REGIONAL ADMINISTRATOR'S

ANNUAL REPORT

ENVIRONMENTAL QUALITY

IN NEW ENGLAND

EXECUTIVE SUMMARY

AUGUST 1976

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 1

JOHN F. KENNEDY FEDERAL BUILDING · BOSTON, MA. 02203

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From the Regional Administrator:

This is the Environmental Protection Agency's second annual Report on Environmental Quality in New England. Like the first report, it discusses air quality, surface water quality, drinking water quality, and solid waste management in the six New England states--Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. There is also a new section on toxic substances.

Wherever possible, this report makes comparisons with the data contained in last year's edition. As was the case a year ago, there is both good news and bad. Again, the most significant accomplishment is the control of sulfur oxides in the atmosphere. There were no violations of the national ambient air quality standards for sulfur oxides anywhere in New England during 1975. Data from 188 monitoring stations attest to that fact. Unfortunately, we have not experienced the same success with pollutants produced in large part by the automobile. The eight-hour standard for carbon monoxide was violated at a majority of monitoring stations, and the photochemical oxidant standard continued to be violated at almost every monitoring station across the region.

With regard to surface water quality, there was a six percent improvement over last year in the number of main stem river and tributary miles meeting the fishable-swimmable water quality standard stipulated by the Federal Water Pollution Control Act. Fifty-one percent of New England's main stem river and tributary mileage is now suitable for fishing and swimming. This improvement is expected to accelerate in the immediate future as new pollution control facilities are completed and become operational, but achievement of the fishable-swimmable standard throughout New England by the target date of 1983 is in doubt.

Since the last report, there has been improvement in the lead concentrations, bacteriological quality, and chloride levels in drinking water supplies, but a new and serious issue has arisen from evidence that chlorination of water for disinfection may produce carcinogenic compounds.

In solid waste management, the percentage of New England's population served by waste disposal facilities which meet state requirements has risen from 30 to 41 percent. Although this improvement is gratifying, it is clear that a majority of New Englanders do not enjoy environmentally sound waste disposal in their communities.

The section on toxic substances reviews the region's monitoring program for polychlorinated biphenyls (PCB's). These compounds bio-accumulate in the human body, and can cause serious adverse health effects. The monitoring program found PCB's in river water and bottom sediments downstream from certain industries, in fish samples, and in sludge from a municipal wastewater treatment facility handling wastewater from an industrial user of polychlorinated biphenyls.

The report includes both federal data and data compiled by the official state environmental programs in the six states.

It is intended as a resource for all of those citizens who believe that protection of New England's environment is dependent upon their factual knowledge of its quality.

AIR QUALITY

Analysis of air monitoring data for calendar year 1975, like that for 1974, reveals a mixed picture for air quality in the New England states. Comparison of the data for the two years shows fewer violations of standards for some pollutants and more for others in 1975. The fact that air pollution levels are dependent on a number of factors, including meteorological conditions, makes it difficult to draw conclusions about trends from only two years' data.

EPA has established primary and secondary standards for ambient air quality. Primary standards are set to protect the public health, while the secondary standards are set to protect public welfare, which includes such items as prevention of corrosion and protection of vegetation.

Standards have been set as follows:

Pollutant	Primary Standard	Secondary Standard
Sulfur Oxides		
annual arithmetic mean	80 ug/m^3 (.03 ppm)	NA
maximum 24-hour concentration*	365 ug/m^3 (.14 ppm)	NA
maximum 3-hour concentration*	NA	1300 ug/m^3
Particulate Matter		
annual geometric mean	75 ug/m^3	60 ug/m^3
maximum 24-hour concentration*	260 ug/m^3	150 ug/m^3
Carbon Monoxide		
maximum 8-hour concentration*	10 mg/m^3 (9 ppm)	same as primary
maximum 1-hour concentration*	40 mg/m^3 (35 ppm)	same as primary
Photochemical Oxidants		
maximum 1-hour concentration*	160 ug/m^3 (.08 ppm)	same as primary
Nitrogen Oxides		
annual arithemetic mean	100 ug/m^3 (.05 ppm)	same as primary

Sulfur Oxides

The principal source of sulfur oxides in the air is emissions from fossil fuel combustion facilities, including power generating plants. In 1975, as in 1974, no violations of the sulfur dioxide standard were found in New England. This standard continues to be attained throughout New England.

*Not to be exceeded more than once a year.
ug/m^3 = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter

Particulate Matter

Particulate matter is produced by fossil fuel combustion, industrial processes, and uncontrolled dust from both natural and man-made sources. Figures 1 and 2 compare 1974 and 1975 data for the annual geometric mean and 24-hour average, respectively.

In 1975, the annual geometric mean standard was violated at at least one monitoring site in every state but Maine. The pattern for 1975 appears to be identical with that for 1974, with violations occurring at the same locations. The Connecticut and Vermont networks were expanded in 1975.

For the 24-hour primary standard, 1975 showed new violations at Bangor, Maine; and Worcester, MA (Narcus Store). Violations for 1974 at Springfield and Worcester (Washington Street), MA were repeated in 1975. Violations of the secondary standard occurred in every state in 1975, as in 1974.

Carbon Monoxide

Virtually all of the carbon monoxide in New England air comes from automobile emissions. This pollutant is localized in occurrence, and thus is usually found immediately adjacent to highways and street intersections with heavy volumes of slow-moving traffic.

In 1974, one site, East Boston, MA, violated the one-hour primary standard for carbon monoxide. That violation did not occur in 1975.

Figure 3 compares 1974 and 1975 data for stations violating the maximum eight-hour primary standard for carbon monoxide. As in 1974, violations were found in every state. Twenty-one of 31 sites were in violation in 1975, as compared with 22 of 25 in 1975. All sites showing violations in 1975 had also shown violations in 1974. There were, in some cases, significant decreases in the maximum second high value recorded. Burlington, VT dropped from 16.0 to 10.7 ug/m^3, and New Britain, CT from 27.6 to 17.4 ug/m^3. Generally, however, the monitoring data indicated a continuing carbon monoxide problem in the urbanized areas of New England.

Photochemical Oxidants

Photochemical oxidant pollution is probably the most serious and widespread air pollution problem in New England. Photochemical oxidants, or "smog," are not emitted directly, but are produced by a complex chemical reaction between hydrocarbons and oxides of nitrogen which takes place in the presence of intense sunlight. Hydrocarbons and oxides of nitrogen are emitted by automobiles and by stationary sources such as fossil fuel-fired generating plants and certain industrial processes. The requirement for high levels of sunlight essentially means that in New England, smog is a seasonal pollutant, generally occurring between May and October.

