CCM-101

City of Cambridge

CR #1

IN CITY COUNCIL

March 12, 1990

COUNCILLOR DUEHAY

ORDERED: That the Environment Committee approves all recommendations contained in the Cambridge Reservoir Watershed Protection Plan dated December, 1989 and recommends to the full City Council that it adopt all elements of the foregoing recommendations insofar as they apply to Cambridge; and be it further

ORDERED: That the City Manager be and hereby is requested to forward these recommendations to the appropriate City departments for response and for the proper Zoning Ordinances or amendments to the Code of the City of Cambridge to be drafted and submitted to this City Council for its consideration.

In City Council March 12, 1990.
Adopted by the affirmative vote of nine members.
Attest:- Joseph E. Connarton, City Clerk.

A true copy;

ATTEST:- Joseph E. Connarton

Joseph E. Connarton, City Clerk.

City of Cambridge

The Environment Committee conducted a public hearing on Wednesday, February 21, 1990 beginning at 8:42 a.m. in the Ackermann Room, City Hall.

Councillor Francis H. Duehay, Chair of the above referenced Committee, convened the hearing and introduced the membership of the Committee. In the Chair's opening remarks, he stated the purpose of this hearing which was as follows: (1) proposal of Brandeis University/CNG Energy Company to erect a power plant in the Cambridge Watershed area at Stony Brook in Waltham; (2) general issues surrounding the protection of the Watershed; and, (3) discussion on the issue of water quality.

Councillor Duehay stated that the issue of the quality of the City's drinking water rivals the air quality issue at Cambridge Rindge and Latin High School and it was imperative that the City restore the public's confidence in the water supply.

At this time the Committee heard from Ms. Mary Brandt Kerr of 106 Thornton Road, Waltham, Media Liasion, Coalition for the Preservation of a Neighborhood Environment. Ms. Brandt Kerr expressed the frustrations that this neighborhood group was experiencing in dealing with Brandeis and CNG Energy Company. Ms. Brandt Kerr explained to the Committee the sketchy details that the group has received from the principals, namely an 84 megawatt cogeneration power plant with three 125 ft. high smoke stacks would be constructed in Waltham in an area less than 1000 ft. from active recreational space and the Stony Brook Reservoir. In further testimony she

explained that CNG has offered "carrots" to the citizens of Waltham. Such "carrots" were that the local hospital will gain due to savings in utility rates, a $120,000.00 impact fee would be paid, tax assessments ranging from 300 to 500 to 600 thousand were to be realized and the cultural lives of residents would be enriched with the production of additional concerts and plays.

Councillor Duehay asked about the various stages of development for this project. In response, Ms. Brandt Kerr informed the Committee that the first step will be a petition to the Waltham City Council by the Principals requesting a zoning amendment changing the area from residential to industrial. The neighborhood is in the process of actively lobbying the Council to defeat this petition.

The Committee then heard from Mr. David G. Walz, 35 Virginia Road, Waltham, who presented several other facts concerning this proposal such as: (1) three 40,000 sq. ft. structures to be built on-site; (2) storage of 200,000 gallons of #2 fuel oil; (3) toxic chemicals will be stored on-site during construction and operation stages; and, (4) Brandeis will lease eight acres to CNG at a price of one million dollars (CNG is projected to earn $35 million).

Ms. Candy McGail of 32 Intervale Avenue, Waltham asked the membership of the Cambridge City Council to communicate with their counterparts in Waltham to urge the defeat of the proposed zoning petition. Ms. McGail also urged Cambridge to support local wetlands protection regulations similiar to those in the Town of Lexington. A Cambridge wetlands protection ordinance is recommended by the MAPC study, mentioned later in these minutes.

Councillor Duehay then asked for any comments, suggestions or recommendations from the various Cambridge departments assembled that might be of assistance to this Neighborhood Coalition.

Mr. Timothy MacDonald, Watershed Manager, cited such potential problems as control and regulation in the event of leakage. He also felt that thetopography of area would be an impact.

Ms. Sheila Lynch of 200 Sherman Street, Cambridge, questioned the impact of the quality of air as it would relate to prevailing winds, given the fact that smoke stacks are in the proposal.

Senator Michael J. Barrett (Middlesex and Suffolk District), outlined the need for state wide legislation for the protection of Cambridge and other similiar watershed areas. He spoke of the need for Waltham residents to contact those who were running to succeed Senator Carol Amick.

Councillor Duehay called for the bringing together of a coalition of individuals from Cambridge, Waltham, Lexington, Weston and Lincoln to lobby for passage of such needed legislation for protection of the entire Cambridge Watershed.

Councillor Ed Cyr questioned Deputy City Manager Richard C. Rossi on potentials for catastrophic problems, liability and inter-agency groups as they relate to the building of a power plant at the Waltham site.

In response, Mr. Rossi outlined the consequences of a worst case scenario-total contamination requiring the shut down of the Cambridge system, the cost of Cambridge purchasing water from the MWRA, and the financial expenses of the clean-up.

Councillor Duehay then introduced Dr. Donald F. Hornig, President of the Cambridge Water Board, to outline the concerns of the Board as it relates to the proposal. Mentioning the letter he had sent to Brandeis authorities, Dr. Hornig cited several areas including but not limited to: (1) the transport of materials throughout the various stages of the project; and, (2) ever present danger of leakage of underground storage tanks. (see his letter to President Handler of Brandeis, attached)

Councillor Duehay concluded this part of the hearing by recommending the creation of an inter-agency working group comprised of appropriate officials from the Executive, Law, Water, Health and Conservation Departments to work collectively: (1) to prepare a detailed report and presentation to the Waltham City Council outlining the concerns, reservations, and opposition by the City of Cambridge to the proposal by Brandeis/CNG Energy Company; and, (2) to lobby to secure state legislation to protect the Watershed.

At this time, Councillor Duehay recognized Senator Barrett for a presentation to the Committee outlining the various Legislative initatives being considered for enactment to protect sensitive water supply areas.

The Senator outlined the Cohen Bill that offers protection to the Quabbin Reservior but, excludes Cambridge, and other similiar water supply areas. He spoke of the concept of "fairness" as it relates to issues of development, interstate travel and the protection of natural resources. He also described the bill that he and other members of the Cambridge delegation had filed, Senate No. 934, to protect the Cambridge Watershed.

(Attached is a copy of Senate No. 934 introduced by Senator Barrett and the other Members of the Cambridge Legislative Delegation to amend Chapter 40A to Protect The Drinking Water Supply For The City of Cambridge.)

At this time Councillor Duehay introduced Mr. Martin Pillsbury, Metropolitan Area Planning Council Project Manager for a summary of the Cambridge Reservoir Watershed Protection Plan dated December, 1989.

