

C. L. H. H. H. *Order # 5* *11/21/83*
RESOLUTION REGARDING ACID RAIN IN MASSACHUSETTS

WHEREAS acid precipitation in Massachusetts

- * is killing fish and other aquatic life in our lakes, ponds, and streams, and
- * is associated with rising levels of toxic metals in our drinking water, and
- * is damaging our Commonwealth's monuments and buildings, and
- * is suspected of killing forests, degrading soil quality, and damaging crops;

AND WHEREAS pollution sources within Massachusetts emit significant amounts of sulfur dioxide, and have been estimated to cause between 20% and 30% of the acid deposition within Massachusetts;

AND WHEREAS further increases in acid deposition will cause massive environmental damage to the sensitive water bodies of this Commonwealth;

AND WHEREAS the Governor, acting with and through the Executive Office of Environmental Affairs, has the authority to provide for the protection and reclamation of our natural resources, pursuant to Mass. General Laws, Chapter 6A, Sections 2-4 and Chapter 21A, Section 2, among other laws;

AND WHEREAS a comprehensive solution to the problem of acid rain requires prompt, effective Federal legislation;

NOW THEREFORE BE IT RESOLVED:

That

This City Council

hereby:

- * commends Governor Dukakis for his initiative in proposing national legislation to control acid precipitation, and
- * calls upon the Governor, acting with and through the Executive Office of Environmental Affairs and its Department of Environmental Quality Engineering, to impose a cap on the allowable amount of sulfur dioxide that may be emitted in Massachusetts and to set this limit at a level equal to the average of Massachusetts' 1981 and 1982 actual emissions;

AND BE IT FURTHER RESOLVED:

That

This City Council

hereby:

- * calls upon Senator Kennedy, Senator Tsongas, and Representative to make it a top priority to pass legislation to reduce sulfur dioxide emissions nationwide by 50% within ten years.

Speaker [Signature]

AV (7 members)

MASSPIRG

THE MASSACHUSETTS PUBLIC INTEREST RESEARCH GROUP

37 Temple Place Boston, MA 02111 (617) 423-1796

FACT SHEET ON ACID RAIN

Every year, between 24 and 27 pounds of airborne sulfur land on every acre of land and water in Massachusetts. The corrosive chemical arrives in the rain, snow, fog, and even on the wind.

Highly Acidic Rain

Our neighbors in New Hampshire have received rain almost one hundred times more acidic than unpolluted rain. (Unpolluted rain measures 5.6 on the pH scale, an index of acidity. A one-unit drop in pH means the rain has become 10 times more acidic; a two-unit drop means it has become 100 times more acidic, and so on. Rain in New Hampshire has been measured at pH 3.9.) Here in Massachusetts, our rain frequently drops as low as pH 4.1. Vinegar measures 3.4 on the pH scale; lemon juice measures 2.1.

Many Watersheds Cannot Neutralize Acid Rain

In some parts of the country, the chemical properties of the soil and of lakes, streams, and ponds can neutralize acid precipitation. However, many parts of Massachusetts are not so fortunate. Some 93 of our drinking water reservoirs, in areas throughout Massachusetts, are highly vulnerable to acidification. When acid is deposited on this kind of a vulnerable watershed, the water bodies will use up their ability to neutralize, and will then become as acidic as the rain that falls on them.

In one study involving 25% of Massachusetts lakes, streams, and ponds, 6% were completely acidified, meaning that the water bodies contained such low amounts of calcium carbonate that they had no ability to neutralize acid rain. Another 16% of the lakes were on the brink of acidification, with readings of 0-2 milligrams of calcium carbonate per liter of water. This study identified some lakes whose average pH had dropped from 6.0 to 4.5, and also obtained one-time measurements as low as pH 4.2.

Effects of Acid Deposition

The acid bath corrodes our quality of life in a number of ways, affecting cultural resources, coatings, fish, drinking water, soil quality, and potentially even forests and crops.

Materials Damage

Buildings, car finishes, house paint, and monuments all deteriorate more quickly under the acid deluge. Statues lose their faces; gravestones lose their names. Indeed, the Statue of Liberty has required extensive repairs due to acid rain corrosion. One Massachusetts volunteer reports

Western Massachusetts Office

233 N. Pleasant Street Amherst 01002 413-256-6434

a building whose stone columns crumbled faster in the 18 years since 1964 than in the previous 135 years.