In 1974, every monitoring site in New England showed violations of the oxidant standard. In 1975, two stations, Berlin, NH and Portland, ME did not record oxidant violations. However, neither station was operating during the summer months when violations would be expected to occur. The magnitude and frequency of oxidant violations for 1974 and 1975 are shown in Figures 4 and 5.

The number of violations of the oxidant standard dropped significantly in Connecticut and Massachusetts between 1974 and 1975, but increased in Rhode Island, probably because the monitors were not in operation for much of the 1974 oxidant season. The number of violations dropped at each site in New Hampshire, but the maximum readings for 1975 remain virtually the same as those in 1974.

Nitrogen Oxides

Nitrogen oxides are a product of high temperature fuel combustion, as in automobile engines and fossil fuel-fired power generating stations. Violations of the annual primary standard were observed at only two of the 143 sites across New England where this pollutant is monitored--Boston and Springfield, Massachusetts. At these sites, the annual average was only two percent over the standard.

Where the Air is the Cleanest...

New England's air is generally cleanest in the rural areas, and more polluted in the heavily developed urban and suburban areas. The lowest readings for particulate matter were in Acadia National Park in Maine. Lowest carbon monoxide values were recorded at the Groton, Connecticut State Park, where the highest observed value was only 6.8 milligrams per cubic meter.

...And the Dirtiest

The highest 24-hour particulate readings in New England were recorded in Meriden, CT and Worcester, MA. Carbon monoxide levels were highest in New Britain, CT; Worcester, MA; and Providence, RI. In Providence, the carbon monoxide standard was violated 111 times in 1975.

Although violations of the oxidant standard were prevalent throughout New England, the highest levels continue to be found in Middletown, New Haven, and Bridgeport, CT. Concentrations exceeding the public health standard by a factor of three were found in Bridgeport. Oxidant standards were violated most frequently in Litchfield, CT (350 times in 1975).

SURFACE WATER QUALITY

For surface water, the Federal Water Pollution Control Act establishes a national goal of "...water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and provides for recreation in and on the water," to be achieved by July 1, 1983. The Act further requires that water quality standards adopted by each state be achieved by 1977 as an interim goal. Generally, the standards for New England rivers, lakes, and coastal areas provide for fishable-swimmable waters, except in heavily urbanized or industrialized areas.

State water quality standards vary according to the category of use for the surface waters involved. Class "A" waters are suitable for water supply without further treatment except simple disinfection. Class "B" waters are suitable for swimming and fishing, and Class "C" waters can be used for fishing, but not swimming. By these definitions, only Class "A" and Class "B" waters would meet the national goal described in the first paragraph.

In addition to use categories, water quality standards specify criteria which must be met to insure that uses are maintained. Numerical or narrative criteria for Class "B" waters, the minimum classification which will meet the 1983 goal, include bacteria (coliform) limits to protect the health of swimmers, dissolved oxygen levels high enough to assure the protection and propagation of fish and wildlife, and prohibitions on the presence of toxic substances. In addition, Class "B" waters must be low in turbidity, and free from excessive algae.

Current Water Quality Conditions

This report is based on water quality monitoring from Annual Water Quality Assessment, January through December 1975, prepared by Region I, U. S. Environmental Protection Agency, and on the information provided in the Water Quality Inventory Reports prepared by the six New England states. Since last year's report, the states and EPA have improved the capabilities of their water quality monitoring networks, increasing the number of stream miles assessed and the parameters analyzed. Thus, this year's data may not be directly comparable with last year's.

As of December 1975, 3,299 of a total of 6,427 miles of major river main stems and tributaries assessed are meeting Class "B" fishable-swimmable standards or better. Thus, 51 percent of the major stream miles assessed presently meet Class "B" standards. This represents a six percent improvement over the 45 percent reported last year (see Table 1). As indicated last year, most of New England's thousands of miles of smaller upland tributaries are now meeting Class "B" criteria, but these streams are not included in this assessment. For example, 93 percent of Connecticut's total stream miles meet Class "B" or better standards, while only 42 percent of the major streams meet the same standards. Vermont reports 97 percent for total miles versus 62 percent for major stream miles.

Therefore, approximately 49 percent of New England's major river miles do not presently meet fishable-swimmable standards. Dissolved oxygen levels and bacteria levels are the most frequently violated water quality criteria. Major municipal and industrial discharges with inadequate levels of treatment are largely responsible for these violations. In highly urban areas, run-off and overflows of combined sewage contribute to the problem.

Coliform violations occurred in most of the major rivers assessed. Although raw municipal discharges, urban run-off, and combined sewage overflows are the main causes of excessive coliform concentrations, non-point source run-off from silvacultural and agricultural practices are also implicated in coliform violations in rural areas.

Although millions of dollars worth of municipal wastewater treatment facilities are currently under construction and all major industrial dischargers have been issued National Pollutant Discharge Elimination System permits, the major rivers will continue to show the effects of pollutant discharges until the treatment plants are operational and the dischargers have attained effluent limitations prescribed by their permits. One major uncontrolled discharge can seriously degrade the downstream portions of the river. By the same token, control of one major discharge can result in restoration or substantial upgrading of an entire stream.

Specific examples of localized clean-up and subsequent water quality improvement are the Pemigewassett and Contoocook Rivers in New Hampshire; Lake Quinsigamond and the Deerfield River in Massachusetts; the Naugatuck and Willimantic Rivers in Connecticut; the Androscoggin River and Annabessacook Lake in Maine; the West River and Stevens Branch of the Winooski in Vermont; and the Blackstone and Seekonk Rivers in Rhode Island.

Table 2 contains a summary of water quality conditions in the six New England states. This table summarizes information from the states' 305(b) reports and 303(e) basin plans. Brief descriptions of major problems and recent progress in each state follow.

Connecticut

Connecticut reports that 42 percent of the major main stem miles assessed now meet fishable-swimmable standards. However, major water quality problems still occur in the Quinnipiac, Hockanum, Pequabuck, and Still Rivers, due mainly to industrial and municipal discharges and to urban run-off. Combined sewer overflows cause severe pollution problems in the Connecticut River downstream of Hartford, the Thames downstream of Norwich, and in the coastal waters around the major urban centers of New Haven and Bridgeport.