Mr. Pillsbury noted that the plan includes four major elements: (1) an inventory of natural resources in the Watershed; (2) an assessment of land use, zoning, and potential sources of contamination; (3) an evaluation of existing federal, state and local protection measures; and, (4) a set of findings and recommendations for actions to protect the quality and quantity of water supplies in the Watershed. (see MAPC study summary attached)

As background, the Watershed area is about 23.6 square miles and lies within portions of four communities (Lexington, Lincoln, Waltham and Weston). Water collected in the Hobbs Brooks Reservoir flows to Stony Brook Reservoir. From Stony Brook Reservoir water flows in an underground pipeline through Waltham and Watertown to Fresh Pond. At Fresh Pond, the water is treated and pumped into the City's water distribution systems.

According to the study potential threats to the Cambridge Reservoir Watershed include but are not limited to the following: (1) urban runoff; (2) highway drainage; (3) hazardous waste; (4) land fills; (5) pesticides; and, (6) wastewater discharges.

The set of recommendations for action by state and local agencies which will increase the protection of the Watershed and reduce the risk of contamination of the water supply resources are as follows:

(1) Intercommunity Coordination. In order to promote coordination between the various watershed communities and the City of Cambridge, the communities should adopt a Memorandum of Understanding which establishes an ongoing mechanism for a regional cooperation.

(2) Zoning. It is recommended that each community amend its zoning by adopting a Watershed Protection Overlay District. Commercial and industrial uses would be allowed by special permit, with site plan review.

(3) Site Plan Review. It is recommended that the communities adopt site plan review procedures for commercial and industrial sites, which incorporate performance requirements for handling runoff from the site.

(4) Underground Fuel Storage and Hazardous Materials. It is recommended that the communities adopt local bylaws/ordinances or health regulations which require the registration of all underground storage tanks and the storage of hazardous materials in quantities greater than 50 gallons or 25 pounds.

(5) Wetlands Protection. It is recommended that the communities adopt local wetlands regulations which supplement the state Wetlands Protection Act.

(6) State Discharge Permits. The Department of Environmental Protection should adopt the proposed changes in the state water quality classifications which would designate the entire watershed as Class A Outstanding Resources Waters.

(7) State Highway Drainage. The state DPW should expedite its studies of alternative highway drainage in the watershed, and implement a solution as soon as possible.

(8) Road Salt. The Massachusetts DPW should use salt substitutes such as calcium chloride or CMA or take other steps to significantly reduce the use of sodium chloride in the watershed.

(9) Emergency Response. The five communities should work together

to develop coordinated procedures for emergency response to a chemical leak in the watershed.

(10) Watershed Monitoring. The Cambridge Water Department should establish a watershed monitoring program designed to evaluate key indicators of the status of resources in the watershed over time, and provide an early warning of potential problems.

(11) Land Acquisition. The Cambridge Water Department should consider the purchase of land or easements on selected key parcels which are critical to the water resources of the watershed.

Councillor Duehay at this time offered the following motion:

ORDERED: That the Environment Committee approves all recommendations contained in the Cambridge Reservoir Watershed Protection Plan dated December, 1989 and recommends to the full City Council that it adopt all elements of the foregoing recommendations insofar as they apply to Cambridge.

ORDERED: That the City Manager be and hereby is requested to forward these recommendations to the appropriate City departments for response and for the proper Zoning Ordinances or amendments to the Code of the City of Cambridge to be drafted and submitted to this City Council for its consideration.

On a voice vote the motion carried.

In closing this section of the hearing, Councillor Duehay commented that implementation of these recommendations is enormously important and complicated and commended the MAPC, Mr. Pillsbury, the Water Board, the Water Department and the Executive Department for undertaking this study.

At this time, Councillor Duehay directed the attention of the Committee to the issue of water quality.

The Chair reiterated his opening statement regarding the lack of public confidence in the City's drinking water. Dr. Hornig in response stated that the water is safe but there were areas of concern. Areas identified included: (1) sodium levels; (2) trihalomethanes (THM) levels; and, (3) lead content.

In further testimony offered by Dr. Hornig, he qualified the three areas of concern and in responding to questions by the Chair regarding water color and odor stated that the problems experienced in November and December, 1989 have been rectified.

At this time Councillor Duehay presented to Deputy City Manager Rossi a communication by Ms. Norma Weinberg, 130 Mt. Auburn Street, Cambridge entitled Notes on Betterments Needed to Improve the Quality of Water for the City of Cambridge, Massachusetts. (see attached memo)

Mr. Rossi requested that the City administration respond to this memo for the Committee's next meeting. The Chair agreed to the request.

Mr. Rossi stated the commitment of the City Administration to provide the City Council with both long term and short term recommendations for implementation to improve the delivery of services offered by the Water Department. Mr. Duehay indicated that the Committee would discuss these at its next meeting.

In another area necessitating a response, the Committee requested the City Manager to convene an inter-agency working committee to develop a unified policy position for the City Council to consider on the following State development projects: (1) MWRA combined Water and Sewer Overflow Plan; and, (2) Environmental Impact Statement on North Point as it relates to the Central Artery. The said policy statements are to be submitted to the City Council and then forwarded to the appropriate State agency.

The hearing was adjourned at 11:00 a.m.

For the Committee

Councillor Francis H. Duehay
Chair

s

enclosure

Section 18. Each planning board or each body which sits as a planning board for each city or town having a sensitive water supply area, as defined by Section 1 of this Chapter, shall establish a procedure for determining what land falls within such an area and shall establish a procedure for appealing the inclusion of a location in a sensitive water supply area. Any such appeal shall be limited to the determination of whether the location in question is within a sensitive water supply area. The appellant shall have the burden of proving that the determination was improper.

Section 19. Notwithstanding the provision of any general or special law to the contrary, the following uses shall be prohibited for all non-residential development in all sensitive water supply areas: (1) the discharge of wastewater from any sewage or industrial waste water treatment facility; (2) the on-site disposal of sewage or wastewater which exceeds three hundred gallons per day per acre, calculated in accordance with the state Environmental Code; (3) the disposal of wastewater within four hundred feet of a public water supply well or a surface public water supply source and their respective upgradient tributaries; (4) the placement of a leaching field of a subsurface waste water disposal system less than four feet above the maximum water table level as measured at the time of annual high water; (5) the storage of liquid petroleum products of any kind except where incidental to normal residential use or the heating of a building, provided that storage is maintained in a free standing container within the building or, if storage is maintained outside the building, where storage is maintained above ground in a free standing container adequately protected so as to contain a spill of the 125% of the maximum storage capacity; (6) the storage or disposal of hazardous materials, as defined in Chapter 21E, or of hazardous waste, as defined in Chapter 21C; (7) the disposal of refuse as defined in Chapter 111, Section 150A of the General Laws; (8) the outdoor storage of road salt or other deicing chemicals that contain sodium; (9) the outdoor storage of fertilizers, herbicides or pesticides; (10) the outdoor storage of uncovered manure; (11) the outdoor storage, use or disposal of pesticides prone to leach, as determined by the United States Environmental Protection Agency or by the Commonwealth of Massachusetts;

(12) the siting of any boat or motor vehicle service or repair establishment; (13) the siting of any motor vehicle washing establishment that is not connected to a municipal sewer system; (14) the siting of any junk or salvage yard operation; (15) excavate gravel and sand except that incidental to the construction of authorized on site structures; or (16) discharge runoff from roads and parking lots into, or within 100 feet of, surface waters.

