

**2004 Annual Drinking Water Quality Report**  
For  
***Town of Sterling Water Department***  
**Sterling Massachusetts**  
**DEP PWSID # 2282000**

This report is a snapshot of drinking water quality that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards. We are committed to providing you with information because informed customers are our best allies.

**I. PUBLIC WATER SYSTEM INFORMATION**

**Address:** *171 Worcester Road Sterling Massachusetts 01564-0537*

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**Water System Improvements**

The Department of Environmental Protection (DEP) routinely inspects our water system. The DEP 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 water available, your water system is operated by a Massachusetts certified operator who oversees the routine operations of our system. As part of our ongoing commitment to you, last year we made the following improvements to our system: **We have installed security fences around our standpipes that are above ground and have made sure that all hatches are secured with locking devices.**

**Opportunities for Public Participation**

**If you would like to participate in discussions regarding your water quality, you may attend the following meetings or educational events: Regular Board of Public Works meetings occur on the second and fourth Tuesdays of each month at the Department of Public Works Building, 171 Worcester Road in Sterling. The public is welcome.**

**II. YOUR DRINKING WATER SOURCE**

**Where Does My Drinking Water Come From?**

Your water is provided by the following sources listed below:

Source Name	DEP Source ID#	Source Type	Location of Source
Well #3	2282000-03G	Groundwater	Redemption Rock Trail
Well #4	2282000-04G	Groundwater	Redemption Rock Trail
Well #5	2282000-05G	Groundwater	Redemption Rock Trail

**Is My Water Treated?**

Our water system makes every effort to provide you with safe and pure drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- ***We disinfect the water system with ultraviolet light to keep it free of coliform bacteria and microorganisms***

- ***We chemically treat the water with potassium hydroxide to maintain ph and to reduce lead and copper concentrations.***

The Sterling Water Department and the DEP help to determine the effectiveness of existing water treatment and constantly monitor the water quality of our system.

Our water system makes every effort to provide you with safe and pure drinking water. The water quality of our system is constantly monitored by the DEP and the Sterling Water Department

#### **How Are These Sources Protected?**

The Department of Environmental Protection (DEP) has prepared a Source Water Assessment Program (SWAP) Report for the water supply source(s) serving this water system. The SWAP Report assesses the susceptibility of public water supplies.

#### **What is My System's Ranking?**

A susceptibility ranking of **High** was assigned to this system using the information collected during the assessment by the DEP.

#### **Where Can I See The SWAP Report?**

The complete SWAP report is available at *Town of Sterling Department of Public Works 171 Worcester Road Sterling MA* and online at [www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/). For more information, **call Mark Semenuk at 978-422-6767**

#### **What Are the Key Issues For Our Water Supply?**

The SWAP Report notes the key issues of ***Water Supply Protection in all Zone I and Zone II areas from Potential Source Contamination, The Town of Sterling Water Department is commended by the DEP for taking an active role in promoting source protection measures in the Water Supply Protection areas***

#### **What Can Be Done To Improve Protection?**

The SWAP report recommends:

- *Remove all non-water supply activities from the Zone Is to comply with DEP Zone I requirements.*
- *Do not store pesticides, fertilizers, or road salt within the Zone I*
- *Keep any new non water supply activity out of the Zone I*

#### **Our public water system plans to address the protection recommendations by:**

- *Educate residents on best management practices for protecting water supplies*
- *Promote BMPs for storm water management and pollution controls*

#### **Residents can help protect sources by:**

- *Practicing good septic system maintenance*
- *Supporting water supply protection initiatives*
- *Taking hazardous household chemicals to hazardous materials collection days*
- *Limiting pesticide and fertilizer use, etc.*

### **III. SUBSTANCES FOUND IN DRINKING 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:

**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, mining, and farming.

**Pesticides and herbicides** -which may come from a variety of sources such as agriculture, 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 Department of Environmental Protection (DEP) and 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 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'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, 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 and Prevention (CDC) guidelines on lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

#### **IV. IMPORTANT DEFINITIONS**

**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.

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

**90<sup>th</sup> Percentile** – Out of every 10 homes sampled, 9 were at or below this level.

ppm = parts per million, or milligrams per liter (mg/l)  
ppb = parts per billion, or micrograms per liter (ug/l)  
ppt = parts per trillion, or nanograms per liter  
PCi/l = picocuries per liter (a measure of radioactivity)  
NTU = Nephelometric Turbidity Units  
ND = Not Detected  
N/A = Not Applicable

**Mrem/year = millirem per year (a measure of radiation absorbed by the body)**

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

**Massachusetts 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.

## **V. WATER QUALITY TESTING RESULTS**

### **What Does This Data Represent?**

The water quality information presented in the table(s) are from the most recent round of testing done in accordance with the regulations. All data shown was collected during the last calendar year unless otherwise noted in the table(s).

The Massachusetts Department of Environmental Protection has reduced the monitoring requirements for: *inorganic contaminants*,] because the source is not at risk of contamination. The last sample collected for these contaminants was taken on *06-09-2003* and was found to meet all applicable EPA and DEP standards.

