WATERWORKS?
WATER? WORKS
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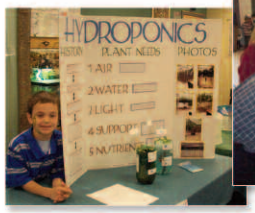
When you picture your water works employees, you probably conjure up images of people who operate heavy equipment, or who don lab coats as microbiologists and chemists, or who are engineers, but… *Science Fair Judges*?

For the past 14 years, Manchester Water Works has sponsored a 4th grade science fair where hundreds of elementary school students throughout the city schools participate. This major undertaking entails our laboratory staff speaking to the students and teachers encouraging them to create projects that demonstrate their creativity and knowledge of water and its role in the environment.

Check out this collage and get a feel for the creativity, originality and excitement displayed in these exceptional, award winning projects!

Alec Robitaille, Northwest Elementary
State of NH Science Fair 1st Place

Olivia Balch, Green Acres School
1st Place Poster Contest



"Hydroponics"
Matthew Kelley, Parker Varney

Matthew Kelley of Parker Varney School presents his science fair project to Ed Pepin, John Spenard and Donna Paquin from Manchester Water Works

Liam Harris, Jewett Street School
"Hotel Water Conservation"
3rd Place State of NH Science Fair

Liam presents his science project to Jack Chandonnet and Don Duhaime of Manchester Water Works

This report contains a summary of your drinking water quality. The Safe Drinking Water Act (SDWA) requires that utilities issue an annual "Water Quality" report to customers in addition to other notices that may be required by law.

This report details where our water comes from, what it contains, and the risks our water testing and treatment are designed to prevent.

Le rapport contient information concernant la qualité de l'eau de votre communauté. Faites-le traduire, ou parlez-en à un ami qui le comprend bien.

El informe contiene información importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguien que lo entienda bien.

Manchester Water Works invites its customers to become involved with their water supplier. Your Board of Water Commissioners meets monthly at our offices. Please feel free to call us for information about dates and times. Additionally, you can find out more about Manchester Water Works on the internet at **www.manchesternh.gov/wtr**

Have a question about your account balance or wish to pay on line? Visit our new on-line service for details about your balance and payment history and click on Direct Pay – Now to pay your water bill.

MWW
MANCHESTER WATER WORKS
281 Lincoln Street
Manchester, NH 03103
603-624-6494

PARTNERSHIP FOR SAFE WATER

Manchester Water Works is a proud member of The Partnership for Safe Water

MWW
MANCHESTER WATER WORKS

2009 Water Quality Report

Dear Valued Customer

The devastating ice storms that hit the State in December of last year taught many of us a valuable lesson about how much we have come to rely on our utility services when we throw the switch, pick up the phone or turn on the faucet. We expect service to be there – after all we pay our bills don't we?

While the core of a water utility's infrastructure is protected from the impacts of winter storms, we rely heavily on electrical power to treat and deliver our tap water to 160,000 people in the greater Manchester area. On average, Manchester Water Works produces 17.5 million gallons of tap water each day. This comes with a heavy price tag; our annual electric bill is over $1,000,000.

In order to meet our customers' expectations, Manchester Water Works annually invests your money to fix water mains, valves, fire hydrants, pump stations and storage facilities located throughout our city. Additionally, we also spend money for emergency standby generating capacity to ensure that service to our customers is not interrupted. This was never more important than last December.

During that ice storm, Manchester Water Works operated the Water Treatment Plant and five other booster-pumping facilities for nearly four days on emergency standby power. While some New Hampshire residents went without power and heat for more than a week, at no time were any of our customers without adequate drinking water or fire protection.

While these emergency capabilities do not come without some added capital and operating costs, we believe that our customers deserve a high level of service from the Manchester Water Works and we hope that we've met your expectations.

We would also like to thank the State and Manchester Offices of Emergency Management for their assistance during this event, as well as Public Service Company of New Hampshire for their tremendous effort in restoring electrical service during the largest outage in State history. Emergency planning and the continued cooperation between these agencies and local water utilities are crucial to meeting the needs of our customers.

Sincerely,

Thomas M. Bowen, P.E.
Director

From Lake to Tap

Every journey starts out with a single step. For your drinking water that step begins when water is drawn through large screens submerged in Lake Massabesic and then enters the Water Treatment Plant. There, the water is treated with coagulants, disinfected with ozone, filtered by carbon media and neutralized for a peaceful coexistence with the cement, steel, copper, brass and lead solder materials it encounters on the way to your faucet. The entire filtration process takes an average of 8 hours and goes on 24 hours a day, 365 days a year.