This section shall not apply to preexisting, nonconforming uses, provided that alteration of a preexisting, nonconforming use may only be authorized by the issuance of a special permit from the local special permit granting authority and only if the alteration will not expand the use and will reduce the risk of damage to, or degradation of, the sensitive water supply area. This section shall not apply to uses for which all applicable federal, state and municipal permits and approval were obtained prior to the effective date of this section.

Nothing herein shall limit the ability of any person as defined in Chapter 21E or the federal government or the Commonwealth to undertake operations to clean up, prevent or mitigate releases of oil and hazardous material, as defined in federal or state law in compliance with the applicable regulations, or of hazardous wastes, as defined in Chapter 21C of the General Laws.

Section 20. No non-residential development shall render impervious more than ten percent or two thousand and five hundred square feet, whichever is greater, of any lot within the sensitive water supply area unless the owner or applicant seeking municipal approval of such a development prepares and presents an environmental impact statement to the municipal permit granting authority and, in every instance, to the municipality's conservation commission which statement shall detail the impacts that the proposed development will have on the sensitive water supply areas and presenting a plan that the owner or applicant will implement that adequately mitigates every adverse impact upon the sensitive water supply area. A copy of the environmental impact statement must be provided to the governing body of any city or town whose drinking water supply may be affected by such a development. The environmental impact statement shall include, but not be limited to, a detailed report of the proposed

development's nitrogen loading impact upon the sensitive water supply area. In no event shall the proposed development's nitrogen loading impact exceed a performance standard of 5 mg/l at the well-head for ground water sources, and at the point of withdrawal for surface water drinking sources.

This section shall not apply to uses for which all applicable federal, state and municipal permits and approvals were obtained as of the effective date of this section, but shall apply to the extension of preexisting, non-conforming uses.

Nothing herein shall limit the. ability of any person as defined in Chapter 21E or the federal government or the Commonwealth to undertake operations to clean up, prevent or mitigate a release of oil or hazardous material, as defined in federal or state law in compliance with the applicable regulations or of hazardous wastes, as defined in Chapter 21C of the General Laws.

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SENATE . . . . . No. 934

By Mr. Barrett, a petition (accompanied by bill, Senate, No. 934) of Michael J. Barrett, Charles F. Flaherty, Peter A. Vellucci, Michael LoPresti, Jr., Alvin E. Thompson and Richard A. Kraus for legislation relative to the protection of sensitive water supply areas. Natural Resources and Agriculture.

The Commonwealth of Massachusetts

In the Year One Thousand Nine Hundred and Ninety.

AN ACT TO AMEND CHAPTER 40A TO PROTECT THE DRINKING WATER SUPPLY FOR THE CITY OF CAMBRIDGE.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

SECTION 1. Section 1 of Chapter 40A of the General Laws, as most recently amended by section one of Chapter 685 of the Acts of 1987 is hereby amended by adding the following paragraph: —

"Sensitive water supply area", shall mean those surface drinking water supplies for the City of Cambridge, including the Cambridge Reservoir, the Hobbs Brook Basin, the Stony Brook Basin and the Fresh Pond Reservoir and that portion of the watershed that lies within four hundred feet of these sources of surface drinking water and their upgradient tributaries. A tributary shall mean a body of running water, including rivers, streams, brooks and creeks, which move in a definite channel in the ground due to a hydraulic gradient, as defined in the most recent edition of the United States Geological Survey one to twenty-five thousand scale quadrangle maps, and that portion of the watershed that lies in, or within one hundred feet of, the one hundred year flood plain, defined pursuant to Section 40 of Chapter 131 of the General Laws or as determined by the Federal Emergency Management Agency.

SECTION 2. Chapter 40A of the General Laws is hereby amended by adding the following sections: —

CITY OF CAMBRIDGE

250 FRESH POND PKY., CAMBRIDGE, MASSACHUSETTS 02138• TEL. 498-9070

OFFICE OF THE WATER BOARD

Donald F. Hornig
President
Thomas J. Begley
Ruth C. Birkhoff
Walter N. Conlon
A. Paul Flynn

December 13, 1989

Dr. Evelyn Handler, President
Brandeis University
Waltham, MA. 02254

Re: PROPOSED CNG CO-GENERATION POWER PLANT @ BRANDEIS UNIVERSITY

Dear Dr. Handler:

The Cambridge Water Board has recently become aware of the proposed Co-Generation Power Plant project at Brandeis. Based on information presented to our staff by a representative of CNG, it is our understanding that the proposal consists of a new power plant that will utilize oil and natural gas to produce both electricity and steam. The current plans involve siting the new power plant on the Brandeis Campus within the watershed of the Stony Brook Reservoir, a public drinking water supply for the City of Cambridge. No information has been presented that indicates any evaluation of alternative sites on the Brandeis Campus, but outside of the Stony Brook watershed has taken place.

The City of Cambridge, with the assistance of the Massachusetts Water Resources Authority (M.W.R.A.) and the Metropolitan Area Planning Council (M.A.P.C.) has recently developed a "Cambridge Watershed Protection Plan" that identifies existing and potential threats to the Cambridge water supply. Examples of existing threats located in the watershed include highway drainage, fuel storage, hazardous wastes generated at industrial facilities, and municipal sanitary land fill operations. Naturally we are concerned about any project which will add to the existing threats

Based on the limited information available on the proposed power plant project, it is our opinion that a facility of the contemplated magnitude within the Stony Brook watershed poses a potential health threat to the Cambridge water supply, and that Brandeis University should reconsider its options and relocate the site.

The Water Board would be interested in discussing this project with a representative of Brandeis at your convenience.

Sincerely yours,

Donald F. Hornig

CAMBRIDGE WATER BOARD

Donald F. Hornig,
President

DFH/mp

Brandeis University

Office of the
Vice President for
Administrative Affairs

Waltham, Massachusetts
02254-9110

617-736-4410

December 19, 1989

Mr. Donald F. Hornig, President
Cambridge Water Board
City of Cambridge
250 Fresh Pond Parkway
Cambridge, MA 02138

Dear Mr. Hornig:

President Handler has asked me to review and respond to your letter to her dated December 13, 1989 regarding the proposed co-generation facility at Brandeis. Before this project can proceed, it requires full approval from all required permitting agencies and must meet the stringent regulations regarding air and water pollution and other environmental factors.

