TOWN OF GROVELAND
2009
Annual Water Quality Report

This report will not be mailed out unless requested this year
Copies of this report as well as a complete list of all of the tests performed throughout the year are available upon request from:

Groveland Water Department
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Commissioners..... Bruce W. Adams, Chairman
John G. Willett and James M. Sheehan
Office Manager..... Patricia Rogers
Superintendent..... Thomas D Cusick Jr.
Operators..... Dick Ferrick, John Hogan, David Cash

Regular Public Meetings are held by the Commission
Time and Date are posted at Town Hall

DEFINITIONS

DEP - Massachusetts Department of Environmental Protection
DPH – Massachusetts Department of Health
EPA - United States Environmental Protection Agency
FDA – Food and Drug administration
HA - Health Advisory
C/100ml - Colonies per 100 milliliters
1 mg/L = 1 milligram per Liter =1 part per million (ppm)
1 ug/L = 1 microgram per Liter =1 part per billion (ppb)
Microbial Contaminates – Coliform Bacteria, cryptosporidium, Giardia and other microbial bacteria or viruses associated with surface water s may enter into the system during construction, repairs or the close proximity of groundwater sources to surface water areas from livestock or wildlife. They can also come from improperly operating sewerage treatment plants, septic systems or agricultural livestock operations.
Pesticides and Herbicides - can come from storm water runoff, agricultural and residential use (and misuse)
Inorganics - Salts and metals that can occur naturally or result from runoff, industrial or domestic wastewater discharges, oil and gas production or minimal activities.
Radioactivity – can occur naturally or from oil and gas production or minimal activities.
MCL - Maximum Contaminant Level set by the Department of Environmental Protection (DEP)
MCLG - MCL Goal - Level of a contaminant below which there is no known or expected health risk. MCLGs allow for a margin of safety
AL - Action Level, The concentration level at which action must be taken to control a contaminant
TT- Treatment Technique
N/A - Not Applicable
BDL - Below Detectable Level
IOC - Inorganic Compounds
SOC - Synthetic Organic Compounds
VOC - Volatile Organic Compounds
MRDL Maximum Residual Detection Limit
MRDLG Maximum Residual Detection Limit Goal
SWAP Source Water Assessment Program
Unregulated Compounds - compounds tested for and reported that have no MCL values

WATER SOURCES and PRECAUTIONS

The sources of all drinking water, tap or bottled, are either surface water, (rivers, lakes, streams, ponds and reservoirs), or groundwater, (springs and wells). As water travels over the surface of the land or through the ground, it dissolves naturally occurring materials and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

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.

Some people may be more vulnerable to contaminants in the water than the general population. Immune-compromised persons such as those with cancer undergoing chemotherapy, people that 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 about drinking water from their health care provider. More information about the risks and effects of microbial and other contaminants can be obtained from EPA/Centers for Disease Control at www.epa.cdc or from the Safe Drinking Water Hotline at (800-426-4791)

Water for Groveland's groundwater supply consists of three gravel packed wells. Well #1 at 462 Main Street, Well #3 behind the Pines Recreation Area and Well #4 further down the river. At Wells #1 and #3 the vertical turbine pumps are down 50 feet with long shafts to the drive motors which are housed in the building above the wells. Well #4 uses a submersible well pump with a sealed motor mounted under water with the pump 35 feet down in the well. Each of the wells can run independently of each other. Groveland's water is distributed through a network of water mains approximately 22 miles long and ranging in size from 4 to 12 inches in diameter. There are currently 1909 active services connected to our system.

Water is a valuable resource that people often take for granted. As a Public Service Department we are continually working to provide Groveland with a continuous supply of clean, safe drinking water for the consumer.

A copy of the SWAP report is available in the office to any one interested.

WATER CONSERVATION

The total volume of water pumped from these wells in 2009 131.4 was million gallons. This was down from 138.55 million gallons pumped in 2008. This was likely due to a very wet summer. We continually check for leaks and repair them when found to minimize the amount of water wasted. The Towns Unaccounted for Water (UAW) is 8%, DEP Set a standard not to exceed 10%.