The treatment plant uses ozone and highly efficient filters to purify and filter your water to standards that are more than 5 times more stringent than those required. Manchester Water Works has adopted a treatment approach that greatly reduces risk from regulated chlorination by-products.

But that's just the beginning. To get to your home, water must flow through nearly 500 miles of pipe buried beneath the streets of Manchester. Called the Water Distribution System, water pressure is maintained by pumping stations via storage tanks and reservoirs located throughout the city. This buried system is continually being cleaned, relined and replaced as it ages. In fact, each customer receiving this brochure will see about $35 of their annual water bill directly invested in maintaining this system. While you may see many stories about cities and their crumbling infrastructure, Manchester Water Works stands as a prime example of a utility that has recognized the importance of its water infrastructure and has kept up with its preventative maintenance and capital improvement programs.

WATER CONSERVATION TIPS

Did you know that the average American uses 90 gallons of water per day, as opposed to the average European who uses only 53 gallons per day? Or that only 1% of the Earth's water is considered clean enough for drinking?

Here are some helpful tips to help conserve water:

- Learn to reuse and recycle: don't just pour water down the drain when there may be another use for it, such as watering plants or cleaning.
- Turn off faucet when brushing teeth or washing hands to save 200 gallons a week for a family of four.
- Fix leaky faucets to save around 20 gallons per day.
- When washing dishes by hand, don't let the water run while rinsing. Fill one sink with wash water and the other with rinse water.
- Run your washing machine and dishwasher only when they are full; you could save 1000 gallons a month.
- For cold drinks keep a pitcher of water in the refrigerator instead of running the tap. This way, every drop goes down into you and not down the drain.
- Wash your produce in the sink or a pan that is partially filled with water instead of running water from the tap.
- Use a water-efficient showerhead that can save up to 750 gallons a month.
- Time your shower to keep it under 5 minutes. You'll save up to 1000 gallons a month.
- Run sprinkler in early morning or late afternoon to avoid evaporation
- Only water your lawn when needed. You can tell this by simply walking across your lawn. If you leave footprints, it's time to water.
- Use a commercial car wash that recycles water.
- When the kids want to cool off, use the sprinkler in an area where your lawn needs it the most.

Water Quality & Health Information

To ensure that tap water is safe to drink, the EPA prescribes limits on the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water.

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.

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 can dissolve many natural minerals and, especially in the case of ground water, radioactive material. Water is also subject to contaminants resulting from the presence of animals or human activity. The wide variety of contaminants that may be present in source water include:

A) Microbiological contaminants, such as viruses and bacteria originating from sewage, septic systems, agricultural livestock and wildlife;

B) Inorganic contaminants, such as road salt, metals, industrial or domestic wastewater discharge, oil and gas production, mining or farming;

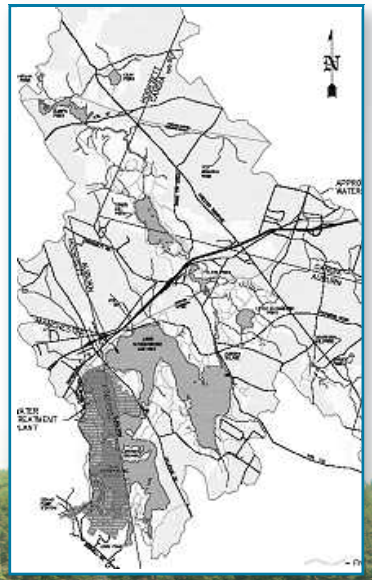
C) Synthetic organic chemicals, such as petroleum products from gasoline and oils, or pesticides and herbicides and are present in runoff and as residues from household use;

D) Radioactive contaminants, either natural or man-made. Radon is one such natural, radioactive contaminant currently being regulated by the EPA. Manchester's water does not contain radon.

E) 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 (note that Manchester does not have lead service lines) and home plumbing. Manchester Water Works 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 (800-426-4791) or at **http://www.epa.gov/safewater/lead.**

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk for infections. These people should seek advice about drinking water from their health provider. EPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at **1-800-426-4791.**

Lake Massabesic and Watershed



For more information regarding the Massabesic Watershed, go to our website, or check NHDES for their 2002 Source Water Assessment of the Massabesic Watershed.

The Source

Lake Massabesic, located in East Manchester and Auburn, is the source of your drinking water. It was first used as a water supply in 1872, and has been the sole supply ever since. Approximately 2500 acres in size, it contains almost 4 billion gallons of water, which sounds like a lot, but is less than a week's worth of supply for a city like New York. The lake is a typical Southern NH lake formed by the glaciers, a predominantly sandy bottom with isolated areas of rocky outcroppings.