CNG has employed the services of HMM to review and address the issues related to permitting. HMM is an environmental engineering firm from Concord, Massachusetts and has completed over 1000 projects in 30 states with one of the most recent being a Masspower facility in Springfield, Massachusetts. The work of HMM will cover the following State and local permits:

Massachusetts Environmental Policy Act Process
Departmental of Environmental Protection Air Plans Review
DEP Acoustic Review
DEP Wastewater permits
EPA/DEP NPDES Stormwater permits
DPS Tank Permits
Local Permits
Wetlands/Conservation Commissions permits and order of conditions

Initial discussions have already been held with the Cambridge Water District to discuss and evaluate possible impacts of this project on the Stoney Brook Reservoir watershed. As was indicated at this meeting, these possible concerns will be addressed as part of the project design. Preliminary strategy would be to isolate potentially contaminating areas (e.g. fuel storage areas, if required) and direct possible runoff out of the watershed area. The project will be designed to provide the required 100 foot buffer areas from any wetlands. In order for the project to proceed, all of the above permits and approvals must be obtained, verifying that no serious threat exists to any aspect of the environment including the Cambridge watershed.

As you are aware, this project in still in its initial design phase and many of the details related to it, including siting, have not yet been fully defined. I am, therefore, quite surprised at your stated opinion that the project should be relocated before there is sufficient information to determine what, if any, threat the final plant design will pose to the watershed in question and before the University and CNG have made a formal and complete presentation on the project.

I request that the Water Board await the completion and presentation of the full data being developed as part of this feasibility study before making a premature recommendation. In the meantime, we will continue to keep you informed and are willing to meet with you, at your convenience, to discuss the project as the details are more fully defined.

Sincerely,

(Mr.) Shelley M. Kaplan
Vice President for Administration

cc: President Handler
Tom Dodd-CNG

CNG Energy Company

A **CNG** COMPANY

CNG Tower
Pittsburgh, PA 15222—3199
(412) 227-1433

THOMAS E. DODD
General Manager

December 22, 1989

Mr. Donald F. Hornig
President
Cambridge Water Board
250 Fresh Pond Parkway
Cambridge, MA 02138

Dear Mr. Hornig:

Shelley Kaplan, Vice President for Administration at Brandeis University, has given me copies of the letters exchanged between you and the university regarding the feasibility studies for a proposed cogeneration project we are pursuing with Brandeis.

Let me add a further reassuring note regarding the concerns you have raised.

We have seen the Cambridge Watershed Protection Plan as it was recently unveiled and find it an impressive and important piece of work. A CNG representative attended the December 5 public meeting at the Waltham City Hall and stated that we will treat it as though it already has the force of law. We will pursue no course of action for the cogeneration project that would not be possible if the Plan is formally adopted.

As Mr. Kaplan indicated in his December 19 letter, we will be pleased to keep you fully informed as the feasibility study proceeds, and we look forward to having the full support of the Cambridge Water Board for the plan that finally is formulated.

Sincerely,

Thomas E Dodd

mkb

cc: S. M. Kaplan

CITY OF CAMBRIDGE

MASSACHUSETTS

WATER DEPARTMENT
250 FRESH POND PARKWAY
CAMBRIDGE, MASS. 02138

John J. Cusack, Jr.
Superintendent

617-498-9070

TO: Water Board

FROM: JJC John J. Cusack, Jr.,
Superintendent

DATE: November 1, 1989

SUBJECT: BRANDEIS UNIVERSITY CO-GENERATION POWER PLANT

On October 25, 1989 a meeting was held at the Water Department to discuss the project referenced above. The following people attended this meeting:

John Cusack	-	Cambridge Water Department
Timothy MacDonald	-	Cambridge Water Department
Dale Raczynski	-	H.M.M. Associates
Raymond Georges	-	C.N.G. Energy Company

(Notes: Brandeis University was not represented)

The project under consideration consists of a new on campus power plant for Brandeis University. The plant will utilize natural gas and/or fuel oil. The location selected on the campus for this facility is in the tributary watershed of the Stony Brook Reservoir. The proposal includes plans to pump sanitary waste water and storm water away from the reservoir, over the topographical ridge line, into the Charles River watershed area.

The next phase of the review process will be the submittal of an "Environmental Notification form" to the Executive Office of Environmental Affairs.

JJC/mp

cc: Robert W. Healy, City Manager

CNG Energy Company

A **CNG** COMPANY

CNG Tower
Pittsburgh, PA 15222—3199
(412) 227-1090

October 30, 1989

Mr. John J. Cusack, Jr.
Superintendent
Water Department
City of Cambridge
250 Fresh Pond Parkway
Cambridge, MA 02138

Dear John:

It was a pleasure to meet with you and Tim MacDonald on October 25, 1989.

Your cordiality and time with me and Dale Raczynski of HMM Associates are much appreciated.

We understand you will insist that all oil containment areas be controlled and their runoff directed out of your watershed. (Via the Brandeis stormwater system to the Charles).

The wetland buffer zones are to be respected to the greatest extent possible. Roof drains and paved areas will be allowed to drain into your watershed.

We are adding you and Tim to our ENF, EIR and project information distribution list. If you have need of other information, please call me at 412-227-1213.

Thank you for your consideration.

Very truly yours,

Raymond J. Georges
Manager Resource Engineering
& Development

RJG/fds

cc: T. W. D. MacDonald

HMM ASSOCIATES, INC.
ENGINEERS, ENVIRONMENTAL CONSULTANTS & PLANNERS

MEETING NOTES

DATE: October 25, 1989

PLACE: Water Department, City of Cambridge
250 Fresh Pond Parkway

ATTENDEES: John J. Cusack, Jr., Superintendent, Water Department
Timothy W. D. MacDonald, Manager of Water Resources
Raymond J. Georges, CNG Energy Company
Dale T. Raczynski, HMM Associates

SUBJECT: Brandeis Energy Conservation Project
Cambridge Water Department Concerns

The project site is within the watershed of the Stony Brook Reservoir. The Stony Brook Reservoir is part of the Cambridge water supply system. The system includes Hobbs Brook "Cambridge" Reservoir to the north of the site, which discharges via Stony Brook to the Stony Brook Reservoir. The Stony Brook Reservoir discharges via a conduit that generally parallels the Charles River to the Fresh Pond Reservoir where it receives treatment prior to distribution to the City of Cambridge. Cambridge has a tie-in to MWRA for backup. Water use is down from 16 MDG to about 14 MGD due to business moving because of high cost of water/sewer, etc.