Although coliform violations are reported in all major streams, dissolved oxygen violations have been decreasing. In fact, Connecticut reports that 73 percent of the stream stations analyzed this year for water quality trends indicate significant improvements in dissolved oxygen. Of the eight water quality parameters (total dissolved solids, color, coliforms, turbidity, toxicity, dissolved oxygen, copper, and zinc) analyzed at eleven stations, only the coliform parameter did not indicate significant improvements in a majority of cases.

Water quality improvements were reported in the Naugatuck and Willimantic Rivers. Connecticut's biological sampling program indicates that for the first time in several decades, the Naugatuck River is now clean enough to support natural populations of fish and aquatic life. The Willimantic River is once again being stocked with trout after a ten year period during which the river had been too polluted to support any fish life.

Massachusetts

Only 26 percent of the major stream miles in Massachusetts are presently meeting Class "B" standards. Most urban rivers, including the Charles, Connecticut, Nashua, and Merrimack, report major coliform problems. Portions of the Merrimack and Connecticut Rivers still receive untreated wastes from large municipalities; and combined sewer overflows severely degrade water quality in the Charles, Connecticut, Merrimack and Nashua Rivers, and particularly in the Boston Harbor. The headwaters of the Blackstone River are impacted by municipal wastes and combined sewer overflows from Worcester, resulting in septic conditions downstream.

On the positive side, completion of municipal and industrial treatment facilities along the Deerfield River has resulted in the attainment of water quality standards over its entire length. Elimination of raw discharges and institution of non-point source controls have been credited with improving the quality of Lake Quinsigamond and preserving the area's recreational benefits.

Maine

Maine reports that 62 percent of the major streams assessed meet Class "B" standards. Most of the state's thousands of miles of smaller streams are of high quality. Specific problem areas are the Little Androscoggin River and portions of the Kennebec, Penobscot, and Saint John Rivers, where dissolved oxygen and coliform violations occur frequently. Significant industrial discharges, particularly from the pulp and paper industry, contribute to dissolved oxygen problems in the Penobscot, Kennebec, Saint Croix, Presumpscot, and Little Androscoggin Rivers.

Areas that have demonstrated water quality improvement are the Androscoggin River and Annabessacook Lake. As a result of industrial and municipal pollution clean-up programs, dissolved oxygen levels in the Androscoggin River have improved considerably. The elimination of several municipal discharges into Annabessacook Lake has significantly reduced algal bloom problems, reversed the eutrophic trend, and preserved the recreational potential of this lake.

New Hampshire

Of the major stream miles assessed in New Hampshire, 54 percent meet Class "B" standards or better. In the Merrimack River, untreated municipal wastes, combined sewer overflows, and industrial discharges seriously deplete oxygen levels and contribute to violations of coliform criteria. In the Nashua, these same problems upstream in the Massachusetts segment contribute to coliform violations downstream in New Hampshire.

The more rural Connecticut, Androscoggin, and Upper Ammonoosuc Rivers have severely depleted dissolved oxygen levels as a result of discharges from major paper mills in Groveton and Berlin.

Water quality has improved in the Pemigewasset and Contoocook Rivers. Over 55 miles of the Pemigewasset have been improved by industrial and municipal clean-ups, and now meet Class "B" standards. Pollution abatement efforts, specifically the application of industrial pollution controls, have been responsible for upgrading much of the Contoocook to Class "B."

Rhode Island

Sixty-four percent of main stem and major tributary miles in Rhode Island achieve at least Class "B" standards. However, high coliform levels still exist in the Pawcatuck, Blackstone, Pawtuxet, and Providence Rivers. Combined sewer overflows and urban run-off have serious adverse effects on water quality in the Providence area and the Blackstone River. Municipal and industrial discharges contribute to dissolved oxygen violations in the Pawtuxet and Pawcatuck Rivers, and natural conditions are believed to be responsible for the large number of pH violations reported throughout the state.

On the plus side, 92 percent of the Narragansett Bay acreage is classified as suitable for bathing, and municipal sewage treatment has resulted in improvement of portions of the Blackstone and Seekonk Rivers.

Vermont

Sixty-two percent of Vermont's major streams are now Class "B" or better. Assessing all stream miles including upland streams, 97 percent are Class "B" or better. Portions of Lake Champlain and Lake Memphremagog receive nutrient-rich loadings from municipalities and non-point sources, both of which contribute to localized algae problems. Natural conditions and non-point sources are responsible for pH and turbidity violations in these lakes, in the Winooski River, and in the tributaries to the Connecticut River.

Preservation of the pristine quality of the West River, an upland stream, by eliminating a direct discharge from a resort, and the clean-up of the Stevens Branch of the Winooski, are examples of water quality improvement in Vermont.

Lakes

Lakes are one of New England's greatest aesthetic, recreational, and economic assets. They contribute enormously to the quality of life for New Englanders, and provide diverse recreational opportunities for residents and tourists as well.

Thus we have a number of good reasons to be concerned about the preservation of our lakes. Lake ecology is very fragile, much more fragile than river ecology, because the water volume and rate of removal are relatively low. Thus, lakes do not have the self-cleansing capabilities of rivers, which are constantly restored as they flow to the seas.

One of the most stubborn problems of lake ecology is eutrophication, or advanced aging, often marked by algal blooms which give the lake a pea soup appearance. Decaying algae release gases that can cause unpleasant odors, and in some cases, can blacken paint. Clearly, this condition is not conducive to aesthetic or recreational use of a lake.

State water pollution control agencies estimate that of the significant lakes in their states, the following portions are showing signs of eutrophication: Maine, 1 percent; New Hampshire, 5 percent; Vermont, 24 percent; Massachusetts, 20 percent; Rhode Island, 18 percent; and Connecticut, 24 percent. A new program, the Section 314 Clean Lakes Program, was initiated this year with the goal of preserving and protecting these endangered lake areas.

DRINKING WATER

Nineteen hundred seventy-six marks the beginning of the most comprehensive program to improve this country's water supply since 1893. In that year, the Congress passed the Foreign and Interstate Quarantine Act, the basis upon which a succession of Public Health Service Drinking Water Standards were promulgated and applied to those water supplies which served interstate carriers. In 1974 the Public Health Service Act was amended by the Safe Drinking Water Act, thus making federal drinking water standards applicable to all of America's public water supplies. Many of these supplies had become interstate supplies as a result of the increased use of the automobile. The Act extends federal regulatory authority to cover all public water systems which provide piped water for human consumption, and have at least fifteen service connections or regularly serve 25 individuals. The implementation of the Act and enactment of appropriate state programs will ensure consistent quality and safety of public water supplies.

