



WATER QUALITY ANNUAL REPORT

CONCORD PUBLIC WORKS – Spring 2000

To Our Customers

Since the last Water Quality Report was issued, Concord Public Works has made significant progress on several water quality and capacity improvement projects. The projects, noted below, represent the most recent phase of a long-term initiative developed to insure the water supply servicing this community remains safe and reliable.

- We are on track with our goal to reclassify the **Hugh Cargill well** from its present emergency back-up status to an active source of supply by the beginning of next year.
- Satellite wells have been installed around the **White Pond well**. It is our expectation that once on-line, the reconfiguration will reduce the elevated levels of iron historically observed from this source.
- Water treatment alterations requiring minimal capital investment were made within the **Deaconess well** to enhance the clarity of water originating from this source.
- A storm-water diversion system was installed along Rt. 2A in Acton to redirect storm-water runoff away from the **Nagog Pond** drinking water reservoir.
- Over **2420 feet of ductile iron water main** was installed to replace aging cast iron water main located along Hubbard Street and Nashawtuc Road.

Also, due to an unusually dry summer (100-year drought of record), 1999 water demands throughout New England were especially high. Due in large part to the widespread support of our Voluntary Odd/Even Outdoor Watering Program, Concord was one of the few communities able to avoid a mandatory outdoor water use ban. Your continued support for water conservation is greatly appreciated.

Drinking water quality continues to gain increased attention within regional and national news channels. Unfortunately, many of the high visibility stories raise general concern but provide little insight as to water quality conditions in Concord. We at Concord Public Works remain committed to keeping you informed about water quality issues directly relating to your system. The information enclosed provides a comprehensive summary of all water quality information collected within our system during 1999. We hope you find the report informative.

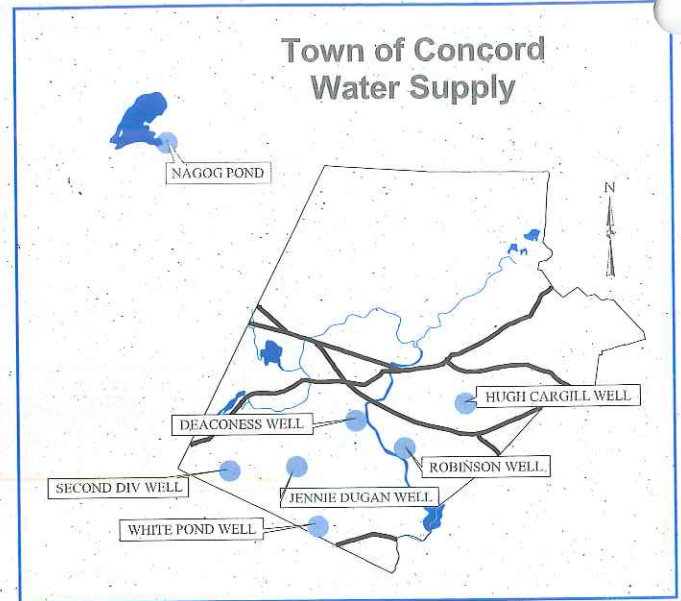
Sincerely,

Alan H. Cathcart

Superintendent, Water/Sewer Division
Concord Public Works

Water Supply

Concord's water system consists of six groundwater supply wells and one surface water supply, pumping stations, two storage reservoirs with 7.5 million gallon capacity, and approximately 121 miles of water main. Depending on the season, all available production facilities may be called upon to satisfy system demands which fluctuate between 2 million gallons per day (MGD) during the winter months to over 5 MGD in the summer. Concord's public water system is interconnected with Acton and Bedford for emergency backup, if ever needed. To help preserve our limited drinking water resources, Concord has established a vigorous water conservation program, including conservation based rates and the Odd-Even Outdoor Watering Program.



Water Treatment

In accordance with state and federal drinking water requirements, Concord water is treated before it gets to your tap. Treatment includes: *disinfection* – via the addition of chlorine at all water supplies as well as ozone at the Nagog Pond water supply; *corrosion control* – via the addition of potassium hydroxide to raise the natural pH of the water and reduce its corrosiveness to household plumbing; *fluoridation* – via the addition of sodium fluoride to help in the prevention of tooth decay; and *iron sequestration* – performed by adding polyphosphate or sodium silicate to reduce the frequency of discoloration events.

	SOURCE TREATMENT					
	Nagog Pond Acton, MA	Second Division Well	Deaconess Well	Robinson Well	Jennie Dugan Well	White Pond Well
Potassium Hydroxide for Corrosion Control	•	•	•	•	•	•
Chlorine for Disinfection	•	•	•	•	•	•
Ozone for Disinfection	•					
Fluoride to Promote Strong Teeth	•	•	•	•	•	•
Polyphosphate for Iron & Manganese Treatment	•	•	•	•	•	•
Sodium Silicate for Iron & Manganese Treatment & Corrosion Control			•			

Potential Sources of Contaminants

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 in the presence of animals or from human activity. Contaminants that might be expected in untreated water include: biological contaminants such as viruses and bacteria; inorganic contaminants, such as metals and salts; pesticides and herbicides; organic chemicals from industrial or petroleum use; and radioactive materials.

