2013 Annual Drinking Water Quality Report

for

ROWLEY WATER DEPARTMENT

Rowley, Massachusetts

MassDEP PWSID # 3254000

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.

1. COMPLIANCE WITH DRINKING WATER REGULATIONS

Does My Drinking Water Meet Current Health Standards?
We are committed to providing you with the best water quality available. We are proud to report that last year your drinking water met all applicable health standards regulated by the Massachusetts Department of Environmental Protection (MassDEP) and United States Environmental Protection Agency (US EPA).

2. PUBLIC WATER SYSTEM INFORMATION

Address:	401 Central Street PO Box 29 Rowley, MA 01969	Board of Water Commissioners:	Timothy Toomey Roy Ricker, Sr. Stuart Dalzell, Sr.
Phone:	(978) 948-2640	Acting Superintendent:	Paul Provost
Website:	www.rowleywater.org	**For Billing, Payment and Customer Service, please contact Pennichuck Water by phone at (800) 553-5191, or by email at customer-service@pennichuck.com**	
Hours:	7:00AM – 3:00PM Monday – Friday		

Opportunities for Public Participation
If you would like to participate in discussions regarding your water quality, you may attend a meeting of the Board of Water Commissioners, generally held on the second Tuesday of each month at the Water Department office located on 401 Central Street. Please contact the Water Department, at (978) 948-2640 for more information, or to be added to the meeting agenda.

Water System Improvements
Our water system is routinely inspected by Mass DEP. MassDEP 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 qualified, experienced operators certified by MassDEP, who oversee the routine operations of our system.

As part of our ongoing commitment to you, last year we constructed a state-of-the-art membrane filtration plant off of Pingree Farm Road, to treat water from Wells Three and Five. The plant is designed to remove iron and manganese from the groundwater. Additionally, we installed a new Supervisory Control and Data Acquisition(SCADA) system to monitor each of the three wells and the distribution system.

3. YOUR DRINKING WATER SOURCE

Where Does My Drinking Water Come From?
The drinking water for the Town of Rowley comes from three groundwater wells located on Town-owned parcels of land within the Parker River Basin.

Source Name	MassDEP Source ID	Source Type	Location of Source
Well Two	3254000-02G	Groundwater	Haverhill Street
Well Three	3254000-03G	Groundwater	Boxford Road
Well Five	3254000-05G	Groundwater	Pingree Farm Road

How Are These Sources Protected?
MassDEP has prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving the Town of Rowley. The SWAP Report accesses the susceptibility of public water supplies. A susceptibility rating of *high* was assigned to this system using the information collected during MassDEP's assessment, due to the absence of hydrological barriers (like a confining clay layer) that could prevent migration of contamination into the Town's groundwater supply. *Please note that a source's susceptibility to contamination does not imply poor water quality.*

The SWAP Report notes key issues of agricultural activities, local businesses, oil or hazardous material contamination sites, residential land uses and wellhead protection planning within the water supply protection areas.

Residents can help protect water sources by:
- Practicing good septic system maintenance
- Limiting pesticide and fertilizer use and disposing of hazardous household chemicals at hazardous material collection days
- Supporting water supply protection initiatives at the next town meeting.

The complete SWAP Report is available at the Water District Office, and also online at http://www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3254000.pdf.

With careful use, and by reducing sources of pollution, our groundwater will continue to be an important natural resource for years to come!

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, the water from each of the three wells is treated as described below.
- We add a disinfectant to protect you against microbial contaminants.
- We chemically treat the water to reduce levels of iron and manganese, and to prevent corrosion of water distribution system piping.

Is My Water Tested?
The water quality of our system is constantly monitored by us and MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required. *Last year we collected more than 200 samples to determine the presence of biological, organic and inorganic contaminants.*

4. 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, 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 (MassDEP) 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 at (800) 426-4791.

5. 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.

90th 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)
pCi/L = picocuries per liter (a measure of radioactivity)
ND = Not Detected
N/A = Not Applicable

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.

6. WATER QUALITY TESTING RESULTS

What Does This Data Represent?
The water quality information presented in the table(s) is 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 tables.

Regulated Contaminant	Date(s) Collected	Highest Result Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Inorganic Contaminants							
Arsenic (ppb)	4/25/2012	4.4	0-4.4	10	-----	**NO**	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	4/25/2013	0.018	0.0064-0.018	2	2	**NO**	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Nitrate (ppm)	6/13/2013	0.87	0.17-0.87	10	10	**NO**	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits

Regulated Contaminant	Date(s) Collected	Highest Result Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Disinfectants and Disinfection By-Products							
Distribution System Free Chlorine (ppm)	Monthly in 2013	0.56	0-1.04	4	4	**NO**	Water additive used to control microbes
Total Trihalomethanes (TTHMs) (ppb)**	8/4/2013	38	22-38	80	**-----**	**NO**	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	8/4/2013	15	9.9-15	60	-----	**NO**	Byproduct of drinking water disinfection

Regulated Contaminant	Date(s) Collected	90TH percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead and Copper							
Lead (ppb)	August 2013	4	15	0	**20**	**0**	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	August 2013	0.83	1.3	1.3	**20**	**0**	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
For more details about lead in water, please refer to the Educational Information provided on pages five six.							