In 1976, fifty-four of the 56 U. S. states and territories agreed to enter into a joint federal-state program to apply modern drinking water standards throughout the country. Vermont was the first state in the nation to receive an EPA support grant under the provisions of the Act to help the state implement water supply programs designed to provide drinking water meeting the national standards, and to help the state prepare itself to accept primary enforcement authority. The other five New England states have also advised EPA that they will move to accept primary enforcement responsibility, and they have been awarded support grants to help them meet those responsibilities.

Eighty-three percent of New England is served by public water supplies. This percentage is comparable to a national average of 82 percent. The rest of the New England population, about two million people, use individual water supplies which are not regulated by the Safe Drinking Water Act.

No. of Supplies	Population Served
1,900	Less than 1,000
400	1,000 - 10,000
200	Over 10,000

There has been some progress in dealing with the water supply problems outlined in last year's report, and one new area of concern has emerged. There has been a reduction of lead content, an improvement in bacteriological quality, and a leveling off of the trend toward increasing levels of chlorides in drinking water supplies. The new issue concerns the formation of organic compounds such as chloroform in drinking water.

Bacteriological Quality

The 45 interstate carrier water supplies in New England have been under surveillance for many years, and they give some indication of the quality of drinking water in the larger New England cities. At the present time, there are two cities--Revere and Haverhill, MA--classified as "Use Prohibited." Revere is so classified because of a lack of adequate bacteriological monitoring. Revere did monitor for bacteriological quality for a few months in 1975, but is presently performing very little, if any, monitoring. Haverhill has had problems with bacteriological quality for several years, and a joint federal-state survey indicated a need for improved treatment facilities and operation. The city has engaged a consulting engineer to design a filter plant, and steps have been taken to improve operation of existing treatment facilities.

In addition, there are eleven water supplies classified "Provisionally Approved." Four were so classified because of high bacteria readings during one of the summer months of 1975. The other seven were downgraded for several reasons, but predominantly for insufficient treatment facilities. Improvements are underway at four of these supplies, and the other three are actively moving toward upgrading their facilities.

Table 3 summarizes the status of 43 of the interstate carrier water supplies.

In 1975, Vermont's public water supplies were used as indicators of bacteriological quality of drinking water in New England. There has been some improvement in the past year. Of 378 water systems under surveillance in May 1976, 216 took the required number of samples (using the Public Health Service drinking water standards requirements), and of these, 185 met the interim primary standards. In May 1976, there were still twelve permanent boil water notices in Vermont, but the number of temporary boil water orders had dropped from fourteen to four.

Giardiasis, an intestinal disorder caused by a parasite which survives simple chlorination, has not appeared in New England in epidemic proportions since 1974, but isolated cases are still being found. Research into the most effective method for removing the organism from drinking water is underway.

Lead

In 1974, EPA, in cooperation with Tufts New England Medical Center, completed a survey of water and blood lead levels in Boston, Somerville, and Cambridge, MA, communities known to use lead pipe to convey drinking water. In 25.5 percent of Boston households, 30.1 percent of Somerville households, and 14.5 percent of Cambridge households tested, water lead levels exceeded the EPA public health standard of fifty micrograms per liter.

These findings have significant public health implications, because the study also found that when water lead values exceeded 0.1 milligrams per liter, proportionate increases in blood lead levels of household members occur. Lead is a cumulative toxic substance which can produce irreversible damage to the brain and central nervous system.

In order to control the problem, Cambridge began treating its drinking water with sodium hydroxide, or caustic soda, to reduce the corrosivity of the water. The program appears to have been effective, because sampling conducted in 1975 showed that drinking water from eight of the ten homes had no detectable levels of lead, and water at the other two contained lead at a concentration of only 20 micrograms per liter, well below the standard.

The Metropolitan District Commission, which supplies drinking water to Boston and Somerville, began adding an anti-corrosion agent to the water supply in June 1976. EPA will monitor selected Boston homes for lead once per month during the coming year to determine the effectiveness of this treatment.

The Agency has also sampled drinking water in other New England cities known to use lead pipe, in order to pinpoint problem areas and make recommendations for reducing lead in drinking water supplies. A number of these cities are already taking action to minimize corrosion of lead pipe.

Chlorides and Sodium

Chlorides in drinking water pose a significant problem for residents of New England. During the late 1950's and early 1960's, the average concentration of chlorides in drinking water began to rise. Although the levels were generally well below the 250 parts per million guideline used by most states, the trend was not encouraging. However, in recent years the rise has begun to level off. This leveling off may be attributed in part to much more judicious use and storage of road salt, which is the main source of chlorides to New England water supplies. EPA is currently investigating alternative technologies for roadway snow and ice control.

Sodium is the other major component of road salt. Even when chloride levels fall below the public health standard, the levels of sodium associated with the chlorides may be hazardous to the increasing number of people on sodium-restricted diets. Also, many physicians believe that the restriction of sodium intake may be of general physiological benefit, so sodium levels in drinking water may be of concern to the general public and not just to those people on sodium-restricted diets.

EPA has requested that the National Academy of Sciences include information on the health effects of sodium in its December 1976 report to Congress. EPA has also recommended that the states institute regular monitoring for sodium, and design programs to inform physicians and consumers of the sodium concentrations in drinking water.

Organic Compounds

During 1975, EPA conducted a survey of the drinking water supplies in eighty selected cities throughout the country to detect the presence of six volatile organic compounds, including chloroform and carbon tetrachloride. Four New England supplies--Metropolitan District Commission (MA); Lawrence, MA; Waterbury, CT; and Newport, RI--were included in the survey. Chloroform, which is carcinogenic to rats and mice, was detected in every one of the eighty supplies. This compound is believed to form in drinking water when chlorine, used for disinfection, reacts with organic substances in the water. These organic substances may come from municipal or industrial discharges, or they may occur naturally.

A single sample from the Newport, RI water supply showed chloroform levels of 103 parts per billion, more than any of the other New England supplies tested. During the coming year, EPA will be working with Newport to reduce the chloroform levels in the city's water supply.

EPA has begun a follow-up to that initial study. This survey will include 112 cities, and will examine seasonal effects on water supplies. Ten New England cities will be included in this survey. They are New Haven, Waterbury, and Hartford, CT; Providence and Newport, RI; Springfield and Boston, MA; Manchester, NH; Burlington, CT; and Portland, ME.

