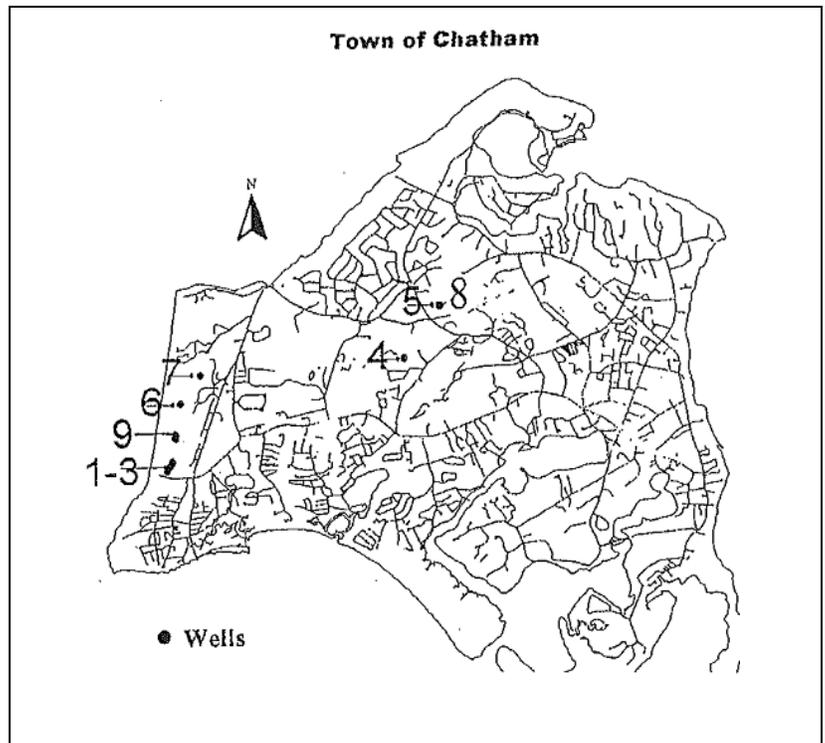


Chatham Department of Public Works Water Division Annual Water Quality Report - Calendar Year 2015

The annual "Water Quality Report" is prepared by the Chatham Department of Public Works Water Division. The Safe Drinking Water Act (SDWA) requires that this report be prepared to inform you, our customers, of water quality test results performed on the water from our water supplies and in the distribution system. The Department and its contract operator, Weston & Sampson, are committed to providing the highest quality water to our customers.

The Department of Public Works Director and staff are available Monday through Friday, from 8:00 AM to 4:00 PM, to answer your questions and provide assistance at the address and telephone number listed below. The Water and Sewer Advisory Committee meets once a month at

the Town Office Annex located at 261 George Ryder Road. The Water and Sewer Advisory Committee and Selectmen meetings are posted at the Town Hall, and the public is welcome to attend. The Chatham Board of Selectmen (as Water and Sewer Commissioners) meet at the Town Hall Annex, 261 George Ryder Road.



IMPORTANT INFORMATION

Chatham Department of Public Works Water Division
Address: 221 Crowell Road
Chatham, Massachusetts 02633
Thomas P Temple, DPW Director
Phone Number: (508) 945-5150
Public Water System
Identification Number: (PWS ID#) 4055000

Weston & Sampson (Contract Operator)
Address: 221 Crowell Road
Chatham, Massachusetts 02633
Phone Number: (508) 593-4766
Contact Person: Lynn A Carr
Chief Water Facilities Operator

Sources Of Supply:

Chatham's water is supplied from nine (9) wells (groundwater sources) located within the boundaries of Chatham. These wells draw from the Monomoy Lens aquifer, one of six aquifers that make up the Cape Cod Sole Source Aquifer. The Department also maintains two water main interconnections with the Town of Harwich for use in an emergency. These connections, located on Route 28 and Old Queen Anne Road, were not used during 2015.

A Source Water Assessment Program (SWAP) Report was prepared in 2003 for Chatham by the Department of Environmental Protection. This report evaluates the susceptibility of the water supply sources to contamination, and gives recommendations for improvement in the protection of groundwater and other factors that affect the our water system's water quality.

