



This report was prepared by:
Hanson Water Department
1073 West Washington Street
Hanson, MA 02341

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.



For more information about this report, or for any questions relating to your drinking water, please call Neal Merritt, Water Department Superintendent, at (781) 447-1200.

Community Participation

If you would like to participate in discussions regarding your water quality, you are encouraged to attend any of our regularly scheduled meetings. The Board of Water Commissioners meets on the second and fourth Wednesday of each month at 5:00 p.m. in the Water Department office at 1073 West Washington Street.

Where Does My Water Come From?

The Hanson Water Department was created in 1916. From 1916 until the early 1980s, Hanson purchased its water from the City of Brockton and the Abington/Rockland Joint Waterworks. Since then, Hanson has developed and operated its own water supply at the Crystal Spring Wellfield, which consists of four wells located on Town-owned land at the corner of Main and Franklin Street. In addition, the Hanson Water Department continues to augment its supply with water purchased from the City of Brockton's Silver Lake Reservoir located in Halifax. In 2011, we purchased water from Brockton on only one occasion. This occurred on January 12, 2011, and totaled 60,000 gallons. For additional information on the Brockton water supply, please call the Brockton DPW at (508) 580-7865.

About Our Violations

The MCL for systems collecting fewer than 40 samples per month is not more than one total coliform positive/month. In March of 2011, we had three samples test positive for total coliform with one sample also testing positive for *E. coli*. All repeat samples collected from the three suspect sites as well as upstream and downstream from these locations tested negative for total coliform or *E. coli*. In response to this contamination event, we introduced upgrades to our chemical feed equipment, and on June 27, 2011, we were granted DEP approval to begin permanent chlorination of our water supply. 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.

In September, *E. coli* bacteria was detected in Well #1. This well was immediately taken off-line and stayed off-line for the remainder of 2011. As a result of this detection, the DEP required Hanson to achieve 4-log removal (or 99.99 percent removal) of viruses in the water exiting our well field pursuant to the Ground Water Rule. This results in an added level of protection, as we are required to continuously monitor our chlorine level to assure that a minimum level of chlorine is maintained as it exits the well field, thereby ensuring the inactivation of viruses. In November, the DEP approved our 4-log removal plan. 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.

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.

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.

Source Water Assessment

Hanson's Source Water Assessment and Protection (SWAP) Report identifies the primary recharge area (Zone II) for the Crystal Spring Wellfield as consisting primarily of forest and non-forested wetlands with small areas of cropland, residential, commercial, industrial, and waste disposal land use. In addition, Hanson's wells are located in an aquifer with high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. As a result, Hanson's sources are considered highly susceptible to contamination from a variety of sources, such as petroleum products, industrial solvents, fertilizers, and microbial contaminants. Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area and does not imply poor water quality.

The Hanson SWAP Report is available at the Hanson Water Office. If you would like to review this report, please feel free to contact us during regular office hours.

Water Treatment Process

Our water system makes every effort to provide you with safe and pure drinking water. The ground water in Hanson is naturally corrosive (i.e., it has a pH of less than 7.0); therefore, untreated water has a tendency to corrode and dissolve the metal piping it flows through. This not only damages the internal plumbing of your home but can also add harmful metals, such as lead and copper to your water. To improve the quality of the water delivered to you, we chemically treat it with sodium hydroxide to raise the pH to a non-corrosive level, thereby reducing lead and copper concentrations. In addition, starting in July, we began adding chlorine to the water as a precaution against any bacteria that may be present in the source water. We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.

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.

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>.

Information on the Internet

The U.S. EPA Office of Water (www.epa.gov/watrhome) and the Centers for Disease Control and Prevention (www.cdc.gov) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation and public health.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any biological, organic, or volatile organic contaminants. The table below shows only those contaminants that were detected in the water. The state allows 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 (ppm)	2011	[4]	[4]	0.35	ND–1.70	No	Water additive used to control microbes
Fecal Indicators [<i>E. coli</i> , enterococci or coliphage] Ground Water Rule (# positive samples)	2011	TT	NA	6	NA	No	Human and animal fecal waste
Fecal coliform and <i>E. coli</i> (# positive samples)	2011	0	0	1	NA	Yes	Human and animal fecal waste
Nitrate (ppm)	2011	10	10	0.81	0.23–0.81	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2011	2	NA	0.09	ND–0.09	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
TTHMs [Total Trihalomethanes] (ppb)	2011	80	NA	5.2	ND–5.2	No	By-product of drinking water disinfection
Tetrachloroethylene (ppb)	2011	5	0	4.4	ND–4.4	No	Discharge from factories and dry cleaners
Total Coliform Bacteria (# positive samples)	2011	1 positive monthly sample	0	3	NA	Yes	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)	2009	1.3	1.3	0.33	0/24	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2009	15	0	3	0/24	No	Corrosion of household plumbing systems; Erosion of natural deposits
SECONDARY SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Manganese (ppb)	2009	50	NA	59	59–59	No	Leaching from natural deposits
Sulfate (ppm)	2009	250	NA	14.8	14.8–14.8	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED SUBSTANCES ¹

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2011	1.2	ND–1.2	By-product of drinking water chlorination
Bromoform (ppb)	2011	1.5	ND–1.5	By-product of drinking water chlorination
Chloroform (ppb)	2011	0.5	ND–0.5	By-product of drinking water chlorination
Dibromochloromethane (ppb)	2011	2.0	ND–2.0	By-product of drinking water chlorination
Methyl tertiary butyl ether (ppb)	2011	2.7	ND–2.7	Leaks and spills from gasoline storage tanks
Sodium (ppm)	2009	47.7	33.2–47.7	Natural sources; Runoff from use as salt on roadways; By-product of water treatment process

INITIAL DISTRIBUTION SYSTEM EVALUATION (IDSE) ²

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
TTHMs [Total Trihalomethanes]–IDSE Results (ppb)	2011	NA	NA	10.3	1.7–10.3	No	By-product of drinking water disinfection

¹Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the U.S. EPA in determining their occurrence in drinking water and whether future regulation is warranted.

²We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations.

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. Secondary MCLs (SMCLs) are set to protect the odor, taste and appearance of drinking water.

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.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

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).

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