



Concord Water

Water Quality Report 2009

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Concord Water Treatment Plant
53 Hutchins Street
Concord, NH 03301

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The City of Concord welcomes public input on the programs and activities of all of the city departments. We encourage residents to contact their City Councilor, the General Services Director, or the Water Plant Superintendent to express concerns or interest in the operation of the City's water utility.

Concord's water supply is managed by the City's General Services Department.

Administrative offices are located at 311 North State Street, (603) 228-2737

Normal business hours: Monday - Friday 8:00 a.m. to 4:30 p.m.

Chip Chesley, Director General Services Department: (603) 228-2737

Dave Brennan, Water Treatment Plant Superintendent: (603) 230-3951

Tours of the Water Plant: (603) 225-8696

Billing or metering/New water service: (603) 225-8693

No or low water pressure/Rusty water: (603) 228-2737

Water quality questions, complaints or testing: (603) 225-8696

Service after business hours: (603) 225-8696

City website: <http://www.onconcord.com>

What You Should Know About Drinking Water

The sources of drinking water (both tap water and bottled water) include lakes, rivers, springs and wells. Water by its very nature tends to dissolve and erode the materials in its path as it travels over land or through the ground. As a result, naturally occurring substances as well as contaminants resulting from human activity may be present in our source waters. These contaminants may include:

- Microbes, such as bacteria, protozoa, and viruses, which may come from sewage treatment plants, septic systems, livestock, and wildlife (examples: E. coli, Giardia, Cryptosporidium, Hepatitis A).
- Inorganic chemicals, such as salts and metals, which can be naturally occurring or may result from stormwater runoff, industrial or domestic wastewater, and farming (examples: arsenic, phosphates).
- Volatile Organic Compounds and Synthetic Organic Compounds which originate from industrial discharges, agriculture, gas stations, stormwater runoff, residential uses and septic systems (examples: MtBE, pesticides, herbicides).
- Radioactive contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities (example: radon).

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. In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The United States Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for the public. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (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 infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other

microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

The city takes the above described risks very seriously and monitors the water source and system closely for microbes. Every month we test more than 50 tap water samples from around the city for coliform bacteria. In addition, samples from Penacook Lake were tested for Cryptosporidium and Giardia for 24 consecutive months between July 2005 and July 2007. Neither of these organisms was detected in any of the samples.

Where does Concord get its water? And how is it treated?

Penacook Lake in West Concord has been the city's primary water supply for well over 100 years. The City supplements this supply when necessary by using its pumping station on the Contoocook River. Concord also has a well water supply along the Soucook River, which is managed as an emergency or back-up supply.

Water drawn from Penacook Lake and the Contoocook River passes through the Concord Water Treatment Plant where it is cleaned, filtered, and disinfected in a process known as Conventional Treatment. Fluoride is added, pH and alkalinity adjustments are made and the chlorine disinfectant is converted to longer-lasting monochloramine before the water goes out to customers. The City's wells are not in regular use, but if activated, the well water would be disinfected, pH and alkalinity adjustments would be made, and fluoride would be added.

About the Photos

There are many aspects to the City's efforts to provide a steady supply of safe, clean drinking water at a reasonable price. The photographs in this year's report were chosen to highlight some of those aspects. Whether the work is being done in a busy office, out in the elements, or at the water plant; and whether it requires computer expertise, first hand knowledge of the distribution system, or the experience and judgment to repair and maintain a complex water treatment plant, it's all part of the package provided by City of Concord employees every day. Credit for the photography goes to Jack Cooper, Mark Woodhead, and Jim Marceau. Great shots!

NHDES Source Assessment Report

The NH Department of Environmental Services evaluated community water sources throughout New Hampshire for 14 risk factors that could affect water quality. Examples of these risk factors include; proximity of highways, proximity of known contamination, and percentage of urban land cover. A summary of the 2003 assessment of Concord's three sources is shown below.

Risk Factor Rating	Penacook Lake # of factors	Contoocook River # of factors	Well Water # of factors
High	0	2	2
Medium	1	6	2
Low	11	3	8

The complete Source Assessment Report can be found online at www.des.nh.gov/organization/division/water/dwbg/dwspp/dwsap.htm or is available for review at the Concord Water Treatment Plant, 53 Hutchins Street in Concord. For more information, call Dave Brennan (603) 225-8696.

National Drinking Water Standards

The 1974 Safe Drinking Water Act established national standards for drinking water quality. Today those standards require every public water system to test for the presence of more than 80 potential drinking water contaminants on a regular schedule. The tables below indicate those contaminants that were found in Concord's water. Table 1 describes Penacook Lake water which is treated at the Hutchins Street Plant. Table 2 shows results from the city's wells. Not all tests are required every year. The tables contain the most recent results up to December 31, 2008.

