

# **Chatham Water Department Annual Water Quality Report - Calendar Year 2005**

The Annual "Water Quality Report" is prepared by the Town of Chatham Water Department. The Massachusetts Department of Environmental Protection (DEP) 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 Water Department and its contract operator, Earth Tech, are committed to providing the highest quality water to our customers.

The Water Department's 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 addresses and telephone number listed below. The Water Advisory Committee meets once a month at the Water Department Office at 127 Old Harbor Road. The Chatham Board of Selectmen (as Water Commissioners) meet at the Town Hall, 549 Main Street. Dates and times for the Water Advisory Committee and Selectmen meetings are posted at the Town Hall, and the public is welcome to attend.

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| <b><u>IMPORTANT INFORMATION</u></b>                  |   |
| <b>Town of Chatham Water Department</b>              |   |
| <b>Address:</b>                                      | <b>127 Old Harbor Road<br/>Chatham, Massachusetts 02633<br/>William Redfield, P.E. – Director</b> |
| <b>Phone Number:</b>                                 | <b>(508) 945-5150</b>   |
| <b>Public Water System</b>                           |   |
| <b>Identification Number:</b>                        | <b>(PWS ID#) 4055000</b>  |
| <b>Earth Tech (Water System's Contract Operator)</b> |   |
| <b>Address:</b>                                      | <b>127 Old Harbor Road<br/>Chatham, Massachusetts 02633</b>                                       |
| <b>Phone Number:</b>                                 | <b>(508) 945-8837</b>   |
| <b>Contact Person:</b>                               | <b>Lynn Van Sant<br/>Operations Manager</b>   |

## **Sources Of Supply:**

The Chatham Water Department'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 Chatham Water Department also maintains two water main interconnections with the Town of Harwich for use in an emergency. These connections, located on Route 28 and Route 137, were not used during 2005.

A Source Water Assessment Program (SWAP) Report was prepared in 2004 for the Chatham Water Department 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 Chatham 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 Chatham Water 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 Chatham Water Department and the report is available on the Water Department's web page of the Town's website, [www.town.chatham.ma.us](http://www.town.chatham.ma.us).

For more information regarding the Source Water Assessment and Protection Report, call the Chatham Water Department 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 | Off 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 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, 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 WaterHotline 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 1<sup>st</sup> to December 31<sup>st</sup>, 2005, 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.

**90<sup>th</sup> Percentile** – Out of every 10 homes, 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)

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

**N/A** = Not Applicable

| <b>Microbiological Contaminants</b> |                 |                         |            |             |                        |  |
|-------------------------------------|-----------------|-------------------------|------------|-------------|------------------------|--|
| <b>Contaminant</b>                  | <b>Date</b>     | <b>Total # Positive</b> | <b>MCL</b> | <b>MCLG</b> | <b>Violation (Y/N)</b> | <b>Possible Sources of Contamination</b> |
| Total Coliform                      | 6/7/05 & 6/9/05 | 20                      | 1          | 0           | Y                      | Naturally present in the environment.    |

### **Explanation of Microbiological Violation (Total Coliform)**

**Duration** June 7, 2005 through June 9, 2005

**Health Effects** 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.

**Cause** The source of the bacteria was suspected to be Well # 3 in South Chatham which had been redeveloped in May, 2005. The unusually high water table in conjunction with increased pumping capacity is suspected to have allowed bacteria to enter the well.

**Action Taken** In order to effectively address and correct the problem, the Department immediately took Well # 3 off-line and began chlorinating the system. In addition, we immediately notified both the Department of Environmental Protection (DEP) and the public of the situation. Repeat sampling from June 10, 2005 forward showed no evidence of coliform bacteria.

| <b>Disinfectants/Disinfection Byproducts</b> |   |                             |                       |             |              |                        |   |
|--|---|-----------------------------|-----------------------|-------------|--------------|------------------------|---|
| <b>Contaminant</b>                           | <b>Date Collected</b>                     | <b>Highest Detect Level</b> | <b>Range Detected</b> | <b>MCL</b>  | <b>MCLG</b>  | <b>Violation (Y/N)</b> | <b>Major Sources</b>                      |
| Total Trihalomethanes (TTHMs)                | 3/21/05<br>4/20/05<br>7/20/05<br>10/19/05 | 5.6 ppb                     | 1.0-5.6 ppb           | 80 ppb      | N/A          | N                      | By-product of drinking water chlorination |
|  |   |                             |                       | <b>MRDL</b> | <b>MRDLG</b> |                        |   |
| Chlorine                                     | Monthly 3/05-11/05                        | 0.89 ppm                    | 0.0-0.89 ppm          | 4.0 ppm     | 4.0 ppm      | N/A                    | Water additive used to control microbes   |

