for the distribution of water, two water storage tanks and approximately 75 miles of water main.

Medfield's groundwater sources are all mildly acidic in their natural state, as is typical throughout New England. If the groundwater is not treated to remove the acidity, the water will have a tendency to corrode and dissolve the metal piping it flows through. This will eventually cause damage to the pipes and can also add harmful metals, such as lead and copper, to the water. For this reason, our source water receives treatment with sodium hydroxide to neutralize acidity at all five well sites before it enters the water system and is supplied to our customers. This treatment process is fully approved by the state. Testing throughout the system has shown that this treatment has been very effective at reducing the corrosion of water piping and preventing harmful metals, such as lead and copper, from dissolving into the water.



Medfield Water System Map

Additionally, two of Medfield's water supply wells (Wells 1 and 2) are treated for the removal of trace amounts of tetrachloroethylene (PCE). PCE is used mainly by industry for cleaning and degreasing of metals, and as a solvent for dry cleaning. PCE is not found naturally in groundwater and its presence is typically associated with past discharges from industrial sites.

The treatment of these wells has been completely successful in eliminating the PCE from the finished water. The treatment process consists of aerating the raw water, which volatizes or "strips off" the PCE, followed by disinfection using chlorine to prevent bacteriological contamination. This treatment process is fully approved by the state, and since its implementation the finished water from these wells has been completely free of PCE.

We are a registered Public Water Supplier (PWS) with the State:

- **PWS ID#: 3175000**
- **PWS NAME: Medfield Water Department**

We are located at the Medfield Town House, 459 Main Street.

The Water and Sewer Department Administrative Secretary is Mary Luciano, (Telephone 359-8505 x601).

The Board of Water and Sewer Meetings are held on the 1st and 3rd Tuesdays of each month at 7 P.M. at the Medfield Town House.

Water Quality Summary

Our water is tested extensively to ensure that it is safe and healthy. We test for hundreds of potential contaminants in accordance with state and federal standards. Listed below are the only contaminants detected in Medfield's drinking water in 2001. It is important to note that *none* of these contaminants were detected at levels higher than the state and federal standards for drinking water.

CONTAMINANT	90TH PERCENTILE	# OF SITES EXCEEDED	# OF SITES SAMPLED	ACTION LEVEL	MCLG	VIOLATION (YES/NO)	POSSIBLE SOURCE OF CONTAMINATION
Copper (mg/L)	0.4	1	60	1.3	1.3	NO	Corrosion of household plumbing system; erosion of natural deposits; leaching from wood preservatives.
Lead (mg/L)	0.005	2	60	0.015	0.015	NO	Corrosion of household plumbing system; erosion of natural deposits.

MICROBIOLOGICAL CONTAMINANTS				
Total Coliform	207 samples taken.	2 positive in one month.	NO	Naturally present in environment.
Fecal Coliform	4 samples taken.	1 positive sample detected.	NO	Human and animal fecal waste.

CONTAMINANT	Highest Level Detected	Range Detected	Average Detection	Highest Level Allowed (MCL)	Ideal Goals (EPA's MCLGs)	VIOLATION (YES/NO)	POSSIBLE SOURCE OF CONTAMINATION
INORGANIC CONTAMINANTS							
Chromium (mg/L)	0.006	0.004 - 0.006	0.005	0.1	0.1	NO	Discharge from pulp mills; erosion of natural deposits.
Sodium (mg/L)	35.8	24.8 - 35.8	31.85	N/A	N/A	NO	Erosion of natural deposits.
Sulfate (mg/L)	21.2	10.9 - 21.2	15.2	N/A	N/A	NO	Erosion of natural deposits.
Nitrate (mg/L)	3.46	0.44 - 3.46	1.25	10	10	NO	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.

Important Definitions:

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

EPA is the abbreviation for the Environmental Protection Agency.

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 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.

N/A = Not applicable.

mg/L = Milligrams per liter or parts per million (ppm)

90th Percentile: Out of every 10 homes, 9 were at or below this level.