The survey will cover twenty specific organic substances, and some additional tests will be made to establish a routine monitoring procedure for organics in drinking water.

During early 1976, EPA research laboratories examined methods for preventing the formation of chloroform and for removing chloroform and other organic substances from drinking water.

The Agency is also examining alternate forms of disinfection. One project in Vermont is evaluating the effectiveness of disinfection by ozone and ultraviolet light for small water supplies.

SOLID WASTE MANAGEMENT

Although significant progress has been made in solid waste management in New England, much remains to be done. In order to effectively manage this problem, it is important to consider the entire solid waste system--the generation of waste; handling of waste, including source separation and recycling; transportation; processing of waste, including energy recovery; and the disposal of residuals, such as stumps, tires, and demolition wastes, which cannot be processed.

All of the New England states are considering measures to reduce the quantity of solid waste generated through the enactment of so-called "bottle bills." All of the bottle bills proposed or enacted in the New England states are mandatory deposit bills, requiring retailers to pay from two to ten cents for every empty container of malt beverages and soft drinks. Retailers could then return empties to the distributor for a refund. The system would provide a strong incentive to return containers either for refilling or recycling, which would result in environmental benefits in terms of reduced litter, energy conservation, and conservation of raw materials.

Vermont has had a mandatory deposit law since 1972. The Massachusetts legislature failed to pass mandatory deposit legislation during the last session, and supporters are now trying to gather enough voter signatures to have the bill placed on the ballot in November. Maine will be voting on mandatory deposit legislation in November.

Although EPA favors the adoption of a national mandatory deposit law, the Vermont experience indicates that similar legislation at the state level is effective in achieving the aforementioned benefits.

In addition, EPA has proposed returnable beverage container guidelines for vendors at federal facilities. The guidelines would require purchasers of beverages to make a five-cent deposit on the containers.

Numerous source separation programs have been implemented at the local level to recover materials, primarily paper, from the waste stream prior to processing. Approximately 40 cities and towns in New England currently have municipal curbside collection of waste paper. EPA has recently awarded grants to both Marblehead and Somerville, MA of $77,564 and $121,698, respectively, to demonstrate the extent to which recyclable materials can be economically recovered from the waste stream. Participation is currently estimated to be about 30 percent in Marblehead and 10 percent in Somerville and increasing.

Each of the New England states has prepared a comprehensive solid waste management policy plan and strategy document. In two states, the plans have led to the passage of innovative legislation. Connecticut has created a Resource Recovery Authority, and Rhode Island, the Solid Waste Management Corporation. Both organizations have authority to plan, design, construct, finance, and operate resource recovery facilities.

In March 1976, the Connecticut Authority signed a contract with CEA-OXY Resource Recovery Associates, a joint venture of subsidiaries of Occidental Petroleum Corporation and Combustion Equipment Associates, to design, construct, and operate an energy recovery facility for the Greater Bridgeport area. This facility will become operational during 1978. Planning is progressing for a similar project to serve the Central/Capital (Hartford) region of Connecticut.

The Rhode Island Corporation initiated planning efforts during January 1976 with the employment of staff. Analysis to determine the feasibility of constructing energy recovery facilities to serve the state is underway.

Massachusetts promotes resource recovery by supporting planning for regional groups interested in working together to establish an energy recovery facility. Following a comprehensive review of proposals, the Commonwealth's Bureau of Solid Waste within the Office of Environmental Affairs recommended to the Northeast Solid WasteCommittee the selection of Universal Oil Products of Des Plaines, Illinois to desidn, construct, and operate an energy recovery facility to serve the needs of northeastern Massachusetts and southern New Hampshire. The Committee voted to accept the recommendation, and during February 1976, the Haverhill City Council agreed to hose the facility. Contract negotiations are now underway. The Commonwealth is or will be sponsoring similar projects in the West Suburban (Newton, Concord, Springfield, Worcester, and New Bedford, MA areas.

Resource recovery is also being actively pursued in the rural areas of New England. Small groups of municipalities in Vermont, Maine, and New Hampshire are investigating or have in operation small regional resource recovery centers. Communities in both Maine and New Hampshire are seriously investigating the feasibility of solid waste energy recovery systems with industrial establishments. Government and citizen interest are vigorous.

At present, only 41 percent of New England's population is served by solid waste disposal facilities which meet state requirements, and thus can be considered to be environmentally acceptable. There is a wide variation in terms of population served by acceptable facilities, ranging from 78 percent in New Hampshire, to one percent in Maine, as shown in Figure 6 . The overall percent compliance figure, however, represents an increase of eleven percent over the last year. This increase can be attributed to strengthened state efforts.

It is important to note that land disposal of residuals will remain a subject of great concern, even as resource recovery facilities becomes more widely available, because every solid waste management processing system produces residues which must be disposed of on land in an environmentally acceptable manner. In addition, large quantities of wastes which cannot be processed using presently available technology must be disposed of on land.

Finally, not nearly enough is known about hazardous wastes--those substances disposed on land, water, or air that are toxic to human beings or the environment. It has been estimated nationally that ten million tons of hazardous wastes are produced annually by industry. This amount does not include quantities generated by government, agriculture, hospitals, and laboratories. Each of the New England states is currently undertaking a statewide survey, financed in part through a grant from EPA, to identify potential problems. Recommendations will be forthcoming to solve these problems. Federal legislation has been proposed, and may be enacted shortly.

TOXIC SUBSTANCES

Every day we are confronted with mounting evidence of the prevalence and effects of toxic substances in the air we breathe, the water we drink, the food we eat, and throughout our ecosystem.

The fact that we find ourselves in a fire-fighting situation regarding toxic substances--trying to protect the public from a substance it has already been exposed to for years, without putting anyone out of work--is unfortunate but not surprising. There are approximately 30,000 chemicals commercially available in this country, with an additional 1,000 produced every year. And toxic substances control legislation, which would allow us to regulate these dangerous substances <u>before</u> they enter the environment, has been stalled in Congress for five years.

In order to direct public scrutiny to the problem of toxic substances, we are including in this year's report, and will continue to include as a regular feature in future reports, a section on toxic substances, focusing on one or more toxic or hazardous substances.