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 and Secondary Contaminants	Date(s) Collected	Average Result Detected	Range Detected	SMCL	ORSG	Possible Source
Inorganic Contaminants						
Chloride (ppm)	10/10/2013	76	44-190	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
Iron (ppb)	10/10/2013	23	0-29	300	**---**	Naturally occurring, corrosion of cast iron pipes
Manganese (ppb)	10/10/2013	247	0-570	50	Health Advisory of 300 ppb	Erosion of natural deposits
Sodium (ppm)	12/17/2013	47.8	20-117	----	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Sulfate (ppm)	10/10/2013	16	0-17	250	----	Natural sources
For more details about sodium in water, please refer to the Educational Information provided on pages five and six. US EPA has established a lifetime health advisory (HA) value of 300 ppb for manganese to protect against concerns of potential neurological effects, and a one-day and 10-day HA of 1000 ppb for acute exposure. Educational Information about manganese in drinking water is provided on pages five and six.						

Unregulated and Secondary Contaminants	Date(s) Collected	Average Result Detected	Range Detected	SMCL	ORSG	Possible Source
Organic Contaminants						
Bromodichloromethane (ppb)	1/7/2013	1.25	0-3.2	---	---	By-product of drinking water chlorination
Bromoform (ppb)	1/7/2013	0.19	0-0.56	---	---	By-product of drinking water chlorination
Chlorodibromomethane (ppb)	1/7/2013	0.47	0-1.4	---	---	By-product of drinking water chlorination
Chloroform (ppb)	1/7/2013	1.75	0-4.4	---	---	By-product of drinking water chlorination

7. EDUCATIONAL INFORMATION

Sensitive Populations – 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 (800) 426-4791.

Lead – 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 Town's public water system 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 Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

Manganese – 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, EPA and MassDEP have also established public health advisory levels. Drinking water may naturally have manganese and, when concentrations are greater than 50 µg/L, the water may be discolored and taste bad. Over a lifetime, EPA recommends that people drink water with manganese levels less than 300 µg/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. See: http://www.epa.gov/safewater/ccl/pdfs/reg_determine1/support_cc1_magnese_dwreport.pdf."

Please note that the new membrane filtration water treatment plant located off of Pingree Farm Road has been designed specifically to remove the iron and manganese in the Town's groundwater.

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.

8. ADDITIONAL INFORMATION

Please Help Us Conserve Water
Household water conservation not only saves water, but it saves energy too; energy needed to heat water and to run appliances.

- Check all faucets for leaks; even a slow drip can waste up to 20 gallons of water in a day!
- Check for toilet leaks by putting a few drops of food coloring in the toilet's tank. An "invisible" leak in the toilet wastes up to 100 gallons in a day.
- Only run full loads through your washing machine and dishwasher.
- Do your outdoor watering early or late, not in the midday heat, and make sure you aren't watering sidewalks or driveways.

Cross Connection Control and Backflow Prevention
The Rowley Water Department makes every effort to ensure that the water delivered to your residence is clean, safe and free of contamination. We work very hard to protect the quality of the water delivered to you from the time the water is extracted from underground throughout the entire treatment and distribution system. But what happens when the water reaches your home? There is still a need to protect the water from contamination caused by a cross connection.

What is a cross connection?
A cross connection occurs whenever the drinking water supply is or could be in contact with potential sources of pollution or contamination. Cross connections exist in piping arrangements or equipment that allows the drinking water to come in contact with non-potable liquids, solids or gases (hazardous to humans) in the event of a backflow.

What is backflow?
Backflow is the undesired reverse of the water flow in the drinking water distribution lines. The backward flow of water can occur when pressure created by equipment or a system, such as a boiler or air conditioning system, is higher than the water pressure inside the water distribution lines (backpressure), or when the pressure in the distribution lines drops due to occurrences such as water main breaks or heavy water demand, causing the water to flow backward inside the water distribution system (backsiphonage). Backflow is a

problem that many water consumers are unaware of, and every water customer has a responsibility to help prevent them.

What can you do to help prevent a cross connection?
Without the proper protection, something as simple as a garden hose has the potential to contaminate or pollute the drinking water lines in your home. In fact, over half of the country's cross connection incidents involve unprotected garden hoses. There are very simple steps that you, as a drinking water user, can take to prevent such hazards:

- Never submerge a hose in soapy water buckets, pet watering containers, pools, tubs, sinks, drains or containers of chemicals.
- Never attach a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bib vacuum breaker for all inside and outside hose connections. The installation can be as easy as attaching a garden hose to a spigot. This inexpensive device is available at most hardware stores and home improvement centers.
- Buy water-connected appliances and equipment equipped with a backflow preventer.

For additional information on cross connections and on the status of your water system's cross connection program, please contact the Water Department.