Cusack and MacDonald expressed that their interest in this project is to protect the watershed of the Stony Brook Reservoir. Their interest would be best served if the project were moved out of the watershed. They asked what other sites had been considered (had the existing boiler plant site been considered for example). They plan to visit the proposed site. If the project cannot be moved, at a minimum, they believe that the oil storage tank and transformer runoff must be directed out of the watershed (i.e., to Brandeis stormwater system and then to Charles River). Mr. MacDonald felt that the 100 foot wetland buffer zone should not be disturbed, and certainly that the wetlands themselves (stream and pond) should not be altered. He cited two recent cases where they appealed Waltham Conservation Commission decisions, one of which included site work (or building?) within buffer zone. Roof drains and parking/roads should be O.K. to discharge within watershed, in fact, they do not want to divert too much runoff away from watershed (source of reservoir recharge).

They cited Exxon terminal northwest of site which is currently undergoing NPDES permit renewal. It is right next to Stony Brook. Obviously, Cambridge Water Department wishes they were not there, and they believe the permit renewal will receive heavy scrutiny.

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Three Executive Park Drive • Bedford • New Hampshire • 03102 • (603) 647-1010 • FAX: (603) 626-4642

They also thought that there would be a lot of opposition in Waltham to project due to perception that there is already too much growth. They mentioned zoning relief may be difficult to gain in Waltham.

We will add Mr. Cusack and Mr. MacDonald to our ENF, EIR distribution list.

cc: P. J. Osborne, CNG
Dale Gauthier, Pentech
Joe Delaney, HMM
Ann Kasprzyk, HMM
Bob Machaver - HMM
Raymond Georges, CNG

water distribution system.

The Watershed Land by Community

	Area (sq. mi.)	*Percent of Watershed in Community*	*Percent of Community in Watershed*
Lexington	1.8	8	10
Lincoln	9.2	39	62
Waltham	3.9	16	28
Weston	8.7	37	51

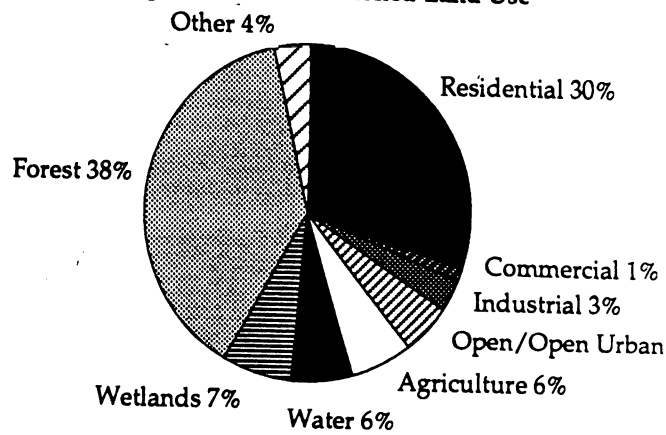
The Cambridge water system was built over 100 years ago, and it still reliably supplies the city with an average of 17 million gallons per day of drinking water. This water supply resource is important not only to the city of Cambridge, but to the entire Boston metropolitan area. Most other communities in the region rely on the MWRA water system, which gets its water from Quabbin and Wachusett Reservoirs. However, if the Cambridge reservoirs were contaminated or otherwise made unusable, the city would have no alternative but to turn to the MWRA for water. This would place a severe burden on the water system which most other communities in the metropolitan area rely upon. It is therefore important to manage and protect the valuable water resources in the watershed.

What Are the Potential Threats to the Cambridge Reservoir Watershed?

When the Cambridge water system was built 100 years ago, most of the watershed was dotted with farms, a few homes, and wetlands and forests. Since that time, major changes in land use have taken place which pose potential threats to the quality of the drinking water. The single most important factor was the construction of Route 128 along the eastern edge of the watershed in the 1950's. Not only does the highway affect the reservoirs directly, but the land adjacent to the highway was opened up to more intensive industrial and commercial development. Some of the major impacts on the watershed are summarized below.

Urban Runoff. Between 1951 and 1985, residential uses in the watershed increased by 63 percent, while industrial uses increased five-fold and commercial uses increased six-fold. Land use in 1985 is illustrated above. About half of the land area was developed by 1985, and there were 500 acres of industrial development and 230 acres of commercial. Such development in the watershed increases the area of pavement and structures, which reduces recharge and increases urban runoff. This has implications for both water quality and quantity. The quality may be impaired by increased sedimentation, oils and greases, salts, and heavy metals. Quantity impacts include increased peak stormwater flows, which exacerbates flooding and erosion downstream, and decreased recharge, which may decrease the water supply yield of the watershed.

Cambridge Reservoir Watershed Land Use



Highway Drainage. There are about 20 lane-miles of state highways in the watershed, including Routes 2, 2A, 20, and 128. Sections of Routes 2 and 128 drain directly into the reservoirs, with about 20 drain pipes discharging to Stony Brook Reservoir, and 37 discharging to Hobbs Brook Reservoir. Highway drainage to the reservoirs poses two problems: under normal conditions, runoff containing road salt, oils and greases, and heavy metals is discharged to the reservoir every time it rains. Secondly, with direct discharges, there is the potential for an accidental spill of fuel or other chemicals from a truck accident on the highway. Several such accidents have occurred in recent years, but contamination of the reservoirs has been averted...so far.

Recently, the state DPW began a study to evaluate alternative drainage systems in the Cambridge watershed. The study will compare diverting the highway runoff out of the watershed with treating the runoff within the basin. Since 1986 the DPW has also reduced the amount of sodium chloride used by substituting a mixture of sodium chloride and calcium chloride.