Protection of your water supply is one of Manchester Water Works' first and foremost challenges. We recognize that environmental stewardship is our responsibility. We accomplish this by maintaining ownership of over 8000 acres of forested buffer and wetlands around the lake and watershed drainage area.

While this forest is isolated from development, passive recreational activities take place (with exception for those restricted areas adjacent to the Water Treatment Plant). On a typical summer day, we see hundreds of bicyclists, hikers, bird watchers, and just regular folks out for a pleasant walk in the woods—all enjoying the natural beauty preserved around your pristine water source.

As a relatively shallow lake with deep silt on the bottom, Massabesic is susceptible to propeller turbulence and invasive species. Regulations to protect Massabesic limit its use to an acceptable level of boating and access, while still protecting the lake from the hazards of overuse and preserving the purity of this precious water source. We ask that everyone using the waters or watershed to follow these rules to protect your drinking water supply.

http://www.manchesternh.gov/wtr
or visit the NH Department of Environmental Services website where a copy of their 2002 Source Water Assessment is available at:
http://www.des.state.nh.us/dwspp/reports/manchester.pdf

Water Quality Table

The table shown below provides information about impurities that were detected in Manchester's water in 2008. To assure your tap water quality, Manchester Water Works has nearly 4 times the required number of samples analyzed annually. At the same time, Manchester Water Works' laboratory performs approximately 50 daily tests on the water to assure that it is safe to drink. Please feel free to call us at 624-6482. For additional information about your water quality, take a look at MWW's website for a typical analysis of both raw and treated water.

KEY TO TABLES

Definitions

MCLG: Maximum Contaminant Level Goal, or 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.

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.

MRDLG: Maximum Residual Disinfection Level Goal. The level of 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.

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.

AL: Action Level, or the concentration of a contaminant that, when exceeeded, triggers treatment or other requirements which a water system must follow.

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

Abbreviations

ppb = parts per billion

ppm = parts per million

pCi/l = picocuries per liter, measurement of radiation

NA = not applicable

NTU = Nephelometric Turbidity Unit

ND = not detected

< = less than

mg/l = milligrams per liter

BDL = below detection limit

P = presence of bacteria

2008 CONTAMINANT RESULTS

ANALYTE	UNIT	MCL	MCLG	LEVEL	RANGE	VIOLATION	SOURCE
Inorganic Chemicals							
Lead	ppb	15 (AL)	0	3.1	<1 – 17.4	NO	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	ppm	1.3 (AL)	1.3	0.052	<0.01– 0.095	NO	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Barium	ppm	2	2	0.010	0.009 – 0.012	NO	Erosion of natural deposits; Discharge from drilling wastes and metal refineries
Fluoride	ppm	4.0	4.0	1.1	1.0 – 1.1	NO	Water additive that promotes strong teeth; Erosion of natural deposits
Bromate	ppb	10	0	1.0	<1.0 – 1.1	NO	By-product of drinking water ozonation.
Chloramines	ppm	4.0	4.0	0.77	0.0 – 2.2	NO	Water additive used to control microbes.
Nitrate	ppm	10.0	10.0	0.29	0.0 – 0.8	NO	Erosion of natural deposits; Runoff from fertilizer; Sewage leaching from septic tanks
Cyanide*	ppm	0.20	0.20	0.06	0.0 – 0.10	NO	Discharge from steel/metal factories.
Arsenic	ppb	10	0	1	0.0 – 1.0	NO	Discharge from plastic and fertilizer factories.
Microbial Related Measurements							
Total Coliform	P	<5%	0%	<1%	Absent – 1%	NO	Naturally present in the environment
Turbidity	NTU	TT	N/A	0.07	0.04 – 0.31	NO	Soil runoff –a measurement of cloudiness of the water and a way to judge treatment efficiency
Total Organic Carbon	ppm	TT	N/A	1.7	1.4 – 2.0	NO	Naturally present in the environment
Organic Chemicals							
Trihalomethanes	ppb	80	N/A	2.4	0.7 – 4.5	NO	By-product of drinking water chlorination.
Haloacetic Acids	ppb	60	N/A	3.7	1.2 – 9.6	NO	By-product of drinking water chlorination.

*Cynide believed to be an artifact of sampling method at WTP. Not present in system. (ES&T 2007 Dec 15; 41 (24) : 8383-7)