Perhaps the most widely monitored and studied substance, and certainly the substance which has generated the most controversy this year is polychlorinated biphenyls, or PCB's. PCB's are a group of chlorinated hydrocarbons closely resembling DDT. However, PCB's are even more persistent than DDT, and in addition are known to have serious human health effects. The health effects associated with PCB's include eye discharge, severe acne, abnormal skin pigmentation, gastro-intestinal lesions, enlarged livers, abnormalities of the lymphatic system, and reproductive failure. These health effects in animals were confirmed for human beings in 1968 in Japan, where more than 1,000 people suffered adverse health effects after using rice oil that had been contaminated with PCB.

PCB's have numerous industrial applications, including brake fluid, fire proofing, paint and ink solvents, textile coatings, epoxy glues and cements. Since 1971, Monsanto, the sole United States manufacturer, has supplied PCB's only for use in closed systems. PCB's are still used by the electrical power distribution industry in transformers and capacitors, because no other known substance has the same stability plus high resistance to heat and explosions.

However, the same stability that makes PCB's so valuable in industry also makes them extraordinarily persistent in the environment. PCB's have been found to bio-accumulate in bottom sediments, and also in some species of fish by a factor of up to 7500.

In December 1975, EPA Administrator Russell E. Train announced a comprehensive nationwide program to identify the sources of PCB's to the environment, and to eliminate or drastically reduce the adverse health effects associated with these sources. In New England, this program has been a three-pronged effort. First, letters requesting information on point source discharges of PCB's were sent to likely industrial users of PCB's. Through the 308 responses, sixteen New England companies were identified as PCB users--fifteen of which had not previously been known to be PCB users.

Six major users were identified. They are General Electric Company in Pittsfield, MA; Sprague Electric Company in North Adams, MA; Universal Manufacturing Company, Bridgeport, CT; Jard Company, Bennington, VT; and Aerovox Corporation and Cornell Dubilier, both of New Bedford, MA.

EPA studied each major user's method of handling the substances, from delivery to the plants, through the manufacturing process, and eventual disposal. Based on this information, EPA will provide technical assistance to companies to show them how to reduce their uses of PCB's and where PCB use is unavoidable, how to dispose of them in an environmentally acceptable fashion.

Monsanto has announced plans to phase out production of PCB's as soon as available substitutes can be developed. One potential substitute, polydimethylsiloxane, has been found by EPA to be far preferable to PCB's for use in transformers, from the environmental viewpoint. Dow Corning Corporation, the producer of the substance, had asked EPA for an evaluation of the environmental risk associated with polydimethylsiloxane as a substitute for PCB's in electrical transformers. EPA noted that about 340 million pounds of polydimethylsiloxane have been produced for various purposes, and that the Agency is unaware of any incidents of adverse health or ecological effects.

The second aspect of the PCB monitoring program involved sampling of industrial effluent, ambient water, bottom sediments, leachate from landfills, municipal incinerator emissions, sewage sludge, fish, and drinking water in the vicinities of the six major users.

The results of the monitoring program have been mixed. Analysis of striped bass taken off Newburyport, MA, showed that PCB's were present, but the values were well below the U.S. Food and Drug Administration standard (five parts per million) in the edible portions (skin and flesh). However, analysis of two composite fish samples taken from the Housatonic River below a known PCB discharge revealed PCB concentrations exceeding the standard by factors of three and seven.

Samples of both raw and finished drinking water were taken from wells and reservoirs in six New England cities --New Bedford, MA; North Adams, MA; Pittsfield, MA; Bridgeport, CT; Dartmouth, MA; and Lowell, MA. In all but one sample, PCB concentrations, if present, were below the detectable limit of 0.05 parts per billion. One sample of raw water showed a value of 0.1 parts per billion, but finished water from the same reservoir showed no detectable level of PCB. Drinking water results are available on Table 4 .

It is important to note that a standard for PCB in drinking water has not yet been established. The results of these and similar tests of drinking water supplies throughout the nation will help in determining the need for such a standard, and if a need is established, this sampling and analysis program will be useful in setting the standard.

Results of the industrial effluent analysis are available on Table 5 . The range of values in industrial sanitary and cooling water effluent was thirteen to 2,900 parts per billion. It is important to note that these values cannot be compared to the five parts per million standard, which is applicable only to food fish.

The highest reading in leachate from a sanitary landfill associated with a major PCB user was ten parts per billion. Landfill leachate monitoring is very important, because the major source of PCB's to the environment appears to be the disposal of reject capacitors. Leachate readings are available on Table 6 .

The highest readings were in river sediments, up to 139,000 parts per billion, and in sludge from sewage treatment plants, up to 64,000 parts per billion at the New Bedford sewage treatment plant. Because of this high reading, EPA intends to sample and analyze emissions from New Bedford's sludge incinerator.

The third aspect of the regional PCB program involves a thorough review of federal discharge permits. Where necessary and where sufficient technology exists, permits will be modified to reduce or eliminate PCB discharges to New England waterways.

