



CITY OF CAMBRIDGE
Water Dept.
INTEROFFICE CORRESPONDENCE

To Mr. James L. Sullivan
City Manager

Date October 27, 1977

From Mr. J. H. Seites
Superintendent, Water Department

Reference

Subject Water Quality

At this time Federal and State regulations of water quality testing and operational procedure outlined by attachments one and two are being met except for the following sections of attachment two as follows:

Drinking Water Regulations of Massachusetts
Section 6 Table C

Sodium

Any other provision of these regulations to the contrary notwithstanding, a supplier of water may supply to the users thereof, without obtaining a variance or exemption and without being subject to any enforcement action, water which exceeds this maximum contaminant level for sodium, but only if the supplier of water reports to the Department pursuant to Section 15 and gives notice to the public pursuant to Section 16.

Initial Analysis to be completed by June 24, 1978. Thereafter at 1 year intervals. If the level of sodium exceeds 15 milligrams per liter, the analyses shall be repeated quarterly.

Attachment three, which indicates sodium level to be 65 ppm as outlined, appears in order.

Section 19
Distribution Storage Requirements
c (2)

The Supplier of water has submitted a written schedule, approved in writing by the Department, indicating dates by which the tank or basin will be covered.

d

The Department may grant variance from the provisions of this Section 19, but only after giving notice and opportunity for hearing to the public and to the Massachusetts Department of Public Health.

Attachment four is a testing completed on September 30 by the State at sample locations and conformance at that time to bacterial standards is apparent.

Attachments five, six, and seven are outlines of actions or peculiar problems of the Cambridge water system that contribute to or are required to improve water quality.

Attachment eight is an informational pamphlet available for distribution as desired.

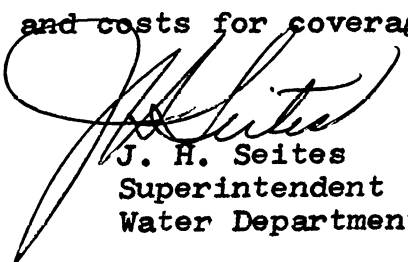
Attachment nine is a statement on water quality:

Other than occasional complaints of sediment, iron, manganese, which are aesthetic in nature, a review of the bacterial data on the Cambridge water system indicates that it is safe.

Attachment ten is a statement from Dr. Comunale.

It is my recommendation that public notification of the sodium content be a joint effort of the Water Superintendent and the Acting Commissioner of Health & Hospitals.

We submit as soon as possible a schedule for covering Payson Park. It is noted that a contract for an engineering study for coverage of Payson Park was executed on October 12, 1977 with a six months completion period. The completion of this report should define method and costs for coverage.



J. H. Seites
Superintendent
Water Department

mc
att.

The Commonwealth of Massachusetts
Department of Environmental Quality Engineering

Water Supply Analysis (mg. per liter)

Cambridge

Collector: Mullin - ABCE

Source A Lafayette Sq. - Fire Sta.
 Source B Neville Manor - Kitchensink
 Source C Effluent at Treatment Pl. Lab.
 Source D Fresh Pond - Raw
 Source E
 Source F

	A	B	C	D	E	F
Sample No.	543676	677	678	679		
Date of Collection	9/30/77					
Date of Receipt	10/4/77					
TURBIDITY	0.3	0.3	0.4	2.3		
SEDIMENT	0	0	0	0		
COLOR	3	3	3	3		
ODOR	0	2Cc	2Cc	0		
pH	7.4	8.0	7.9	7.6		
ALKALINITY-Total(CaCO ₃)	26	25	28	33		
HARDNESS(CaCO ₃)	52.	51.	51.	63.		
CALCIUM(Ca)	15.	15.	15.	18.		
MAGNESIUM(Mg)	3.3	3.2	3.2	4.4		
SODIUM(Na)	65.	65.	65.	30.		
POTASSIUM(K)	2.4	2.4	2.5	2.0		
IRON(Fe)	.05	.00	.00	.08		
MANGANESE(Mn)	.03	.03	.03	.17		
SILICA(SiO ₂)	5.5	3.8	4.8	5.6		
SULFATE(SO ₄)	22	25	26	26		
CHLORIDE(Cl)	59.	58.	58.	49.		
SPEC.COND.(micromhos/cm)	270	270	280	280		
NITROGEN(AMMONIA)	.00	.01	.00	.04		
NITROGEN(NITRATE)	0.4	0.3	0.3	0.5		
NITROGEN(NITRITE)	.002	.001	.001	.005		
COPPER(Cu)	.00	.00	.00	.00		

The Commonwealth of Massachusetts
Department Of Environmental Quality Engineering
Lawrence Experiment Station