Drinking water, including bottled water, may reasonably be expected to contain at least some small amounts of certain substances which the EPA calls "contaminants". The presence of these substances does not necessarily indicate that the water poses a health risk. For example, naturally occurring dissolved minerals are commonly found in well water. More information about the substances found in drinking water and their potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Quality Control

To ensure that tap water is safe to drink, the EPA enforces regulations that require stringent monitoring of specific contaminants within public water supply systems. Within Concord's system, over 500 tests are run each year to assess 145 potential contaminants. We are proud to report that Concord's water quality testing program not only follows EPA's requirements for drinking water but goes above and beyond those requirements to satisfy the higher standards we have set for ourselves.

WATER QUALITY SUMMARY

Listed below are the 23 substances detected in Concord's drinking water in 1999. The presence of these substances does not necessarily indicate that the water poses a health risk. These substances are divided into two categories, Primary and Secondary Parameters. Primary parameters protect drinking water quality by limiting the levels of contaminants that can adversely affect public health and are known or anticipated to occur in public water systems. Secondary parameters are set for aesthetic purposes and are designed to assist the EPA in determining their occurrence in drinking water and whether future regulation is warranted. Not listed are over 130 substances we tested for but did not detect. All substances listed below are in units of ppm (parts per million) unless otherwise noted.

Primary Parameters

Substance	Highest Level Detected	Range of Levels Found	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Sources of Contaminants
Barium	0.01	one detection	2	2	Erosion of natural deposits.
Chlorine	2.7	0.2-2.7	4	No Standard	Water treatment for disinfection
Fluoride	1.4	0.2-1.4	4	4*	Water treatment for tooth decay prevention
Haloacetic Acids (ppb)	11	2-11	60	No Standard	By product of Drinking Water Disinfection
Nitrate	1.6	0.02-1.6	10	10	Erosion of natural deposits
Radionuclides (pCi/L)	2	one detection	15	0	Erosion of natural deposits
Trihalomethanes (ppb)	45	2-45	100	0	By-Product of Drinking Water Disinfection
Turbidity (NTU)	0.4	ND-0.4	5**	No Standard	Soil runoff
Total Coliform Bacteria***	2 positive samples	2 positive out of 303 samples in 1999	<2 positive samples per month	0	Naturally present in the environment

Secondary Parameters

Calcium	17	4-17	No Standard	No Standard	Erosion of natural deposits
Chloride	45	6-45	250	250	Naturally present in the environment
Chloroform (ppb)	1.7	one detection	No Standard	No Standard	By-product of drinking water disinfection
Hardness	59	16-59	No Standard	No Standard	Erosion of natural deposits
Iron	0.6	ND-0.6	0.3	No Standard	Erosion of natural deposits
Magnesium	3	1-3	No Standard	No Standard	Erosion of natural deposits
Manganese (ppb)	210	ND-210	50	No Standard	Erosion of natural deposits
Potassium	37	ND-37	No Standard	No Standard	Naturally present in the environment
Sodium	23	6-23	No Standard	No Standard	Naturally present in the environment
Sulfate	22	ND-22	250	No Standard	Naturally present in the environment
Total Dissolved Solids	270	120-270	500	500	Naturally present in the environment
Zinc	0.4	ND-0.4	5	No Standard	Naturally present in the environment

Lead and Copper Program

	90th Percentile Level Detected	Range of Levels Found	90th Percentile Action Level (EPA's MCL)	Ideal Goal (EPA's MCLG)	
Lead (ppb)	7	ND-12	15	0	Household plumbing, see statement below
Copper	0.35	0.006-0.41	1.3	1.3	Household plumbing, see statement below

Terms and Abbreviations

Maximum Contaminant Level (MCL): the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's 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. MCLG's allow for a margin of safety.

ppb= parts per billion or micrograms per liter

ppm = part per million or milligrams per liter

pCi/L = picocuries per liter

ND = none detected

NTU = nephelometric turbidity units

* Fluoride: The Department of Public Health's ideal goal for fluoride is 1 ppm

** Turbidity: The federal MCL for turbidity is 5, the Massachusetts MCL is 1. Turbidity is a measurement of the cloudiness of the water.

*** Total Coliform Bacteria: Coliform bacteria are naturally present in the environment and are used as an indicator that other, potentially harmful bacteria may be present. On September 21, 1999 two of our sites tested positive for total coliform bacteria. More than one positive sample for total coliform bacteria is considered a violation of the monthly MCL. More specific tests were run on these samples to determine if E. coli or any other potentially harmful bacteria were present. These tests were all negative. The Water & Sewer Division increased chlorination to these sites. Subsequent samples were all negative.

Lead and Copper: Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

90th Percentile = The concentration of a substance that falls at the top 90 percent of all values for that substance.

Action Level= The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.

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Concord, MA 01742

TOWN OF
CONCORD
Permit No. 51
Bulk Rate

Water and Sewer Division
135 KEYES ROAD
CONCORD, MASSACHUSETTS 01742

CONCORD PUBLIC WORKS



Drinking Water and People with Weakened Immune Systems

Some people may be more vulnerable to contaminants in drinking water than the general population. People with weakened immune systems 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 EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Questions?

For more information about Concord's drinking water and its supply system contact Gregory Clark, Environmental Analyst at Concord Public Works 318-3250 or visit our website at www.concordnet.org. For information on State and Federal drinking water regulations call the EPA's Safe Drinking Water Hotline at 1-800-426-4791 or the Massachusetts Safe Drinking Water Hotline at 1-617-292-5770.