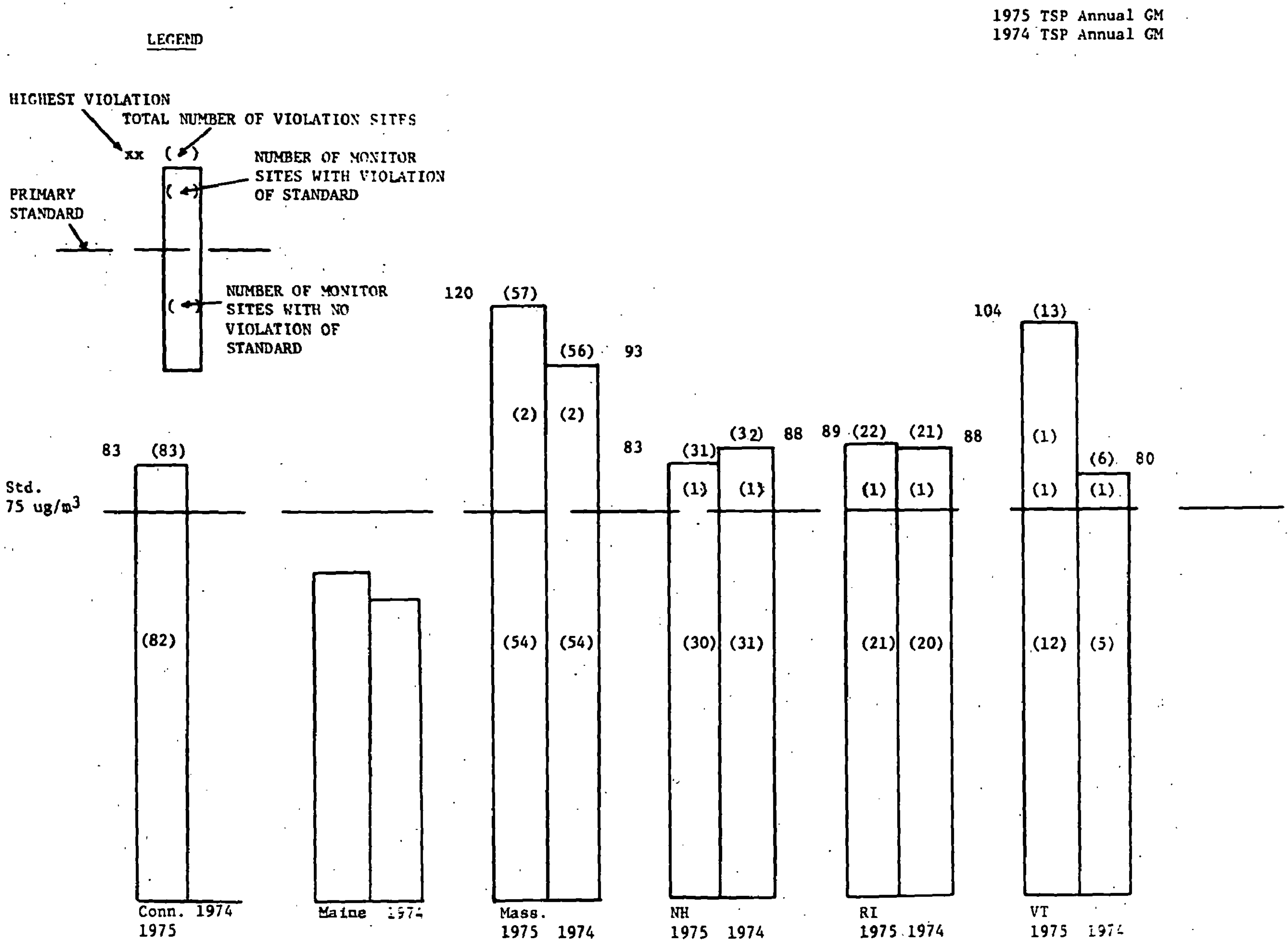

1975 TSP Annual GM
1974 TSP Annual GM
LEGEND
HIGHEST VIOLATION
TOTAL NUMBER OF VIOLATION SITES
xx ( )
NUMBER OF MONITOR SITES WITH VIOLATION OF STANDARD
PRIMARY STANDARD
NUMBER OF MONITOR SITES WITH NO VIOLATION OF STANDARD
Std. 75 ug/m3
83 (83)
(82)
Conn. 1974 1975
Maine 1974
120 (57)
(2) (2)
(56) 93
(54) (54)
Mass. 1975 1974
83 (31) (32) 88
(1) (1)
(30) (31)
NH 1975 1974
89 (22) (21) 88
(1) (1)
(21) (20)
RI 1975 1974
104 (13)
(1)
(6) 80
(1) (1)
(12) (5)
VT 1975 1974