YOU TOO CAN HELP SAVE WATER

Keep water in the refrigerator to chill it instead of letting the faucet run for a glass of water. Water your lawn wisely. Water deeply in the morning. Do not over water, keep your mower sharp and don't cut too short. A healthy lawn needs less water to look good. Repair leaks. (Your water meter has a red diamond on it to help you catch small leaks. If it turns when everything is off, you have a leak, probably a toilet.)

CONDITION	GALLONS WASTED
Leaky toilet or faucet	50-100/day
Brushing teeth with water on	5-10 / day
Wrong washer setting	15-20/load
Running the shower extra	3-7/ minute

MAINTAINING THE WATER QUALITY

In order to ensure that tap water is safe to drink, the EPA and DEP prescribe regulations that limit the amount of certain contaminates in the water provided by public water systems. FDA and DPH regulations establish limits for contaminates in bottled water that must provide the same protection for public health. It takes a network of communication and a lot of sampling by the water department and by other laboratory personnel

Well #1 and two aquifer monitoring wells are tested quarterly for VOCs. And twice a year for nitrogen compounds. The monitoring wells are tested to give us ample warning of any contamination migrating toward the water supply well through the groundwater. Wells #3 and #4 are tested annually for VOCs;

Wells #1, #3 and #4 are tested for secondary and other contaminants annually. Daily labs are performed by the operators the following are tested, fluoride & chlorine levels and pH values. Chlorine and pH parameters are continuously monitored by inline analyzers.

WHAT IS IN THE WATER

Parameters tested annually

Parameter	Units	SMCL	Well #1	Well#3	Well#4
Hardness	mg/L	None	31	75	83
Chloride	mg/L	250	7.7	120	120
Nitrate	mg/L	10	0.47	1.0	1.0
Silver	mg/L	0.10	ND	ND	ND
Aluminum	mg/L	0.20	ND	ND	ND
Calcium	mg/L	None	12	30	33
Copper	mg/L	1.0	0.0086	ND	0.0044
Iron	mg/L	(0.3)	0.38	0.083	0.093
Potassium	mg/L	None	1.2	5.7	6.0
Magnesium	mg/L	None	2.7	6.8	7.1
Manganese	mg/L	(0.05*)	0.037	0.16	0.20
Zinc	mg/L	5	0.0026	0.0062	0.0046
Color	Units	15	0	0	10
Odor	T.O.N.	3	2	2	2
PH	Units	6.5-8.6	7.1	7.0	7.2
Turbidity	NTU	1	0.17	ND	0.11
Alkalinity	mg CaCO3	None	42	84	86
Total Dissolved Solids	mg/L	500	85	330	340
Sodium	mg/L	None	7.9	34	37
Perchlorate	mg/L	0.002	ND	ND	ND

* Unregulated Compounds ( ) Desired limits
*EPA has established a life time (HA) of 0.3 and Acute (HA) of 1.0 for Manganese

Microbiological Results

Regular sampling for Coliform bacteria is done at seven locations in the distribution system and at the wells, on a monthly basis. There was no Coliform presence detected.

Total Coliform Bacteria are common in the environment, they can come from the intestines of warm–blooded animals, and they can also be found in soil, on plants, and other places. Though not harmful themselves they may indicate the presence of other potentially harmful organisms. Symptoms of bacterial infections can include diarrhea, cramps, nausea, jaundice, headaches, or fatigue.

We continue to chlorinate as a precaution in the interest of public health, in case any bacterial contamination enters the system from repairs to the system or new construction.

WHAT IS ADDED TO THE WATER ? WHY?

Potassiumhydroxide ..... to reduce corrosion
SodiumFluoride ..... to reduce dental cavities
Calciumhypochlorite ..... to prevent bacterial growth
Potassium Hydroxide is added to make the water less corrosive by raising the pH.

Corrosive water can dissolve Lead and Copper out of water services and household plumbing. We raise the system pH to an average near 7.0. This is high enough to keep the Lead and Copper from dissolving very much and still keep most of the Iron and Manganese in solution.