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

Measurements: In this report, one milligram per liter (mg/L) means that one milligram of a substance can be detected in a liter of water. To put this into perspective, one milligram per liter (mg/L) is approximately one drop in ten gallons of water, one inch in sixteen miles or one penny in ten thousand dollars.

Substances in Your 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. It 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, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants - such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, or farming.

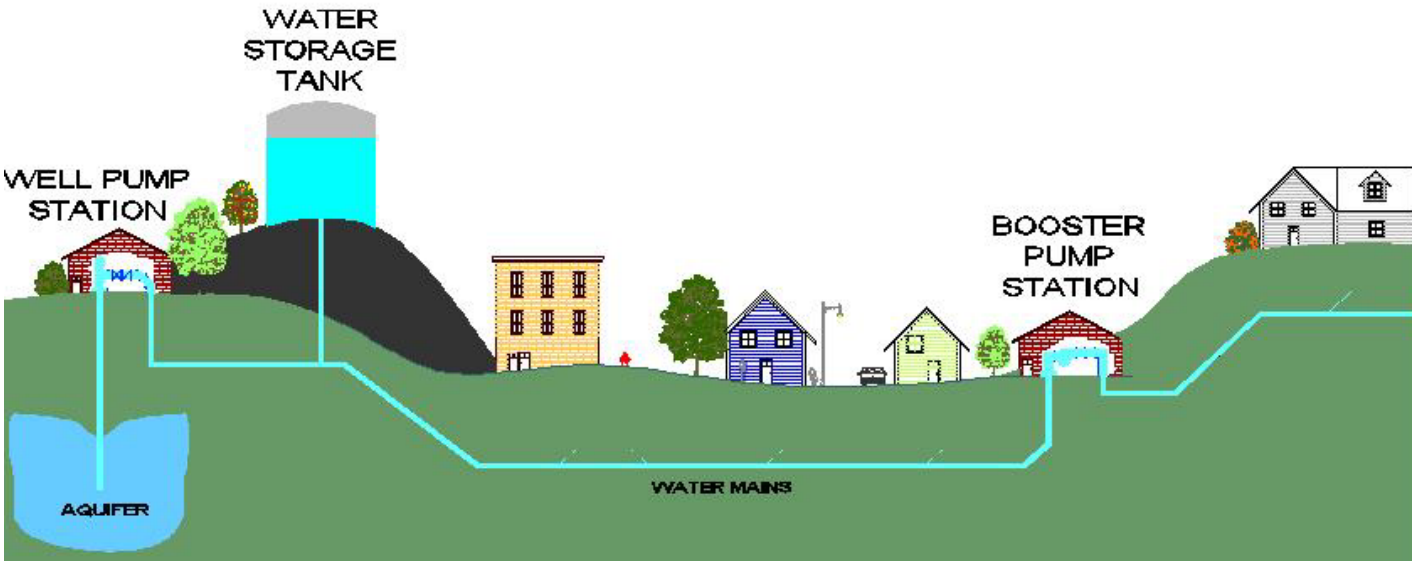
Pesticides and herbicides - which may come from a variety of sources such as agricultural, urban stormwater runoff, and residential uses.

Organic chemical contaminants - including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

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 U.S. Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. All 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 Safe Drinking Water Hotline at 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 some 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 guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at 800-426-4791.



How a Water System Works...

Groundwater is withdrawn from the aquifer at a "Well Pump Station" and then pumped up to a "Water Storage Tank." Water from the storage tank flows by gravity to the homes and businesses within the town. In some cases, it is necessary to pump the water again at a "Booster Pump Station" to the areas that are far away or at a higher elevation than the water storage tanks.