| <b>Inorganic Contaminants</b> |                       |                             |                       |                       |            |             |                  |   |
|-------------------------------|-----------------------|-----------------------------|-----------------------|-----------------------|------------|-------------|------------------|---|
| <b>Contaminant</b>            | <b>Date Collected</b> | <b>Highest Detect Value</b> | <b>Range Detected</b> | <b>Average Detect</b> | <b>MCL</b> | <b>MCLG</b> | <b>Violation</b> | <b>Possible Source of Contamination</b>   |
| Nitrate                       | 2/9/05<br>4/20/05     | .57 ppm                     | 0.03 – .57 ppm        | 0.27 ppm              | 10 ppm     | 10 ppm      | N                | Runoff from fertilizer; Leaching from septic tanks; sewage; erosion of natural deposits; and atmosphere |

| <b>Lead and Copper Date Tested – 6/11/03</b> |                                   |                     |             |                                |   |                        |   |
|--|-----------------------------------|---------------------|-------------|--------------------------------|---|------------------------|---|
| <b>Contaminant</b>                           | <b>90<sup>th</sup> Percentile</b> | <b>Action Level</b> | <b>MCLG</b> | <b>Number Of Sites Sampled</b> | <b>Number Of Sites Above Action Level</b> | <b>Violation (Y/N)</b> | <b>Possible Source of Contamination</b> |
| Lead   | 5.0 ppb                           | 15 ppb              | 0 ppb       | 20                             | 0   | N                      | Corrosion of household plumbing systems |
| Copper                                       | .3 ppm                            | 1.3 ppm             | 1.3 ppm     | 20                             | 0   | N                      | Corrosion of household plumbing system  |

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.

| <b>Unregulated Contaminants</b> |                       |                             |                       |                       |            |  |
|---------------------------------|-----------------------|-----------------------------|-----------------------|-----------------------|------------|--|
| <b>Contaminant</b>              | <b>Date Collected</b> | <b>Highest Detect Value</b> | <b>Range Detected</b> | <b>Average Detect</b> | <b>MCL</b> | <b>Possible Source of Contamination</b>  |
| Sulfate                         | 2/9/05                | 16 ppm                      | 8-16 ppm              | 9.8 ppm               | N/A        | Natural sources  |
| Sodium                          | 4/20/05               | 13 ppm                      | One sample            | 13 ppm                | N/A        | Natural sources; run-off from use as salt on roadways; by-product of treatment process |

| <b>Radioactive Contaminants</b> |                       |                             |                       |            |             |                        |   |
|---------------------------------|-----------------------|-----------------------------|-----------------------|------------|-------------|------------------------|---|
| <b>Contaminant</b>              | <b>Date Collected</b> | <b>Highest Detect Value</b> | <b>Range Detected</b> | <b>MCL</b> | <b>MCLG</b> | <b>Violation (Y/N)</b> | <b>Possible Source of Contamination</b> |
| Gross Alpha Emitters            | 3/17/03               | 0.0 (+1.4) pCi/L            | One Sample            | 15 pCi/L   | 0 pCi/L     | N                      | Erosion of Natural Deposits             |
| Radon                           | 4/14/03               | 160 pCi/L                   | One Sample            | N/A        | 0 pCi/L     | N                      | Erosion of Natural Deposits             |
| Radium - 226                    | 3/17/03               | 0.0 (+0.2) pCi/L            | One Sample            | 5 pCi/L    | 0 pCi/L     | N                      | Erosion of Natural Deposits             |
| Radium - 228                    | 3/17/03               | 0.6 (+0.6) pCi/L            | One Sample            | 5 pCi/L    | 0 pCi/L     | N                      | Erosion of Natural Deposits             |

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will be, in most cases, a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 PicoCuries per liter of air (pCi/L) or higher. For additional information, call your State radon program or call EPA's Radon Hotline, 800.SOS.RADON.

This report shows our water quality and what it means. The Chatham Water Department 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:**

Chatham is fortunate to be able to pump water that is of good quality from its groundwater sources. The water quality from wells # 1,2,3,5,6,7,8 & 9 is excellent. 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.

The Water Department adds potassium hydroxide to the water supplies at all of the wells to raise the pH of the water to reduce plumbing corrosion. Polyphosphate is added at Wells # 2, 3, 5, 7, 8 & 9 for the sequestering of iron and manganese, and sodium hypochlorite is also added at Wells # 2, 3, 5, 6, 8 & 9 during our spring flushing program as a precautionary measure to kill any bacteria that may be stirred up as a result of the flushing program.

To encourage conservation among the Chatham Water Department's customers, the Water Department is making available free low-flow "flapperless" toilets and low flow power spray nozzles for commercial dishwashers. Toilet and power spray nozzle information and applications are available at the Water Department office.

The Chatham Water Department is continuing to provide low flow showerheads to all of its customers free of charge. There are also numerous pamphlets available on water conservation and protection. Please feel free to stop in and pick them up.

The Chatham Water Department also provides water conservation tips to its customers through articles in the "Chatham Water News", a newsletter that outlines the Department's activities, and is published and distributed to all customers twice per year.