Fluoride is added to the water as Sodium Fluoride to fight dental cavities. Both Sodium and Fluoride occur naturally in small amounts in the ground water in this area. Natural Fluoride occurs at about 0.05 to 0.1 mg/L. The fluoride is added to the water at about 1.0 mg/l to help build stronger, more cavity resistant teeth for all those who DRINK the water in their developmental years.

WHY IS MY WATER BROWN?

Some of the water mains in Groveland are very old cast iron which tends to form rust deposits inside. The other cause is the iron and manganese that settle in the water mains. These occur naturally in the well water and cause the Brown (Iron) to Black (Manganese) water that sometimes occurs, especially when there is an increased water flow during fire hydrant use or a water main break. The major reason for our spring and fall hydrant flushing is to dislodge and remove some of this buildup.

2009 LEAD & COPPER TEST RESULTS

Type Mg/L	LEAD	Copper
Bagnall Kitchen	0.0047	0.099
Bagnall Bubblier	0.0021	0.12
Middle School Kit.	0.014	0.26
Middle School Bub.	0.010**	0.11
90th percentile	0.0030	0.29
*Action Level	0.015	1.3
MCLG	0.0	1.3

Definition

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

Concentrations above the *Action Level require flushing of the fixtures prior to consumption. Large buildings often show elevated concentrations in first water of the day samples that when flushed every morning return to normal system levels around **0.002mg/L.

How does lead and copper get into the tap water?

Lead and copper get into tap water from the corrosion of home service piping and lead solder used in plumbing. Even though the use of lead solder was banned everywhere in the United States in 1986, it still might be present in older homes

Exposure to elevated concentrations of LEAD (Pb) typically affects infants and young children more than teenagers and adults. You should use only cold water for cooking or drinking. If you are concerned that you may have elevated LEAD levels in your house, simply run the water for a few minutes before using it. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

Groveland has been granted Reduced Monitoring status for Lead & Copper because the concentrations of these contaminants do not change frequently. We will need to sample every third summer from now on. Samples were taken from 22 different locations in November of 2009. The next round of sampling will be in 2012.

"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 Groveland Water & Sewer Department 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."

WHAT IS NEW

The preliminary engineering for a computer monitoring system called SCADA was designed last Summer and will be going out to bid this Spring. The addition of SCADA will give the operators the ability to monitor the system at all times. Updates will be made to all the well sites; this will provide water treatment for the Town in an efficient manor.

The final phase of clean up is in progress at the Old Valley Screw site. This is an EPA Super Fund Site that contaminated one of the public wells back in the eighties. The subcontractor has been hired to perform what is called vapor extraction. This is achieved by heating the ground with electricity which vaporizes the contaminant and is then captured at the surface were it's treated.

The Department will be expanding on the Cross Connection Program. We will be including residential irrigation systems. These are hard plumbed systems that are protected with a device called a PVB. Testing is required on an annual basis, usually in the Spring.

The Cross Connection Program is mandated by the State and applies to mostly commercial but also residential plumbing. A cross connection is when a potential health hazard exists in the potable plumbing. Most residential hazards are related to irrigation. The common one is an aspirator connected to you garden hose, the chemicals used to feed plants and protect them from insect damage are highly toxic. The proper protection for this hazard is a hose bib vacuum breaker. New residential services are protected by a non testable dual check valve at the meter. This prevents any contamination from entering the public water system.

The commercial Cross Connection Program is more extensive due to the degree of health risk. This testing is done on an annual and bi-annual schedule, depending on the degree of hazard. The distribution system is dynamic, there for survey work is always being performed. If you have any questions about this program, please give the office a call.

NOTICE OF NON COMPLIANCE

There were no NON's that required public notification.

Where to go for additional Information

Massachusetts Department of Public Health (DPH)	617-624-6000
Massachusetts Department of Environmental Protection (DEP)	800-462-0444
EPA - Safe drinking Water Hotline	800-426-4791