Fish and Aquatic Life

As the pH of our lakes and streams dips below 5, fish begin to suffer. First, sensitive species become sterile. With increasing acidity, the small plants and animals that form the basis of the food chain disappear. Eventually fish either starve or become unable to maintain a proper ion balance in their bodies.

If the acidification process goes far enough, all the fish in a lake or stream, along with the creatures that support them, will completely disappear. This has already happened at more than half the high-altitude lakes in New York's Adirondack mountains. Once such acid-dead pond has already been identified in Massachusetts, and, as mentioned, many of our lakes and streams have little defense against rising acid levels. For example, our Quabbin reservoir has become acidified. As a result, its smelt catch has dropped 98% in two years, and its rainbow trout catch has dropped 47% in the same time period.

Drinking Water

Even more alarmingly, toxic metals such as aluminum, which ordinarily remain in the soil or drop to the bottom of lakes, are now chemically held in our drinking water. Acid drinking water also dissolves metals such as lead out of pipes and cisterns, with the result that the water that reaches us can have higher lead levels. One Massachusetts study has estimated that 87% of the water bodies in the state, including the Quabbin reservoir, have this so-called "aggressive" quality.

Suspected Damage To Soil

Acid deposition is often accompanied by deposition of heavy metals, such as lead. In some Vermont soils, researchers have found that lead, copper, and zinc have increased 50% over previously measured levels. If soil contamination is occurring as suspected, it can be irreversible. (Classics buffs will recall that when the Romans conquered Carthage, they decided the most permanent and fearful retribution they could inflict was to sow the Carthaginian fields with salt.)

Scientists also suspect that some aspect of acid deposition--whether heavy metal accumulation, toxic metals held in solution, removal of nutrients, or simply the sheer acidity of rain----kills the soil bacteria that cycle nutrients through soil and plants. Scientists have observed that dead plant matter in some Vermont forests does not decompose and return to the soil, but accumulates on the surface while the soil becomes depleted.

Suspected Impact On Plants

Scientists also suspect a connection between sulfur deposition and the stunting or killing of forests and crops. Forests in the Green and Adirondack Mountains--areas hard hit by sulfur deposition--have been ravaged. Research teams are scrutinizing sulfur dioxide (alone and with ozone), sulfuric acid solutions, high-aluminum solutions, and dry deposition of sulfur plus metals as likely explanations for forest and crop destruction. Many disturbing effects remain to be explained: reduced growth;

vulnerability to disease and pests, and damage to foliage including loss of their coatings and nutrients.

Costs of Acid Rain

The devastation caused by acid rain not only threatens our health and environment, but has also become costly and has the potential to become ruinous. Treating the Quabbin Reservoir's water for aggressivity costs us \$1.2 million per year, and other communities' treatment costs further swell this total. Protecting statues, restoring masonry and marble structures, repainting houses and cars, and replacing steel and copper roofs and buildings materials already costs the Commonwealth's property owners hundreds of thousands of dollars a year. Fishermen and fisherwomen are estimated to spend \$150,000,000 in Massachusetts on fishing-related equipment and activities. This spending could be drastically reduced if our fish resources were further damaged. A water treatment plant can cost as much as \$20 million to build and \$1.8 million per year to maintain. If as suspected, acid deposition harms forests and crops, the harm to agriculture, lumbering, and tourism could run into the millions each year. Indeed, one estimate has put the total suspected acid rain costs as high as \$2.5 billion per year for the Northeast region.

Where Does Acid Deposition Come From?

Though acid rain affects states in all regions of the U.S., the focus of the furor is the 31-state region formed by states east of the Mississippi or bordering the Mississippi. Some 22.5 million tons of sulfur dioxide pour into the atmosphere of the 31-state region each year, along with 15 million tons of nitrogen oxides. These oxides can mix with water in the air to form acid solutions, or they can be adsorbed onto dry particulates in the air. Whether as gases, liquids, or solids, the pollutants can be carried hundreds of miles on the wind before falling to earth as acid deposition. This is why the National Academy of Sciences has stated that sources in states to the west of us contribute to the acidity of the rain in the Northeast.

Despite frequent mention of Ohio as the source of New England's acid rain, there are actually many culprits. Sulfur dioxide emitters can be found in every state: power plants, factories, smelters, refineries, automobiles, large buildings heated by oil or coal, and even single-family homes. (In the 31-state region, utilities account for 16 million tons of the 22.5 million-ton total.) Sources in Ohio do emit more sulfur dioxide than in any other state, but Ohio's levels are almost matched by Indiana and Pennsylvania. Illinois, Michigan, West Virginia, Kentucky, Tennessee, New York, and Missouri also have high total sulfur emissions.