Cambridge Reservoir Watershed Protection Plan

Summary

December 1989

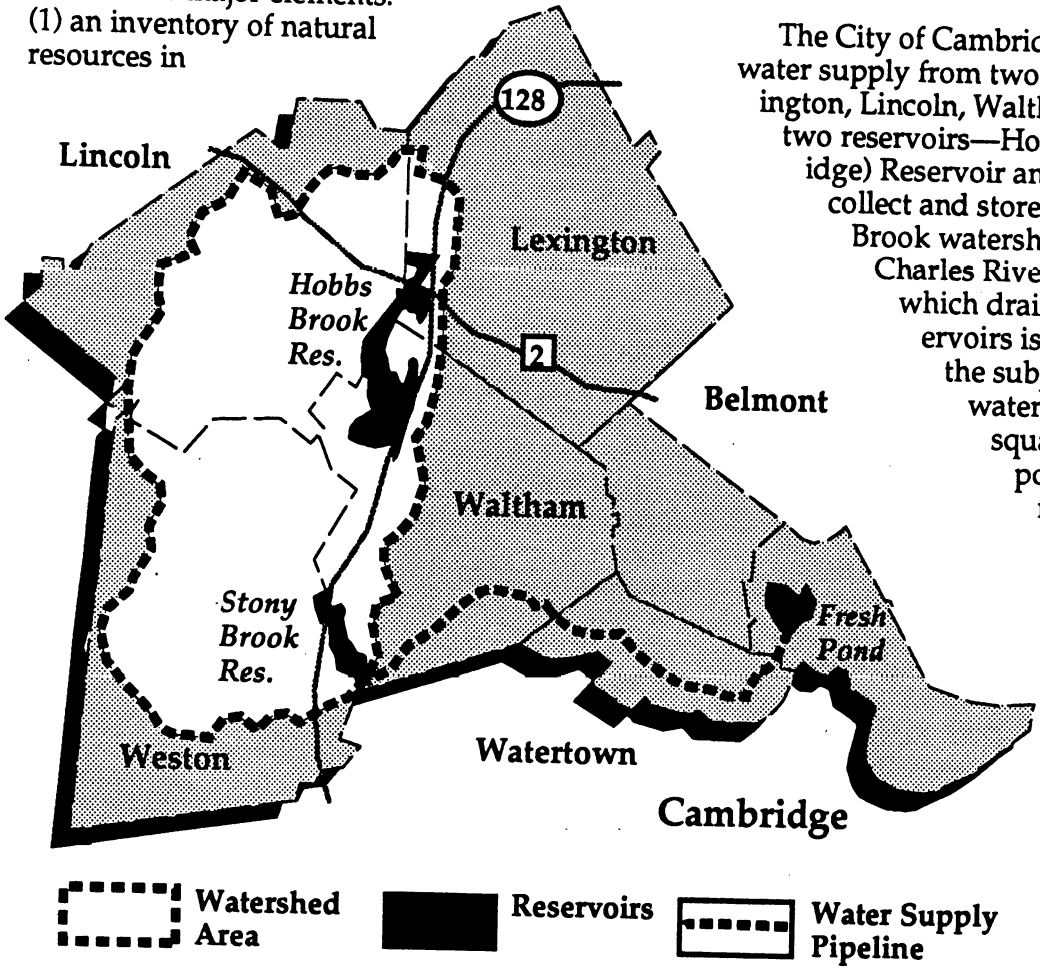
Prepared by Metropolitan Area Planning Council for Massachusetts Water Resources Authority and the Cambridge Water Board

Introduction to the Cambridge Reservoir Watershed Protection Plan

This pamphlet summarizes a plan which has been developed to provide long term protection for the watershed of the Cambridge water supply reservoirs. The draft plan was completed by the Metropolitan Area Planning Council in November 1989, and a final plan will be prepared by the end of the year. The plan includes four major elements: (1) an inventory of natural resources in the watershed; (2) an assessment of land use, zoning, and potential sources of contamination; (3) an evaluation of existing federal, state, and local protection measures; and (4) a set of findings and recommendations for actions to protect the quality and quantity of water supplies in the watershed.

What is the Cambridge Reservoir Watershed?

The City of Cambridge gets most of its public water supply from two reservoirs located in Lexington, Lincoln, Waltham, and Weston. The two reservoirs—Hobbs Brook (or Cambridge) Reservoir and Stony Brook Reservoir collect and store water from the Stony Brook watershed, which is part of the Charles River Basin. The land area which drains toward these two reservoirs is the watershed which is the subject of this plan. The watershed area is about 23.6 square miles, and lies within portions of the four communities as shown on the map to the left and the following table. Water collected in the Hobbs Brook reservoir flows to Stony Brook Reservoir. From Stony Brook Reservoir, water flows in an underground pipeline through Waltham and Watertown to Fresh Pond in Cambridge. At Fresh Pond, the water is treated and pumped into the city's



Cambridge Water System

shed Protection Overlay District. This would prohibit certain high-risk uses such as landfills, junkyards, open salt storage, hazardous waste generators (greater than 100 kg per month), and on-site industrial discharges. Commercial and industrial uses would be allowed by special permit, with site plan review (see below).

Site Plan Review. It is recommended that the communities adopt Site Plan Review procedures for commercial and industrial sites, which incorporate performance requirements for handling runoff from the site. Peak rates of discharge should not be increased, and runoff should be recharged on site whenever possible. Runoff from parking lots should be treated by oil and grease traps before discharge.

Underground Fuel Storage and Hazardous Materials. It is recommended that the communities adopt local bylaws/ordinances or health regulations which require the registration of all underground storage tanks and the storage of hazardous materials in quantities greater than 50 gallons or 25 pounds. The regulations should also prohibit any additional underground residential fuel tanks, and require removal or periodic testing of any tanks over 30 years old.

Wetlands Protection. It is recommended that the communities adopt local wetlands regulations which supplement the state Wetlands Protection Act. The regulations should require no increase in peak runoff from a site; oil and grease traps on parking lots; restrictions on application of road salt and pesticides; and water quality monitoring of runoff leaving the site.

The Conservation Commissions should also adopt guidelines regarding the use of artificial wetlands to replicate natural wetlands.

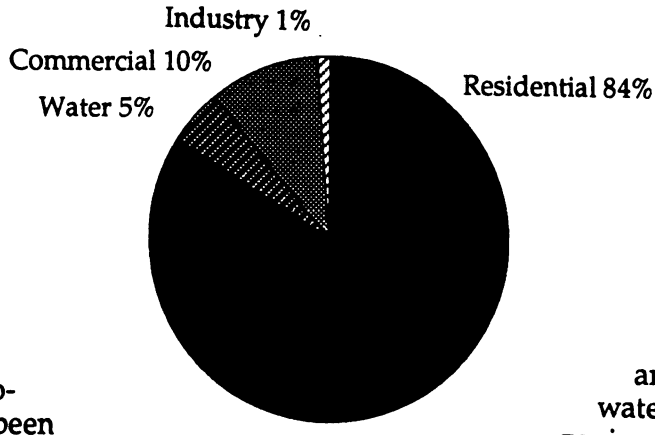
State Discharge Permits. The Dept. of Environmental Protection should adopt a consistent policy which requires the control of stormwater discharges from commercial and industrial facilities in the watershed through the NPDES (Clean Water Act) Discharge permit program. Such stormwater permits should be modelled after the permit already issued to the Bay Colony development, including discharge limitations, water quality monitoring, and restrictions on road salt, fertilizers, and pesticides. DEP should also adopt much more stringent conditions on the renewal of the discharge permit for the Exxon bulk fuel storage facility.

State Highways. The state DPW should expedite its studies of alternative highway drainage in the watershed, and implement a solution as soon as possible. The selected alternative should consider impacts on both the quality and quantity of water in the Cambridge reservoirs.