Substance (Date Tested)	Level Measured	MCL	MCLG	Meets Limits?	Likely Source
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Table #1 – Penacook Lake

Barium	Highest measurement	0.005 mg/L	2 mg/L	2 mg/L	yes	Erosion of natural earth deposits.
Copper	90th percentile # above the AL	0.033 mg/L 0 sites	AL=1.3 mg/L	1.3 mg/L	yes	Corrosion of household plumbing.
Lead	90th percentile # above the AL	2 µg/L 0 sites	AL=15 µg/L	0 µg/L	yes	Corrosion of household plumbing.
Fluoride	Average Range of measurements	0.9 mg/L 0.8 – 1.0 mg/L	4.0 mg/L	4.0 mg/L	yes	Water additive which promotes strong teeth. Erosion of natural earth deposits.
Chloramines	Average Range of measurements	2.3 mg/L as chlorine 1.8 – 2.7 mg/L	MRDL=4 mg/L	MRDLG= 4 mg/L	yes	Water additive used to control microbes.
Total THMs	Highest annual average Range of measurements	42.0 µg/L 19 – 43 µg/L	80 µg/L as the Running Annual Average	n/a	yes	By-product of drinking water disinfection with chlorine.
Total HAA5s	Highest annual average Range of measurements	19 µg/L 9 – 41 µg/L	60 µg/L as the Running Annual Average	n/a	yes	By-product of drinking water disinfection with chlorine.
TOC	Average % removal Range of % removal	38% 33%–46%	TT minimum removal is 26%, or must meet alternate criteria	n/a	yes	Naturally present in the environment.
Turbidity	Highest measurement Percent OK	0.64 NTU 97%	TT=1 NTU 95% ≤ 0.3 NTU	n/a	yes	Soil runoff.
Combined Radiums (2006)	Average Range of measurements	<1 pCi/L <1–1 pCi/L	5 pCi/L	0 pCi/L	yes	Erosion of natural earth deposits.

Table #2 – Sanders Station Wells

Arsenic	Average Range of measurements	< 1 µg/L ND–2 µg/L	10 µg/L	0 µg/L	yes	Erosion of natural earth deposits; run off from orchards.
Barium	Average Range of measurements	<0.005 mg/L ND–0.005 mg/L	2mg/L	2 mg/L	yes	Erosion of natural earth deposits.
Chromium	Average Range of measurements	< 4 µg/L ND–4 µg/L	100 µg/L	100 µg/L	yes	Erosion of natural earth deposits.
Fluoride	Average Range of measurements	<0.2 mg/L ND–0.6 mg/L	4 mg/L	4 mg/L	yes	Erosion of natural earth deposits.
Combined Radium (2006 & 2007)	Average Range of measurements	< 1 pCi/L ND–1 pCi/L	5 pCi/L	0 pCi/L	yes	Erosion of natural earth deposits.
Gross Alpha, Compliance (2006 & 2007)	Average Range of measurements	< 1.1 pCi/L ND–1.1 pCi/L	15 pCi/L	0 pCi/L	yes	Erosion of natural earth deposits.
Radon (2003)	Average Range of measurements	1,342 pCi/L 380–6,800 pCi/L	No MCL set	No MCL set	None set	A gas released from natural earth deposits.
TTHMs	Average Range of measurements	< 0.6 µg/L ND–0.6 µg/L	80 µg/L	n/a	yes	By-product of drinking water disinfection with chlorine.

What is Turbidity and Why Do We Measure it?

The term turbidity refers to water cloudiness caused by tiny bits of clay, silt and other natural particles, that are suspended in the water as it flows along. Surface waters such as Penacook Lake have some normal turbidity level. Because turbidity interferes with disinfection and is aesthetically unpleasant our treatment process removes it by improving particle settling and by filtration. Plant operators monitor turbidity to optimize treatment, to gauge the condition of the filters, and to ensure that our treated water meets turbidity standards. Turbidity is measured in Nephelometric Turbidity Units or NTUs, which is from the Greek word nephos meaning cloud.

Radon

As shown in Table #2, the City's well water contains a detectable level of the naturally occurring radioactive gas, radon. Breathing air containing radon has been linked to lung cancer; however, it is not entirely clear at what level radon in drinking water contributes to this. The U.S. Environmental Protection Agency is currently in the process of reviewing a proposed standard of 300 pCi/L for radon in drinking water. For more information call the EPA's Radon Hotline (800-SOS-RADON).



In addition to the required tests, the chart below shows 2008 test results for several other characteristics of your drinking water that may be of interest.

Substance	Average
Alkalinity (as CaCO ₃)	28 mg/L
Aluminum	< 0.05 mg/L
Calcium	3.5 mg/L
Hardness	13 mg/L-Very Soft (less than 1ppg)
Iron	< 0.05 mg/L
Manganese	< 0.010 mg/L
pH	9.2 units
Sodium	27 mg/L
Chloride	20 mg/L

Table Definitions

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

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 best available treatment technology.

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

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

mg/L: (Milligrams per liter): A unit of concentration also described as Parts per Million.

µg/L: (Micrograms per liter): A smaller unit of concentration also described as Parts per Billion.

MRDLG: (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial growth.

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

NTU: (Nephelometric Turbidity Units): A measurement of the cloudiness of water.

pCi/L: (Pico curies per liter): a measurement of radioactivity.

THMs: Trihalomethanes.

HAA5s: Haloacetic Acids

TOC: Total Organic Carbon

< Less than

≤ Less than or equal to

n/a: Not applicable

ND: Not Detected

**Want to learn more about your drinking water?
Contact Dave Brennan at 230-3951 to arrange a
tour of the Concord Water Treatment Plant.**