



WATER QUALITY ANNUAL REPORT

CONCORD PUBLIC WORKS - SPRING 2001

To Our Customers,

Concord Public Works is pleased to provide you with the third edition of our Water Quality Annual Report. The report provides important information about the quality of Concord's drinking water and a general overview of our source of supplies and treatment systems. Once again, we are able to report that the water quality continues to meet or surpass State and Federal standards established for the protection of public health and safety. Projects of particular note, completed or initiated within the past year are included in the sidebar (right).

Arsenic standards: In April, 2001 the Bush Administration decided not to promulgate new tougher standards for arsenic in the nation's drinking water. It is important for Concord's water consumers to know that there are no measurable concentrations of arsenic within any water supplies used by the Town of Concord.

Former Starmet Site: There have been several stories about the clean-up process at the former Starmet site in West Concord. Routine testing of Concord's water supply system has consistently shown that there has been no impact on the public drinking water system.

In addition to extensive water quality testing activities, CPW will advance several new and long-term improvement initiatives. These include the piloting and design for a full-scale iron and manganese treatment plant for the Deaconess Well and partnering with three other public water systems in a national study involving state-of-the-art disinfection technology at our water treatment plant at Nagog Pond.

With your continued input and interest, we remain committed to addressing both the short- and long-term water supply and water quality needs of Concord.

Sincerely,

Alan H. Cathcart
Superintendent, Water/Sewer Division
Concord Public Works

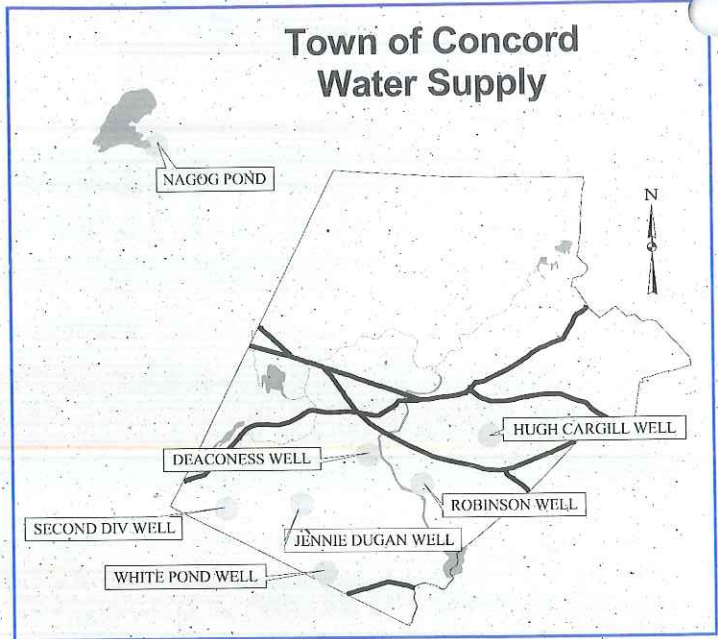
- Design of the new **Hugh Cargill Well** was completed. Our goal is to have this supply source providing high quality water to Concord's water consumers before the end of this summer.
- At a January Special Town Meeting, the **Town acquired land** off Ball's Hill Road for an additional water source to ensure Concord has adequate water supplies in the future.
- Our peak-demand water rates were again **strengthened to encourage conservation**.
- Successful completion of the water treatment conversion pilot at the **Deaconess Well** resulting in improved water color and clarity.
- A prolonged pump test was performed on two satellite wells installed adjacent to the **White Pond Well**. Findings showed that water quality improvement gains with a reconfigured well design would not be advantageous at this time. The CPW requested the Massachusetts Department of Environmental Protection to authorize a water treatment conversion pilot similar to that performed within the Deaconess Well.
- Over **4,800 feet of water main** was installed to replace aging water main and improve water quality. (Westford Road, Hubbard Street, and Damon Street)
- Comprehensive **water main flushing** activities continued as part of an ongoing water quality maintenance program.

Water Supply

Concord's water system consists of six groundwater supply wells and one surface water supply, pumping stations, two storage reservoirs with a 7.5 million gallon capacity, and approximately 121 miles of water main. Depending

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.

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 those of Acton and Bedford for emergency backup, if ever needed.



Water Treatment

In accordance with state and federal drinking water requirements, Concord water is treated before it gets to your tap. Treatment includes: corrosion control—via the addition of potassium hydroxide to raise the natural pH of the water and reduce its corrosiveness to household plumbing; disinfection—via the addition of chlorine at all water supplies and ozone at the Nagog Pond water supply; 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
pH Adjustment 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 from the presence of animals or 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 meets 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 substances detected in Concord's drinking water in 2000 that are required for reporting. The presence of these substances does not necessarily indicate that the water poses a health risk.

These substances are divided into 3 categories: Primary, Secondary, and Lead & Copper 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. A complete listing of secondary parameters is available on request from CPW. 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)	Major Sources in Drinking Water
Chlorine	2.9	0.1-2.9	4	No Standard	Water treatment for disinfection
Fluoride*	1.7	0.2-1.7	4	4	Water treatment for tooth decay prevention
Haloacetic Acids (ppb)	5.4	ND-5.4	60	No Standard	By-product of drinking water disinfection
Nitrate	2	ND-2	10	10	Runoff from fertilizer use; Erosion of natural deposits
Radionuclides (pCi/L)	2.1	1.5-2.1	15	0	Erosion of natural deposits
Trihalomethanes (ppb)	33	3-33	100	0	By-product of drinking water disinfection
Turbidity**	1.5	0.5-1.5	5	No Standard	Soil runoff

SECONDARY PARAMETERS

Chloroform (ppb)	1	one detection	No Standard	No Standard	By-product of drinking water disinfection
Hardness***	63	17-63	No Standard	No Standard	Erosion of natural deposits
Iron***	0.7	ND-0.7	0.3	No Standard	Erosion of natural deposits
Manganese***	0.25	ND-0.25	0.05	No Standard	Erosion of natural deposits
Sodium	40	9-40	No Standard	No Standard	By-product of water treatment; Naturally present in the environment

LEAD & COPPER PARAMETERS†

Substance	90th Percentile Level Detected	Range of Levels Found	90th Percentile Action Level (EPA's MCL)	Ideal Goal (EPA's MCLG)	Major Sources in Drinking Water
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:

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 the best available treatment technology.

MCLG: (Maximum Contaminant Level Goal) 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.

ppb: parts per billion or micrograms per liter

ppm: parts 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:** Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality and the effectiveness of disinfectants.

*** Additional parameters of interest not required for reporting. For a complete list contact CPW.

† **Lead and Copper:** In accordance with EPA regulations, CPW performed lead and copper testing in 1999 and is scheduled to test again in

2002. EPA requires that at least 90% of the samples have lead levels below 15 ppb (Action Level).

Important Information from EPA about Lead:

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).

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CONCORD PUBLIC WORKS



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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 or if you would like a large-print version of this document, contact Gregory Clark, Environmental Analyst at 318-3250 or visit our website at www.concord-net.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 617-292-5770.