Massachusetts itself hosts significant sulfur emitters. These produce a statewide total of between 300,000 and 400,000 tons of sulfur dioxide per year. (This is about 13% of what sources in Ohio emit.) Fifteen states in the 31-state region emit less than Massachusetts; fifteen states emit more. The majority of Massachusetts' sulfur emissions come from electric power plants burning oil or coal.

There is a raging debate about how much of Massachusetts' sulfate deposition comes from our own emissions. No one knows how much of the pollution from any one state ends up in Massachusetts. Likewise, experts do not agree on how much

of our own emissions falls on our state, how much falls on other states, and how much blows out to sea. Estimates that Massachusetts causes between 20% to 30% of its own problem are not unreasonable.

What Can Massachusetts Do About Acid Rain?

Massachusetts' acid rain problem can never be solved completely until the U.S. Congress passes a national acid rain control bill. Some 70% of the sulfates dumped on Massachusetts come from out of state. Scientists estimate that national sulfur emissions must be cut by 10 to 12 million tons per year--about 50%-- to give our environment a fighting chance to recover. A strong and timely national bill is the most important step in dealing with acid rain. One of the strongest and most prominent acid rain bills presently before Congress, Representative Waxman's HR 3400, would not only require Midwest states to decrease their emissions, but would also require Massachusetts to reduce its emissions by about 100,000 tons of sulfur dioxide per year--about 30%.

A Limit On Massachusetts' Sulfur Emissions

Unfortunately, effective acid rain legislation may not make it through Congress this year, next year, or even the following year. Meanwhile, Massachusetts continues to pump out emissions contributing to the problem significantly. In fact, the Boston Edison Company is proposing to increase Massachusetts sulfur emissions about 30% by converting two power plants from oil to coal. This could mean an increase in Massachusetts' sulfate deposition by as much as 11% per year.

MASSPIRG believes our state must commit itself to capping sulfur emissions at their present level. The cap will deliver three important benefits to Massachusetts. First, it will ensure that we do not accelerate the destruction of our own watersheds. Second, if we cap our emissions, we will be in a better position to oppose destructive moves by other states. For example, if Pennsylvania were to propose to increase sulfur emissions from power plants, Massachusetts could oppose this more effectively if our state were committed to self-restraint.

Third, and most important, our willingness to limit our share of the problem will help pass national acid rain legislation. At present, Congress is struggling with the issue of who will pay for acid rain clean-up. Midwest states will not support legislation that throws the entire burden on them. Ohio, for example, points out that:

- * it has already reduced its sulfur emissions by about 20% since 1975;
- * most of the benefits of cleanup will go to Northeastern states;
- * all states, including Northeastern states, have been benefitting from Ohio's coal burning practices, since the savings from coal burning were reflected in interstate sales of lower-cost electricity and manufactured goods, and
- * the state is only now beginning to come out of a two-year depression. The hundreds of millions of dollars required for cleanup will simply

crush the state's economy if other states do not share the cost.

A cap on Massachusetts emissions will signal to our own Congresspeople that constituents are gravely concerned about acid rain; that they will take the first step to start solving the problem; and that they will support their legislators in negotiating with Midwestern legislators over cost sharing. The cap will show legislators from other states that Massachusetts is prepared to negotiate in good faith toward a national plan, and that Massachusetts will not raise its own emissions while trying to force other states to lower theirs.

A Call To Action From New York

New York state recently set an example for Massachusetts in the area of putting its own house in order. Like Massachusetts, New York generates as much as 30% of the sulfates deposited there. The state Department of Environmental Conservation decided in September that the Consolidated Edison Company could convert three power plants to coal only if the company held the sulfur emission rate essentially constant. The Department ordered scrubbers to be installed at a cost of \$1 billion to prevent a 1% increase in sulfate deposition on the Adirondack Mountains. Massachusetts should follow this strong lead.

wrote to

Roger Boothe Com. Dev.