The susceptibility of the Town's wells to contamination, as determined by the SWAP Report, is high. Wells # 1-3 and Training Field Well # 5 are susceptible to contamination due to the absence of hydrogeologic barriers (i.e. a clay layer) between the surface and the aquifer. Wells # 4, 6, 7, 8, & 9 are also rated highly susceptible based on the presence of at least one of the following high threat land use (i.e. gas stations, airports, machine shops, etc.) within these wells' Zone II, the water supply recharge areas for these wells.

The report cites land uses in Chatham's wells' recharge areas (Zone II) as primarily a mixture of forest and residential land uses with small areas of commercial, light industrial and waste disposal land uses. The Town adopted the Water Resource Protection Zoning Bylaws in 1996 for the protection of the water within all its Zone II areas. This bylaw limits the type of new or expanded land uses that are permitted within the Zone II areas. The report offers recommendations for further action in each area. Some of the recommendations include public education in water source protection, handling and disposing of hazardous materials, and identifying potential sources of contamination. The Department remains active in the protection of our water supply by: restricting use within 400 feet of the wells; working with industrial users to inform them as to the potential hazards of improper discharge of chemicals; and the dissemination of water supply protection practices material through articles in our newsletters, informational brochures, and discussions at our annual open house.

The full report is available for viewing at the Department of Public Works Water Division and the report is available at: http://www.town.chatham.ma.us/Public_Documents/chathamma_watersewer/swap.pdf. For more information regarding the Source Water Assessment and Protection Report, call the Department of Public Works Water Division at 508-945-5150.

Well Name	South Chatham Well 1	South Chatham Well 2	South Chatham Well 3	Indian Hill Well 4	Training Field Road Well 5	Tirrell's Way Well 6	Eben's Way Well 7	Training Field Road Well 8	Town Forest Well 9
DEP ID Number	4055000-1G	4055000-2G	4055000-3G	4055000-4G	4055000-5G	4055000-6G	4055000-7G	4055000-8G	4055000-9G
Location	2756 Main St. South Chatham	2756 Main St. South Chatham	2756 Main St. South Chatham	54 Indian Hill Road	128 Training Field Road	150 Tirrell's Way	65 Eben's Way	128 Training Field Road	2756 Main St. South Chatham

Substances Found In 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, 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 facilities, 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, 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, DEP and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and the 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 the 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 (1-800-426-4791).

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 at (1-800-426-4791).

Water Sampling Test Results:

How To Read The Table:

Our water is regularly tested to ensure that it is both biologically and chemically safe to drink. The water quality information presented in the tables below are from the most recent round of testing done in accordance with Federal and State regulations. All data shown was the results of our monitoring for the period of January 1st to December 31st, 2015, unless noted. Some of our data in the tables are more than one year old, since certain chemical contaminants are monitored less than once a year. Our sampling frequency complies with EPA and State drinking water regulations. The table only lists the levels of contaminants that were actually detected in the water. Testing that was completed but did not register a value for the substance is not shown.

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 (see below) 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.

Maximum Residual Disinfectant Level (MRDL) – the highest level of a disinfectant (chlorine, chloramines, chlorine dioxide) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for the control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) – The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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

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

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.

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

ppm = parts per million or milligrams per liter (mg/l)

ppb = parts per billion or micrograms per liter (ug/l)

pCi/l = picoCuries per liter (a measure of radioactivity)

N/A = Not Applicable

Inorganic Contaminants								
Contaminant	Date Collected	Highest Detect Value	Range Detected	Average Detect	MCL	MCLG	Violation (Y/N)	Possible Source of Contamination
Nitrate	3/11/2015 5/18/2015	2.3 ppm	N/D – 2.3 ppm	0.52 ppm	10 ppm	10 ppm	NO	Runoff from fertilizer; Leaching from septic tanks; sewage; erosion of natural deposits; and atmosphere
Perchlorate	7/29/2014	0.19 ppb	N/D – 0.19 ppb	0.10 ppb	2 ppb	N/A	NO	Rocket propellant, fireworks, munitions, flares

Microbiological Contaminants						
Contaminant	Date	Total # Positive	MCL	MCLG	Violation (Y/N)	Possible Sources of Contamination
Total Coliform	5/11/2015	5 of 33	1	0	Yes	Naturally present in the environment
	9/14/2015	5 of 43	> 5%	0	Yes	Naturally present in the environment
	10/13/2015	7 of 73	> 5%	0	Yes	Naturally present in the environment
E. Coli	10/13/2015	2 of 73	> 5%	0	Yes	<i>E. coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes.