Intercommunity Coordination. In order to promote coordination between the various watershed communities and with the city of Cambridge, the communities should adopt a Memorandum of Understanding which establishes an ongoing mechanism for regional cooperation. The MOU would create an intercommunity advisory committee similar to the existing Cambridge Watershed Advisory Committee which worked on this plan, and it would establish a mechanism for regularly sharing information on proposals, changes in bylaws or regulations, and other issues of mutual interest to all the communities. The advisory committee would also serve as the focal point for implementing the recommendations of this plan.

Fuel Storage. According to local records, there are 43 underground gasoline tanks in the watershed, and 690 underground heating oil tanks. These are summarized by community in the table below. Many of these are steel tanks over 15 years old, which indicates that there is a greater risk of leakage due to corrosion. There have already been two known cases of underground fuel leaks in the watershed. In addition to underground fuel storage, there is a large fuel storage terminal which has 20 aboveground tanks ranging in size from one million to 4.4 million gallons. The facility, operated by Exxon, is adjacent to Stony Brook. There have been several spills and leaks on the site.

Zoning in Cambridge Reservoir Watershed



	Underground Gasoline Tanks	*Underground Fuel Oil Tanks*	*Hazardous Waste Generators*
Lexington	7	115	15
Lincoln	16	201	2
Waltham	7	121	48
Weston	13	25	33
Total	**43**	**690**	**68**

Hazardous Wastes. There are 68 firms in the watershed which are registered generators of hazardous wastes; 14 of these are large quantity generators. These are listed by community in the table above. There have been three confirmed releases of hazardous wastes in the watershed, and there are six other sites under investigation. Uncontrolled releases of hazardous wastes represent one of the most significant threats to the quality of drinking water in the watershed. Only one community, Waltham, has a local ordinance regulating the storage of hazardous materials and fuel. However, this ordinance exempts storage tanks less than 1100 gallons.

Other Potential Threats. Other activities which could affect water quality include: landfills (there are former landfill sites in Weston and Lincoln); pesticides (herbicides may be applied on some utility and railroad rights-of-way); and wastewater discharges, such as septic systems.

What is the Potential Impact of Future Development on the Watershed?

In addition to evaluating existing activities in the watershed, the plan considered the potential for future growth and development in the watershed according to the zoning regulations adopted by each of the four communities. Taken together, the zoning maps of the four communities would allow for the watershed to eventually "build out" to a land use mix of 84 percent residential, 10 percent commercial, and one percent industry (the remaining 5 percent includes open water and recreation). The zoning of the watershed is shown in the chart above, and summarized by community in the table below. As currently zoned, the watershed could accommodate about 1625 acres of commercial and industrial development, an increase of about 900 acres over what is currently developed.

Watershed Zoning by Community
Percent of watershed in each community zoned:

	Res.	Ind.	Comm.	Other*
Lexington	64	0	28	8
Lincoln	95	0	0	5
Waltham	37	2	43	18
Weston	98	0	2	0
Total	**85**	**1**	**10**	**5**

* Other includes open water and recreation/ conservation

What Can Be Done to Protect the Cambridge Reservoir Watershed?

The plan includes a set of recommendations for action by state and local agencies which will increase the protection of the watershed and reduce the risk of contamination of the water supply resources. These are summarized on the following two pages, and the major recommendations are described below.

Zoning. It is recommended that each community amend its zoning by adopting a Water-

Summary Of Recommendations - Cont.

Issue	Recommendation	Responsible Agency
Wastewater	**Septic System regulations** Periodic pumping Setbacks to surface water Minimum percolation rates No septic cleaners with VOC's	Board of Health
	Develop wastewater plan for Weston Center	Weston Sewer Committee
	Watershed Protection District Prohibit industrial discharges	Planning Board\ Board of Appeals
	Renewal of Exxon NPDES Permit Divert or treat runoff No process wastewater Impervious dike liners	EPA, DEP
Landfills	**Watershed Protection District** Prohibit new landfills	Planning Board/ Board of Appeals
	Close, cap, monitor landfills Control Transfer Station runoff	Lincoln, Weston DPW
	Collect Household Hazardous Wastes, Used Motor Oil	Lexington, Lincoln Waltham, Weston
Watershed Land Use	**Watershed Protection Zoning Overlay District** Prohibit: landfills, industrial discharges, road salt storage,hazardous wastes more than 100 kg/month Special Permit with Site Plan: Industrial, Commercial Permit: Residential	Planning Board/ Board of Appeals
Wetlands Protection	**Wetlands Protection Bylaw** **Project Review Guidelines for Wetlands Replication**	Conservation Commission Conservation Comm.
Emergency Response	**Coordination/Mutual Aid between communities**	Fire Departments
Water Quality	**Watershed Monitoring**	Cambridge Water Dept.
Inter-community Coordination	**Memorandum of Understanding** **Cambridge Watershed Advisory Committee**	Cambridge, Waltham Lexington, Lincoln Weston

Cambridge Reservoir Watershed Protection Plan
Summary of Recommendations

Issue	Recommendations	Responsible Agency
Stormwater Runoff	**Wetlands Protection** Bylaw No increased peak runoff Oil traps on parking lots Restricted salt, pesticides Water Quality Monitoring	Conservation Comm.
	Site Plan Review Same as above	Planning Board/ Board of Appeals
	NPDES Discharge Permits Discharge limitations Water quality monitoring Restricted salt, pesticides	EPA, DEP
	MDPW Drainage Alterations Diversion with mitigation or treatment in-basin	Mass DPW
Underground Fuel	**UST Local Bylaw/Regulation** Registration of all tanks Prohibit new residential fuel oil (or require 2-walled tanks) Remove tanks at 30 years, or provide monitoring/testing	Fire Chief/ Board of Health
Hazardous Wastes & Materials	**Hazardous Materials Bylaw/Ordinance** Register hazardous materials >50 gal. or 25 lbs.	Fire Chief/ Board of Health
	Watershed Protection District Prohibit hazardous wastes greater than 100 kg/month	Planning Board/ Board of Appeals
Road Salt	**Alternative Road Salt policies** Reduced sodium/substitutes Calcium chloride application Control of salt storage/Rt 2A	 Mass DPW Waltham Mass DPW
	Wetlands Protection Bylaw/Ordinance Restrict salt use on private drives, parking lots	Conservation Comm.
	Site Plan Review Restrict salt use on private drives, parking lots	Planning Board/ Board of Appeals
	Highway Drainage Controls	Mass DPW

Update Cambridge Water Treatment Facility

February, 1990

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Ans'd.....

In-house testing: A Water Quality Control Supervisor was hired the end of December, 1989. (There was no chemist on duty from May, 1989). This individual has a chemical background from a private laboratory but still does not have a license to operate the lab. Therefore, the City of Cambridge has no licensed laboratory to test the quality of the city's water and has not had one for 9 months!