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City of Cambridge

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IN CITY COUNCIL

November 21, 1983

COUNCILLOR DUEHAY

- WHEREAS: Acid precipitation in Massachusetts is killing fish and other aquatic life in our lakes, ponds, and streams and is associated with rising levels of toxic metals in our drinking water and is damaging our Commonwealth's monuments and buildings and is suspected of killing forests, degrading soil quality and damaging crops; and
- WHEREAS: Pollution sources within Massachusetts emit significant amounts of sulfur dioxide, and have been estimated to cause between twenty and thirty percent of the acid deposition within Massachusetts; and
- WHEREAS: Further increases in acid deposition will cause massive environmental damage to the sensitive water bodies of this Commonwealth; and
- WHEREAS: The Governor, acting with and through the Executive Office of Environmental Affairs, has the authority to provide for the protection and reclamation of our natural resources, pursuant to Mass. General Laws, Chapter 6A, Sections 2-4 and Chapter 21A, Section 2, among other laws; and
- WHEREAS: A comprehensive solution to the problem of acid rain requires prompt, effective Federal legislation; now therefore be it
- RESOLVED: That this City Council go on record commending Governor Dukakis for his initiative in proposing national legislation to control acid precipitation and calls upon the Governor, acting with and through the Executive Office of Environmental Affairs and its Department of Environmental Quality Engineering, to impose a cap on the allowable amount of sulfur dioxide that may be emitted in Massachusetts and to set this limit at a level equal to the average of Massachusetts' 1981 and 1982 actual emissions; and be it further
- RESOLVED: That this City Council hereby calls upon Senator Kennedy, Senator Tsongas and Speaker Thomas P. O'Neill, Jr., to make it a top priority to pass legislation to reduce sulfur dioxide emissions nationwide by fifty percent within ten years.

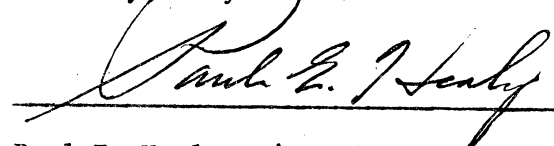
In City Council November 21, 1983.

Adopted by the affirmative vote of 7 members.

Attest:- Paul E. Healy, City Clerk.

A true copy;

ATTEST:-



Paul E. Healy, City Clerk.



CITY OF CAMBRIDGE

CITY HALL, CAMBRIDGE, MASSACHUSETTS 02139 • (617) 498-9017

OFFICE OF
THE CITY CLERK

November 9, 1983

Mr. Mark Izeman
Mass PIRG/Tufts University
237 Lewis Hall
Medford, MA 02155

Dear Mr. Izeman:

Please be advised that the City Council is in receipt of your recent communication requesting permission to address the membership on the subject of acid rain and to present a resolution on this matter to the Council for its consideration.

Pursuant to your communication, the City Council has scheduled a public hearing for Monday, November 14, 1983 at 6:30 p.m. to be held in the City Council Chamber, City Hall, 795 Massachusetts Avenue, Cambridge. Your presence is hereby requested at this time. If, however, you are unable to attend, would you please be so kind as to notify this office at your earliest convenience.

Your very kind attention in this matter will be greatly appreciated by the City Council.

Very truly yours,

Paul E. Healy, City Clerk.

PEH/mh

MassPIRG/
Tufts Campus
237 Lewis Hall
Medford, Ma.
02155

RECEIVED BY
OFFICE OF CITY CLERK
NOV 3 9 39 AM '83
CAMBRIDGE, MASS.

Mr. Paul Healy
City Manager
City Hall
Cambridge, Ma.

Dear Mr. Healy,

I am writing to inform you that myself and other students from Tufts, along with other community organizations will not be able to attend the hearing concerning an "acid rain" resolution that had been scheduled for October 31, 1983 at 7:00. Instead, I would be grateful if it could be postponed until later in November. If possible, we would like to present our resolution before the city council on November 14. I had informed the Deputy City Manager on October 28 of our postponement by telephone. I would appreciate if you could let me know when we could be rescheduled. Again, November 14 would be convenient, if possible.

Respectively,



Mark Izeman

5-636

Comm. from Mark Izeman, Tufts University, requesting that the City Council hearing on "acid rain" originally scheduled for October 31st, 1983 be re-scheduled to Monday, November 14th at which time he would like to present a resolution to the Council for its consideration.

11/21/83

- Hearing Held -
 Res. Ord. Adopted

Mr. Izeman notified of hearing
 11/9/83mb

In City Council,

November 7, 1983

11/7/83

Hearing Request
 Granted For
 Nov 24th, 1983 or 6³⁰/pm
 (14th)