Explanation of Microbiological Violation (Total Coliform)

Duration May 11, September 14 and October 13, 2015

Health Effects *Coliforms* are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

Cause Although we could not confirm with certainty, we believe the detect in May might have been a sampling error. September's and October's detects are believed to be attributed to a very low water table and excessive pumping rates.

Explanation of Microbiological Violation (E. coli)

Duration October 13, 2015

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

Cause Although we could not confirm with certainty, we believe the detects can be attributed to a very low water table and excessive pumping rates.

Lead and Copper Date Tested – 7/28 – 7/30/2015							
Contaminant	90th Percentile	Action Level	MCLG	Number Of Sites Sampled	Number Of Sites Above Action Level	Violation (Y/N)	Possible Source of Contamination
Lead	0.4 ppb	15 ppb	0 ppb	30	0	NO	Corrosion of household plumbing systems
Copper	0.624 ppm	1.3 ppm	1.3 ppm	30	0	NO	Corrosion of household plumbing systems

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 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 EPA's Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

Disinfectants/Disinfection Byproducts							
Contaminant	Date Collected	Highest Detect Level	Range Detected	MCL	MCLG	Violation (Y/N)	Major Sources
Trihalomethanes (TTHM)	2/10/2015 5/11/2015 8/14/2015 11/10/2015	9.2 ppb	0.0 – 9.2 ppb	80 ppb	N/A	NO	By-product of drinking water chlorination
Haloacetic Acids (HAA5)	2/10/2015 5/11/2015 8/14/2015 11/10/2015	1.2 ppb	0.0 – 1.2 ppb	60 ppb	N/A	NO	By-product of drinking water chlorination
				MRDL	MRDLG		
Chlorine	Monthly 1/1/2015 – 12/31/2015	1.12 ppm	0.0-1.12 ppm	4.0 ppm	4.0 ppm	N/A	Water additive used to control microbes

Radioactive Contaminants							
Contaminant	Date Collected	Average Detect	Range Detected	MCL	MCLG	Violation	Possible Source of Contamination
Gross Alpha Emitters	1/17/2012	1.1 pCi/L	0.0-3.8 pCi/L	15 pCi/L	0 pCi/L	NO	Erosion of Natural Deposits
Radium – 226	1/17/2012	0.1 pCi/L	0.0 – 0.2 pCi/L	5 pCi/L	0 pCi/L	NO	Erosion of Natural Deposits
Radium – 228	1/17/2012	0.1 pCi/L	0.0 – 0.7 pCi/L	5 pCi/L	0 pCi/L	NO	Erosion of Natural Deposits

Secondary Contaminant	Date Collected	Range Lowest to Highest	Average Detected	SMCL	EPA Health Advisory	Possible Source of contamination
Manganese	3/3, 5/18,7/1, 7/8, 7/20, 8/10 11/12/2015	0.0 – 916 ppb	167 ppb	50 ppb	300 ppb	Naturally present in the environment

Manganese is a naturally occurring mineral found in rocks, soil and groundwater, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet, but can have undesirable effects on certain sensitive populations at elevated concentrations. The United States Environmental Protection Agency (EPA) and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 50 ug/L (micrograms per liter), or 50 parts per billion and health advisory levels. In addition, MassDEP 's Office of Research and Standards (ORS) has set a drinking water guideline for manganese (ORSG), which closely follows the EPA public health advisory for manganese. Drinking water may naturally have manganese and, when concentrations are greater than 50 ug/L, the water may be discolored and taste bad. Over a lifetime, the EPA recommends that people drink water with manganese levels less than 300 ug/L and over the short term, EPA recommends that people limit their consumption of water with levels over 1000 ug/L, primarily due to concerns about possible neurological effects. Children up to 1 year of age should not be given water with manganese concentrations over 300 ug/L, nor should formula for infants be made with that water for longer than 10 days.