Rapid Sand Filters: Camp Dresser,McGee which has a non-bidding contract with the water department, was hired about two years ago to empty one or two of the filter beds and analyze how to repair them. These beds are still sitting empty today! Nothing has been fixed.

Sodium levels: The D.E.Q.E. in Massachusetts has established a maximum standard of twenty milligrams per liter (20 mg/l) of sodium contained in drinking water. The Cambridge Water Dept. is now operating around (36 to 38 mg/l) down from (54 mg/l) in 1988 but still beyond current standards. Sodium can possibly increase blood pressure in susceptible individuals and be a concern to those on highly restricted sodium diets.

THM (Trihalomethanes)Levels: As it is the winter season, these levels are down now within water standards to 80 ppm. THMs are primarily formed when surface water containing organic matter such as decomposing leaves is treated with chlorine. There is a potential cancer risk.

Other Problem Areas: Protecting the Fresh Pond water supply against the excrement of animals (pets) which can raise Giardia levels and subsequent disease. i.e. asking residents not to bring their pets to this area. Moving trees away from the pond so that leaves will not add to THM levels.

Backflow prevention controls throughout the city need upgrading to prevent user contamination.

Prepared by Norma Weinberg, Cambridge resident
130 Mt. Auburn Street, Cambridge, MA 02138

Notes on Betterments Needed to Improve the Quality of Water for the City of Cambridge, Massachusetts

Compiled by

Cambridge resident-
Norma Weinberg
130 Mt. Auburn Street
Cambridge, MA 02138

December, 1989

To: Alice Wolf, Vice Mayor **December, 1989**
Fm: Norma Weinberg, Cambridge resident

Re: Notes on betterments needed to improve the quality of water - treatment and distribution in the city of Cambridge, Massachusetts

1. The Cambridge water treatment facility next to Fresh Pond was built in 1922 when residents were mostly involved in farming activities. Treatment and pumping facilities were upgraded in 1932 and again in 1950. The building and a great deal of the equipment is in disrepair.

Today, this plant is grossly inadequate to handle the demands of more than 90,000 city residents, factory and other technological draws on its water supplies.

The Cambridge Water Treatment Facility must be upgraded or replaced.

2. The Cambridge Water System currently meets drinking water quality standards established by federal regulations except those for sodium and trihalomethanes. Salt comes from several sources including road salt applications near the Hobbs Brook reservoir and caustic soda which is added to the water to control corrosion in the distribution mains and service connections. Both of these conditions can be amended using upgraded technology.

Trihalomethanes are a group of organic chemicals which can occur in chlorinated water supplies as a result of the interaction of chlorine gas and naturally occuring humic acids in the water supply. THM's are a known long range carcinogen. THM levels are the highest in the Fall.

On 9/25/89, THM levels were tested privately to reveal a level of 144 ppb. The drinking water standard is 100 ppb. (chloroform was the highest of the organic chemicals at 114 ppb.)

Adequate filtration would lower THM levels. The rapid sand filters are near the end of their useful lives. About one/half of the 16 filters have been out of operation for over a year! Each filter can handle 1 1/2 million gallons per day. The average demand for water in the Cambridge system is 16 - 22 million gallons/day and growing .

Betterments Needed to Improve the Quality of Cambridge Water

(Consultants from Camp, Dresser, McGee were paid to empty one of the rapid sand filter beds and analyze how to repair it. This filter bed has been sitting empty for over a year. (Why can't treatment plant employees be responsible for repairing broken equipment instead of outside consultants?) Also, lack of adequate filtration affects the color of the water due to the water's high manganese and iron content . These metals stain toilet fixtures, affect the whiteness of laundry, and the shine of your hair. The EPA has not yet established safe levels for iron and manganese.

3. Water entering the treatment plant is treated with liquid alum, a coagulant. The alum binds to the suspended solids, forming a sludge called flock, which sinks to the bottom of the sedimentation basin and is then discharged into Fresh Pond. This flock has not been reclaimed in 30 years and will eventually be drawn back into the treatment system!

4. Chlorinating units used to attack bacteria in the water need a major overhaul. Pipes in this room are rusting and leaks have occurred in the ventilating system. The "Chloralert" system has been malfunctioning endangering the workers who must enter this space.

Above normal quantities of chlorine are being added to the water due to the fact that all the filtration beds are not in service. Chlorine use has recently been linked to adding to our environmental problems.

5. Daily testing of water quality. There has been no chemist in-house at the Cambridge water treatment facility since May,1989. Cambridge water fluctuates daily in its quality. The only water analysis that is done in-house is for coliform bacteria and heavy metals. There is no organic testing done. It is difficult for water treatment facility workers to respond to immediate health/ water quality concerns of individual Cambridge residents due to this lack of capability. This area needs immediate improvement.

6.The Cambridge city water distribution system can be accessed by private contractors without anyone from the water dept. being on hand to observe the connections. In addition, water department records for new hookups are poorly kept. Improper connections are being made on a daily basis and the water dept. cannot always rectifiy these errors.

Betterments Needed to Improve the Quality of Cambridge Water

Certified water dept. staff should be increased so that all multi-family or commercial water hook-ups planned by developers are under water dept. supervision. This procedure may necessitate a change in the Inspectional Services procedure for building permits. Also, water installation records must be updated.

7. Old water mains throughout the city must be replaced at a rate that is more commensurate with completion in our lifetime. More than 40 miles of unlined cast iron mains dating from 1900 or earlier are at high risk. If there was a fire in these areas, the danger would be in not enough water pressure because of plaque-like buildup in the piping. Right now, the plan is to replace about a mile a year of old mains.

8. The Payson Park Distribution Reservoir must be covered for the safety of all who will drink Cambridge water and to meet State regulations.

9. Can the city attract volunteer experts and students from Harvard and M.I.T. to help the city's water department mobilize for the 21st century and positively impact public health?

10. Clean, pure drinking water is a major public health issue. We need long range plann ng to upgrade or replace the existing water treatment plant and better maintenance routines now in our existing facility . We neec to reroute dead-end distribution pipes throughout the city for important water circulation. We need more people to be aware of the importance of water quality in averting potential health problems. And, we need Cambridge residents involvement in seeking to improve Cambridge city water.

1.

COMMITTEE REPORTS S-237

Report from the Committee on Environment for hearing held on February 21, 1990 relative to a proposal of Brandeis University/CNG Energy Company to erect a power plant in the Cambridge Watershed area at Stony Brook in Waltham, general issues surrounding the protection of the Watershed and a discussion on the issue of water quality.

In City Council,

March 12, 1990

3/12/90 Report Accepted

Order Adopted