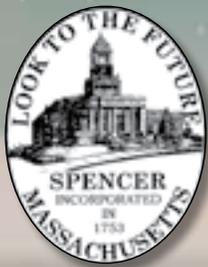


Annual
WATER
QUALITY
REPORT

Reporting Year 2011



Presented By _____
Spencer Water Dept.

PWS ID#: 2280000

Meeting the Challenge

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2011. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

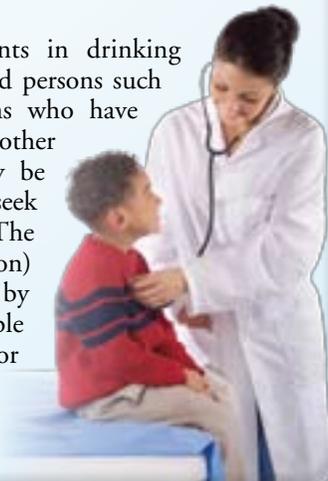
Please share with us your thoughts or concerns about the information in this report. After all, well-informed customers are our best allies.

Where Does My Water Come From?

The Spencer Water Department customers are fortunate because they enjoy an abundant water supply from two sources. The Meadow Road Water Treatment Plant draws water from the 70-foot-deep Meadow Road Well, which is approved to yield 1.7 million gallons of water per day. The Meadow Road Water Treatment Plant was constructed in 1995 to draw from this underground water supply. Our second water source is Cranberry Brook Well, a 66-foot-deep, gravel-packed well that is approved to yield 1.15 million gallons of water per day. Both of these sources feed through the distribution system to fill the 0.5-million-gallon storage tank on Highland St. that serves the west side of town. The water is then pumped through a booster station from the Highland St. storage tank to the 1.5-million-gallon storage tank located behind David Prouty High School, which serves the east side of town. During 2011, we produced 167 million gallons of clean drinking water.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



Source Water Assessment

The Department of Environmental Protection conducted assessments for all drinking water sources across the state. The purpose of the assessment was to determine the susceptibility of each drinking water source to potential contaminant sources and to establish a relative susceptibility rating of high, moderate, or low for each source.

The assessment reported a susceptibility rating of high for both sources of the Spencer Water Department. This susceptibility rating does not imply poor water quality; rather, it signifies the system's potential to become contaminated.

The complete Source Water Assessment report is available for viewing at the Spencer Water Department, 3 Old Meadow Road, Spencer, Massachusetts.

Community Participation

Our Water Commissioners' meetings are held on the first Wednesday of each month, beginning at 5:00 p.m., at 3 Old Meadow Road, Spencer, Massachusetts. Please call in advance to be put on the agenda: (508) 885-7525.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our Meadow Rd. Well into the treatment plant, where chlorine bleach and potassium permanganate are added to oxidize iron and manganese. The water is then sent to pressurized sand filters, where the iron and manganese are removed. After leaving the filters, we add sodium hydroxide to the water to raise the pH level, which controls corrosion of our system pipes. The water then travels to a 60,000-gallon clearwell and is ready to be delivered to the distribution system.

Our backup source, the Cranberry Brook Well, is located on South Spencer Rd. We add sodium hydroxide to raise the pH of the water, which controls corrosion of our system pipes. Chlorine bleach is also injected for proper disinfection.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please contact Chief Water Systems Operator Greg Karpowicz at the Spencer Water Department (508) 885-7525.

Lead in Home Plumbing

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. We are 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 www.epa.gov/safewater/lead.

Water Conservation

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water-using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (U.S. EPA) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The 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. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or 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 which may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Two-Zone Pressure-Reduction Project: Update

Our Two-Zone project has been completed. We have been successfully operating the new system since June 28, 2011. The new system upgrades feature two separate pressure zones, new high-efficiency pumps and motors, lower pressure in the western part of town, and a computerized Supervisory Control and Data Acquisition (SCADA) system that allows remote operations of the water system. The new upgrades have not only shown a considerable improvement in operations but more importantly a considerable drop in water leaks and after-hour service calls, which equals money saved. This upgrade was well needed, long overdue, and a historic change to the Town of Spencer.

The next step is to continue upgrading our aging water pipes, in which some are a century old. Tata & Howard engineering has provided our department with a Capital Efficiency Plan (CEP) that outlines the needed improvements to help maintain water quality, proper fire protection, and constant water supply to our critical areas, which include schools, businesses, and industrial areas. These are well needed improvements that will ensure the future of the Town of Spencer's water system.

Cryptosporidium in Drinking Water

Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. Monitoring of source water and/or finished water indicates the presence of these organisms. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

In 2006, the Spencer Water Department tested for *Cryptosporidium*, once in April, and again in September. Both tests came back negative.

What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection.

For more information, review the Cross-connection Control Manual from the U.S. EPA's Web site at <http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm>. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine ¹ (ppm)	2011	[4]	[4]	0.51	NA	No	Water additive used to control microbes
<i>E. coli</i> [at the groundwater source] ² (# positive samples)	2011	NA	0	1	NA	No	Human and animal fecal waste in untreated groundwater
Nitrate ³ (ppm)	2011	10	10	2.62	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2011	80	NA	6	NA	No	By-product of drinking water disinfection
Total Coliform Bacteria ⁴ (# positive samples)	2011	1 positive monthly sample	0	1	NA	No	Naturally present in the environment

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2011	1.3	1.3	0.094	0/20	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2011	15	0	2	0/20	No	Corrosion of household plumbing systems; Erosion of natural deposits

¹ This is our running annual average.

² Special Notice: *E. coli* was detected in our Meadow Rd. well raw water on March 9, 2011. Additional sampling verified that the *E. coli* was treated at the treatment plant and never made it out to the distribution system. The cause was from high groundwater levels due to heavy rain and excessive snow melt. Fecal coliforms 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 systems. At no time were the consumers at risk, and our department worked closely with MassDEP to resolve the incident immediately and distribute proper public notification as required.

³ Sampled from our Cranberry Brook Well.

⁴ Total coliform bacteria was detected from a sample taken May 11, 2011, at our Watson St. pump station. Additional sampling came back negative for total coliform bacteria.

Definitions

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

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

MCL (Maximum Contaminant Level): 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.

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.

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 control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below 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.

NA: Not applicable.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).