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

Unregulated Contaminants							
Contaminant	Date Collected	Highest Detect Value	Range Detected	Average Detect	SMCL	ORSG	Possible Source of Contamination
Sodium	2/18/2014	21 ppm	13-21 ppm	16.0 ppm	N/A	20 ppm	Natural sources; runoff from use as salt on road-ways; by-product of treatment process

Unregulated Contaminant Monitoring Rule 3 (UCMR3)						
Contaminant	Date Collected	Highest Level Detected	Range Detected	SMLC	ORSG	Possible Source Of Contamination
Chromium (Total)	2/19 & 8/14/2014	0.34 ppb	ND-0.34 ppb	N/A	N/A	Naturally-occurring element
Cobalt	2/19 & 8/14/2014	1.3 ppb	ND-1.3 ppb	N/A	N/A	Naturally-occurring element in earth's crust and at low levels in seawater and in some surface and ground water
Strontium	2/19 & 8/14/2014	50.2 ppb	ND-50.2 ppb	N/A	N/A	Naturally-occurring element; historically, commercial use has been in the faceplate glass of cathode-ray tube televisions
Vanadium	2/19 & 8/14/2014	1.6 ppb	ND-1.6 ppb	N/A	N/A	Naturally-occurring elemental metal; used as a chemical intermediate and a catalyst
Chromium-6	2/19 & 8/14/2014	0.2 ppb	ND-0.2 ppb	N/A	N/A	Naturally-occurring element; used in making steel and other alloys, chrome plating, dyes and pigments, leather tanning and wood preservation
Chlorate	2/19 & 8/14/2014	111 ppb	ND-111 ppb	N/A	N/A	Agricultural defoliant or desiccant; disinfection byproduct

This report shows our water quality and what it means. The Department's water division routinely monitors for contaminants in your drinking water according to Federal and State laws. We have learned through our monitoring and testing that some constituents have been detected, however, EPA has determined that your water is safe at these levels.

Additional Information:

Potassium hydroxide is routinely added to the water supplies at all of the wells except Well # 4 to raise the pH of the water to reduce plumbing corrosion.

Polyphosphate is added at Wells # 1 2, 3, 5, 7, 8 & 9 for the sequestering of iron and manganese. However, the concentration of iron and manganese in Wells # 3, # 6, # 7 and # 9 are now above the limits that polyphosphate is effective and with the addition of chlorine the iron is being oxidized and discolors the water. The Department is pursuing funding for building an iron and manganese removal plant. Sodium hypochlorite is also added at Wells # 1,2, 3, 5, 8 & 9 as a precautionary measure to kill any bacteria that may be stirred up as a result of the flushing program or other construction projects.

The water from Indian Hill Well # 4 has shown some Tetrachloroethylene (PCE) present in previous year's testing and for that reason the well is not typically used except in emergency situations. Indian Hill Well was last used on July 6, 1999, when there was a problem meeting high water use demand. When Well # 4 is used, PCE testing is performed daily to ensure that the maximum contaminant limit (MCL) for PCE, mandated by DEP and EPA, is not exceeded. Well # 6 remains off line due to high manganese levels until the water treatment plant is operating to remove the iron and manganese.

All chemicals used for water treatment are approved by one of the following organizations: National Sanitation Foundation (now known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association.

Water conservation tips are provided to our customers through articles in the "Chatham Water & Sewer News", a newsletter that outlines the Department's activities. It is published and distributed to all of the Department's customers twice per year.

The Consumer Confidence Report is available on line at the following URL:

<http://www.chatham-ma.gov/annualwaterqualityreport> . In an effort to reduce costs and waste, anyone preferring a paper copy of the report should call the Department at 508-945-5150 to request a copy be mailed to your home. As always, the report is available for viewing at the DPW building, town hall, town annex and Eldredge Public Library.

Cross Connections

A cross connection is a connection between a drinking water pipe and a polluted source of water. The Chatham Department of Public Works Water Division recommends the installation of backflow prevention devices, such as a hose bib vacuum breaker, for all inside and outside hose connections. You can purchase these from your local hardware or plumbing supply store. This is a great way for you to protect the water in your home as well as, the drinking water system in Chatham. For additional information on cross connections and the status of your water systems cross connection program, please contact Lynn A Carr or Richard V Peter at the Chatham Department of Public Works Water Division, 221 Crowell Road or call 508-945-5150.