The Year in Review

Causeway Street Water Main Construction

The construction of approximately 7,200 linear feet of 12-inch ductile iron water main in Causeway Street is scheduled to be complete by the end of July. The Indian Hill and Orchard Street area of town is presently at the end of a long dead end water main. The new water main will connect the existing water mains at the Main Street and Orchard Street ends of Causeway Street. This connection will create a loop in the water system. The new loop will greatly improve water supply, reliability and pressure to the Indian Hill and Orchard Street area of town.

The Causeway Street Water Main will be completed by early summer. Pictured above is the water main contractor setting a hydrant.

Wetland Monitoring

Well 6 is the most recent well in town to go on-line. It is located in the northwest section of town, off of Route 27 (see Medfield's water system map). The Well went on-line in March of 1998 and has been providing an abundant, high quality source of water.

As required by the Town's permit with the State for Well 6, the Town initiated a wetland monitoring program to determine if the use of this well is affecting the surrounding wetlands. The wetland monitoring program is underway to observe the behavior of the wetlands surrounding Well 6. The purpose of the monitoring program is to document any changes in the wetland plant community at this location. The initial baseline assessment of the wetlands at Well 6 was done in October of 2000. Annual monitoring will now be done during mid-June to mid-July.

It is unlikely that Well 6 will negatively impact the supply of water to the wetlands, because the well is over 60 vertical feet deep, while wetlands thrive on surface water.

Pictured above is a view of the wetlands at Well 6 along the Charles River.

It's Spring Cleaning Time...

The Town recently completed a thorough cleaning of Well 3, which was an important process that removed deposits of iron and manganese from the well, greatly improving the quality and quantity of water yielded. The cleaning process required complete removal of the well pump and associated piping, which afforded room for operation of a well cleaning plunger. The well cleaning plunger was lowered and raised into the well repeatedly by a crane, effectively agitating deposits of iron and manganese loose from within the well. The loosened deposits were then pumped out of the well and disposed of. The entire cleaning process required about a week to complete, and provided an improved yield of water quality and quality from Well 3.

The Year in Review

Ed Hinkley, the foreman of the Medfield Water Department, recently gave tours of Well 4 to the Wheelock School third graders. This program is part of the Water Department's commitment to teach children to conserve water and to keep surface water clean.

Water Conservation Public Outreach Programs

Due to the recent drought, the Water Department personnel have been increasing their efforts to inform the community about water conservation. The Water and Sewer Commission held a Water Conservation Public Hearing in March to inform the Town about the status of the drought, and to educate people about household and landscaping methods of water conservation. In addition to the public hearing, the Water Department gave a presentation in April to the second and third graders at the Wheelock School to teach the children about the water cycle, to emphasize the importance of keeping our surface water clean, and to teach them simple ways to conserve water. As a part of the presentation to the children, the Water Department gave the third graders at the school a tour of the Well 4 Pump House.

In addition to the public outreach programs, in 2001 the Water Department hired a subcontractor to conduct a leak detection survey for the Town's water distribution system. The survey found seventeen water leaks. All leaks were repaired.

The Water Department has again implemented its voluntary odd/even water ban between the months of May to September. Please support the Town in its effort to conserve water!

New Water Metering System

The Town fully implemented a new water metering system in the summer of 2001. The new system is designed to make the task of water billing more efficient and to improve the identification of broken water meters.

In 2001, a total of 531,777,288 gallons of water was pumped, treated and supplied to our customers. The Medfield Water Department installed eleven new water services and nine new hydrants.

Top Ten Ways to Save Water

1. Use an low-flow toilet & low-flow showerhead.

2. Don't leave the water running while brushing your teeth or shaving.

3. Run dishwasher and garbage disposal only when full.

4. Don't use running water to defrost food.

5. Run your washing machine only when full or adjust the capacity setting.

6. Repair all leaks.

7. Collect rainwater in barrels and use to water flowers and gardens.

8. Water lawns and gardens in the early morning or evening.

9. Use a broom to clean your driveway instead of a water.

10. Don't water your lawn every day. Wet grass burns in the hot sun. Roots maintain moisture for days.