37 Phalluck Street, Lawrence, Massachusetts 01843

Bacterial Examination of Water

Collected 9/30

By Hahcock

Received 9/30

Reported Oct. 3, 1977

Sample from	Sample Number	Membrane Filter Ct. per 100 ML		Multitube MPN per 100 ML	
		Coliform	Bkgd	Total Coliform	Fecal Coliform
Deville Manor, Free Cl 0.85	623,903	0			
ng. 8, Sherman Ave. 0.9	904	2			
ng. 6 River St. 0.05	905	0			
Deville Manor men's rm. 0.8	906	0			
Fire Sta. 3rd and Gore .15	907	0			
Mass. Ave. Lafayette Sq. .05	908	0			
W.D. Lyon Bridge Ave. 0.8	909	0			
W.D. Mass. Ave. men room 0.0	910	0			
Lexington Ave. F.S. 0.1	911	0			
Cambridge Elec. Dept. 0.1	912	0			
ng. 8 Fire Sta. 0.9	913	0			
ity Hall .05	914	0			
Cambridge Cemetery Free 0	915	0			
Tot. 0					
resh Pond, Raw	916	6			
andall Sq. F. S. .15	917	0			
orter Sq. Fire Sta. 0.5	918	0			
ivor St. P. S. Free 0, Tot. 15	919	0			

FACTORS AFFECTING INDIVIDUAL WATER SUPPLY

Source of Supply

The source of supply for Cambridge is Hobbs Brook, upper reservoir, and Stony Brook and Fresh Pond as terminal reservoirs. Total storage capacity approximately four billion gallons.

The presence of contaminants in this item either due to natural causes or pollution from air or land may contribute a basic element that may affect water quality.

Treatment Plant

This plant is designed to remove bacterial and chemical contaminants and to raise the ph level of the water to prevent lead pipe corrosion to produce water that conforms to national and state water standards.

Pumping Plant

This plant is designed to pump water to Payson Park and directly to the transmission mains of the City. The failure of these pumps will cause a change in flow patterns of water in the mains of the City.

Payson Park

This is an open reservoir that requires special treatment under the State Law. The impact of the reservoir on asthetic water quality is that it allows for gravity feed to major part of the City and as such prevents reversal of flows as may be caused by pump stoppage and control through opening and closing of MDC connections. However, it could have an impact on the bacterial quality of the water and as such daily tests

are required to insure that water leaving the reservoir is the same quality as leaves the plant and received at the tap.

Proposed State Drinking Water Regulations require that coverage should be completed as soon as possible.

MDC Connections

The MDC Connections at Cambridge Common, Porter Square, and Norfolk St. & Broadway may cause dirty water due to:

1. Higher pressure
2. Acid water alkaline (ph)
3. Water Quality Variances
4. Location

Distribution Mains

Unlined cast iron pipe accumulated sediment deposits and tuberculation (rust attached to pipe) both restricts flow and is subject to be dislodged due to turbulence created by either increased (higher velocity) and reverse flow (water going in opposite direction) either one time or periodically due to water utilization pattern, repair work, or main removal and replacement that cause water flow patterns to be changed. This combined with the older mains is a source of water quality on either a one time basis or periodically, hourly or daily. Fires, street sweepers, fire flow testing, or any manner in which the flow in the distribution is changed may cause dirty water. This is the main problem for area wide dirty water.

Service Pipes

These are connections from the main to the house. These connections are primarily lead or copper. These pipes do not

normally contribute to a dirty water problem. However, restriction of size due to tuberculation could affect water quality.

Interior House Piping

Cold water - these could be copper, lead, galvanized iron or black iron. Iron pipes may contribute to a rust problem in a house.

Hot water - hot water heaters not properly maintained may contribute to a dirty water problem in a house.

CORRECTIVE ACTIONS TAKEN ON
ALL WATER CALLS

Calls are recorded as to time of day, nature of call, and notations as to whether water is a one time or continuing problem.

Mains are flushed in the area of water calls that day, in a controlled manner through the hydrants near or adjacent to the area or address of the call.

This information is to be used in analysing water flows and planning future corrective action.

FURTHER ACTION REQUIRED TO IMPROVE
CAMBRIDGE WATER QUALITY

An analysis of flows throughout the City, in particular, those areas of suspect water quality and fire flow. This would require a pitometer flow study with the utilization of computers.

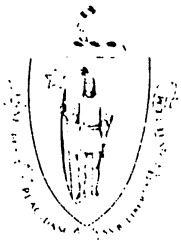
Replacement or cleaning and lining of mains with excessive tuberculation, sediment, restricted flow, or carrying more water flow than for which originally designed and to meet current and projected population and industrial needs.

Analysis of impact of MDC connections on flows and increased control of these connections.

Coverage of Payson Park.

Improved watershed management.

A further analysis of treatment methods if water quality is not improved by the above actions or contributes to exceeding Federal and State contaminant levels.



The Commonwealth of Massachusetts

Department of Public Health

Merrimack Valley Air Pollution Control District

TEWKSBURY HOSPITAL
TEWKSBURY 01876

TEL: 617-851-7261

June 23, 1977

Mr. Richard C. Rossi
Assistant to the Superintendent
City of Cambridge
Water Department
250 Fresh Pond Parkway
Cambridge, Massachusetts 02138

Re: Cambridge -
Public Water Supply-
Quality

Dear Sir:

The Department is in receipt of your letter of June 6, 1977 relative to the quality of the Cambridge Public Water Supply.