	Date(s) Collected	90 <sup>TH</sup> percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	6-24-04	.012 mg/l	15	0	40	4	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	6-24-04	.074 mg/l	1.3	1.3	40	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

**Lead:** *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 and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at 800.426.4791.*

	Highest # Positive in a month	MCL	MCLG	Violation (Y/N)	Possible Source of Contamination
Total Coliform	1	1	0	Y	Naturally present in the environment

**Total Coliform:** Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

Regulated Contaminant	Date(s) Collected	Highest Detect	Range Detected	Highest Average	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Inorganic Contaminants</b>								
Barium (ppm)	06-09-2003	.066mg/l	0-.066	.066	2	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Nitrate (ppm)	06-02-2003	.24mg/l	0-024	.24	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
<b>Volatile Organic Contaminants</b>								
Tetrachloroethylene (PCE) (ppb)	6-09-2004	.06	.05-.06	.06	5	0	N	Discharge from factories and dry cleaners; residual of vinyl-lined water mains
<b>Radioactive Contaminants</b>								
Gross Alpha (pCi/l) (minus uranium)	06/06/2003	1.8	0-1.8		15	0	N	Erosion of natural deposits
Gross Beta/photon emitters (pCi/L) ▲	06/06/2003	.08	0-0.8		50	0	N	Decay of natural and man-made deposits
Radium 226 & 228 (pCi/L) (combined values)	06-06-03	.04	0.0-.04	.02	5	0	N	Erosion of natural deposits
<b>Synthetic Organic Contaminants</b>								
Picloram (ppb)	11/10/2004	.41	00-.41		500	500	N	Herbicide runoff

■ Fluoride also has a secondary contaminant level (SMCL) of 2 ppm.

▲ The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

Unregulated contaminants are those for which there are no established drinking water standards. The purpose of unregulated contaminant monitoring is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted.

Unregulated Contaminant	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source
<b>Inorganic Contaminants</b>						
Sodium (ppm)	06-06-2003	9.4-15	11.3	----	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Sulfate (ppm)	06-06-2003	9.9-11	10.3	250	----	Natural sources
<b>Organic Contaminants</b>						

Secondary Contaminant	Date(s) Collected	Result or Range Detected	SMCL	Possible Source
Iron (ppm)	11/03/04	.14-.55	0.3	Naturally occurring, corrosion of cast iron pipes
Manganese (ppm)	11/03/04	.05-.08	0.05*	Erosion of natural deposits
Chloride (ppm)	11/03/04	13.4-24	250	Runoff from road de-icing, use of inorganic fertilizers, landfill leachates, septic tank effluents, animal feeds, industrial effluents, irrigation drainage, and seawater intrusion in coastal areas
Copper (ppm)	11/03/04	.0012-.0015	1	Naturally occurring organic material
Odor (T.O.N.)	11/03/04	1	3 TON	Erosion of natural deposits; Leaching from wood preservatives <sup>0</sup>
pH	11/03/04	5.61-5.97	6.5-8.5	-----
Total Dissolved Solids (TDS) (ppm)	11/03/04	50.0-64.0	500	Erosion of natural deposits.
Zinc (ppm)	11/03/04	.016-.025	5	Erosion of natural deposits, leaching from plumbing materials

\* The EPA has established a lifetime health advisory (HA) value of 0.3 mg/L for manganese to protect against concerns of potential neurological effects, and a One-day and 10-day HA of 1 mg/L for acute exposure.

## VI. COMPLIANCE WITH DRINKING WATER REGULATIONS

### Does My Drinking Water Meet Current Health Standards?

Our goal is to make sure your water meets all DEP regulations, but in September and October we failed to resample for Total Coliform after a Total Coliform detection, we have since had no problems with coliform bacteria and assure you that our water currently is safe to drink.

## Drinking Water Violations

We failed to complete required sampling and follow up sampling in a timely manner, for fecal or e-coli which is a monitoring and reporting violation. Because we did not take the required number of samples, we did not know whether the contaminants were present in your drinking water, and we are unable to tell you whether your health was at risk during that time. The contaminants for which monitoring was not done are listed in the table below, with the period during which samples should have been taken. The number of samples each contaminant required, the number of samples that were taken, and when the required sampling was conducted. In addition to sampling for these contaminants, we are back in compliance with the DEP since this reporting period and have also changed to a different certified lab which notifies us immediately of any samples that are not in compliance.

Contaminant	Monitoring Period	Number of Samples Required	Number of Samples Taken	Date Sampling Conducted	Health Effects
Total Coliform Bacteria	09/01 To 09/30/2004 &	17	14	09/15/04	Unknown
	10/01 To 10/31/2004	17	14	10/21/04	Unknown

**Total Coliform:** Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

Fecal coliform and E-coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune

## VII. EDUCATIONAL INFORMATION

### Do I Need To Be Concerned About Certain Contaminants Detected In My Water?

**Lead:** 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 and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at 800.426.4791.

**Nitrate:** Nitrate in drinking water at levels above 10 ppm is a health risk for infants less than six months old. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

**Sodium** sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are being carefully controlled.

**Manganese** - EPA has established a lifetime health advisory (HA) value of 0.3 ppm for manganese to protect against concerns of potential neurological effects, and a One-day and 10-day HA of 1 ppm for acute exposure. However, it is advised that for infants younger than 6 months, the lifetime HA of 0.3 ppm be used even for an acute exposure of 10 days.

## **VIII. ADDITIONAL INFORMATION**

- *We currently have a full cross connection program in effect for all commercial and industrial buildings and plan in the near future to implement testing of all residential irrigation system*
- *We have a voluntary water ban in effect so we ask everyone to please conserve water*

*This report was prepared by Mark D Semenuk, Water Foreman*