Other than occasional complaints of sediment, iron and manganese, which are aesthetic in nature, a review of the bacterial data on the Cambridge Water System indicates that it is safe.

If you have any further questions concerning this matter please call Mr. McCall at our Tewksbury Office at 851-7261, Ext. 30.

Thank you for your continued interest.

Very truly yours,

Thomas F. McLoughlin
Regional Environmental Engineer

Bruce Maillet
BY: Bruce Maillet
Acting
Regional Environmental Engineer

MC/m



CITY OF CAMBRIDGE
DEPARTMENT OF HEALTH, HOSPITAL AND WELFARE
1493 CAMBRIDGE STREET CAMBRIDGE, MASSACHUSETTS 02139
Telephone 354-2020

October 26, 1977

Mr. John Seites
Water Department
Cambridge, MA 02139

Dear Mr. Seites:

This is to inform you of the results of several lab analyses performed on the city's drinking water by my office.

On September 19, 1977 my office collected samples from taps at the Mt. Auburn Hospital, The Cambridge Hospital, City Hall and 49 Standish Street, Cambridge. These samples were analyzed by the Department of Laboratories at The Cambridge Hospital for bacterial growth and sodium contents. All reports were returned with a report of no bacterial growth and normal sodium contents.

On October 3, 1977 a water sample was taken from The Cambridge Hospital and sent to The Lawrence Experimental Station for analysis of pH, and metal content. Results of this analysis showed that the pH, lead, fluoride, iron, copper, zinc and other heavy metal contents, except for the sodium level, which was about 5% elevated, were all far below the published maximum safe levels. In addition, the turbidity and particulate content were also well within the acceptable ranges.

Today, Dr. George Hori, Director of Laboratories and Pathology at The Cambridge Hospital sent a repeat sample to the Lawrence Experimental Station for repeat analysis.

Based on the results of these laboratory analyses, it is my professional opinion that although the city's water looks terrible, it is quite safe to drink and use.

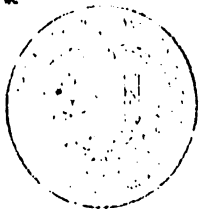
Very truly yours,

Francis L. Comunale

Francis L. Comunale, M.D.
Acting Commissioner of
Health & Hospitals

FLC/jlb

P.S. I have enclosed a copy of Dr. Hori's report for your use if needed.



THE CAMBRIDGE HOSPITAL

Part of the Harvard Medical School

1493 Cambridge Street • Cambridge, Massachusetts 02139

Telephone (617) 354-2020

Department of Pathology
Laboratories

C. G. HORI, M.D., Director

PETER LUKL, M. D.
Associate Pathologist

JACQUELINE DeSILVA, M.D.
Assistant Pathologist

JOHN F. BRUSCH, M.D.
Infectious Disease
Controller

JERRY YOUNGER, M.D.
Chief of Hematology
and Oncology

MARTIN C. MUHM, JR., M.D.
Dermatopathologist

JOHN C. BOYD, M.D.
Neuropathologist

GERALD SHEYS, Ph.D.
Clinical Chemist

MARY J. SCANLON
Administrative Assistant

October 25, 1977

Dr. Frank Comunale, Commissioner of Health;
City of Cambridge,
Cambridge, MA 02139

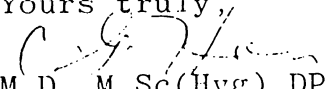
Dear Dr. Comunale:

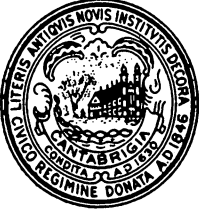
The result of the specimen of tap water taken
at random from the Cambridge Hospital on October 3rd,
1977 was analyzed at the State Lawrence Experimental
Station and the results are as follows:

Odor	none
Color	clear
Turbidity	0.3
Sediment	0
pH	7.4
Alkalinity	0.26
Hardness	0.52
Calcium	15
Magnesium	3.3
Sodium	65
Potassium	2.4
Iron	0.05
Manganese	0.03
Silica	5.5
Sulfates	22
Chlorides	59
Ammonia N	0
Nitrate N	0.04
Nitrite N	0.002
Copper	0.
Lead	0

These findings are all within safe limits of
chemical impurities in drinking water.

Yours truly,


M.D., M.Sc(Hyg), DPH.



CITY OF CAMBRIDGE

CAMBRIDGE, MASSACHUSETTS 02139
Tel. 876-6800

EXECUTIVE DEPARTMENT
JAMES L. SULLIVAN
City Manager

October 31, 1977

To the Honorable, the City Council:

Enclosed per the City Council's request are the results of the findings of various independent analyses of the condition of the Cambridge Water Supply from various locations.

Very truly yours,

Robert W. Healy
Assistant City Manager

RWH/mbf
Enc.

Agenda #5

5-572

Results of the findings of various independent analyses of the condition of the Cambridge water supply.

5-572

In City Council,

Oct. 31, 1977

10/21/77

- Placed on File -