FIGURE 1

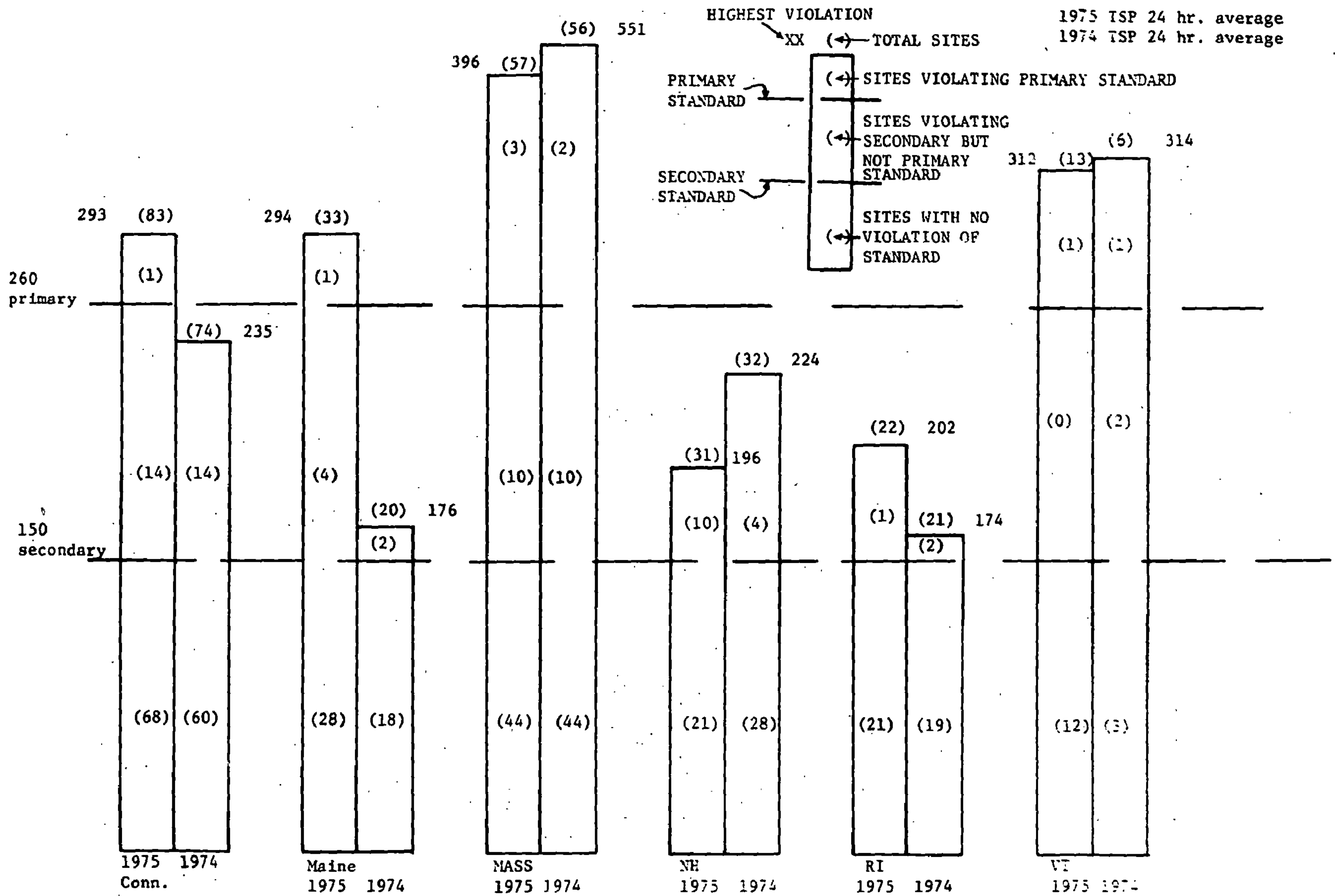

HIGHEST VIOLATION
XX ( ) TOTAL SITES
( ) SITES VIOLATING PRIMARY STANDARD
PRIMARY STANDARD
( ) SITES VIOLATING SECONDARY BUT NOT PRIMARY STANDARD
SECONDARY STANDARD
( ) SITES WITH NO VIOLATION OF STANDARD
1975 TSP 24 hr. average
1974 TSP 24 hr. average
260 primary
150 secondary
293 (83) (1) (14) (68)
(74) 235 (14) (60)
1975 1974 Conn.
294 (33) (1) (4) (28)
(20) 176 (2) (18)
Maine 1975 1974
396 (57) (3) (10) (44)
(56) 551 (2) (10) (44)
MASS 1975 1974
(31) 196 (10) (21)
(32) 224 (4) (28)
NH 1975 1974
(22) 202 (1) (21)
(21) 174 (2) (19)
RI 1975 1974
312 (13) (1) (0) (12)
(6) 314 (1) (2) (3)
VT 1975 1974

FIGURE 2

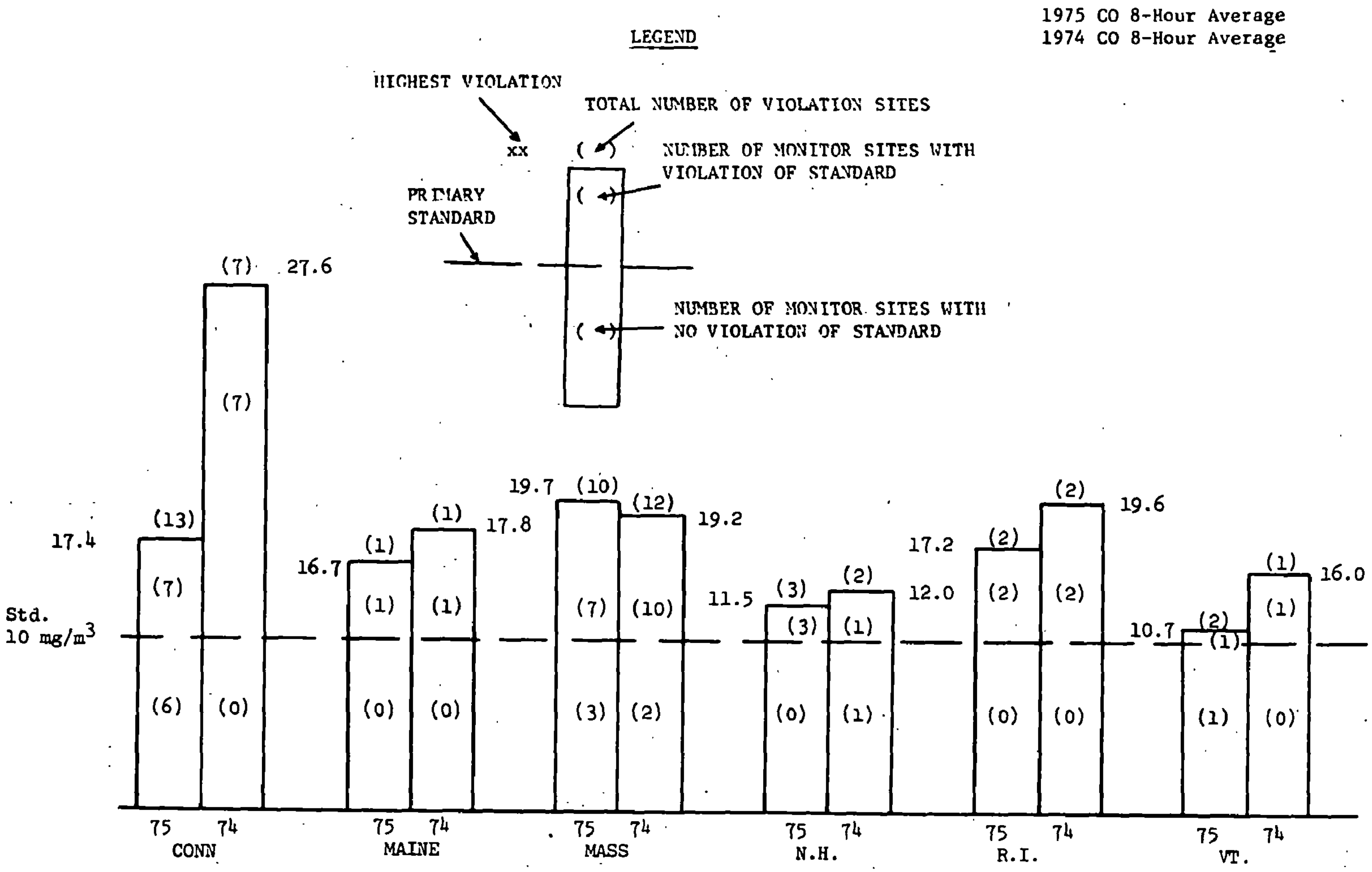

1975 CO 8-Hour Average
1974 CO 8-Hour Average
LEGEND
HIGHEST VIOLATION
xx
TOTAL NUMBER OF VIOLATION SITES
NUMBER OF MONITOR SITES WITH VIOLATION OF STANDARD
PRIMARY STANDARD
NUMBER OF MONITOR SITES WITH NO VIOLATION OF STANDARD
Std. 10 mg/m3
17.4 (13) (7) (6)
(7) 27.6 (7) (0)
16.7 (1) (1) (0)
(1) 17.8 (1) (0)
19.7 (10) (7) (3)
(12) 19.2 (10) (2)
11.5 (3) (3) (0)
(2) 12.0 (1) (1)
17.2 (2) (2) (0)
(2) 19.6 (2) (0)
10.7 (2) (1) (1)
(1) 16.0 (1) (0)
75 74
CONN
MAINE
MASS
N.H.
R.I.
VT.

FIGURE 3

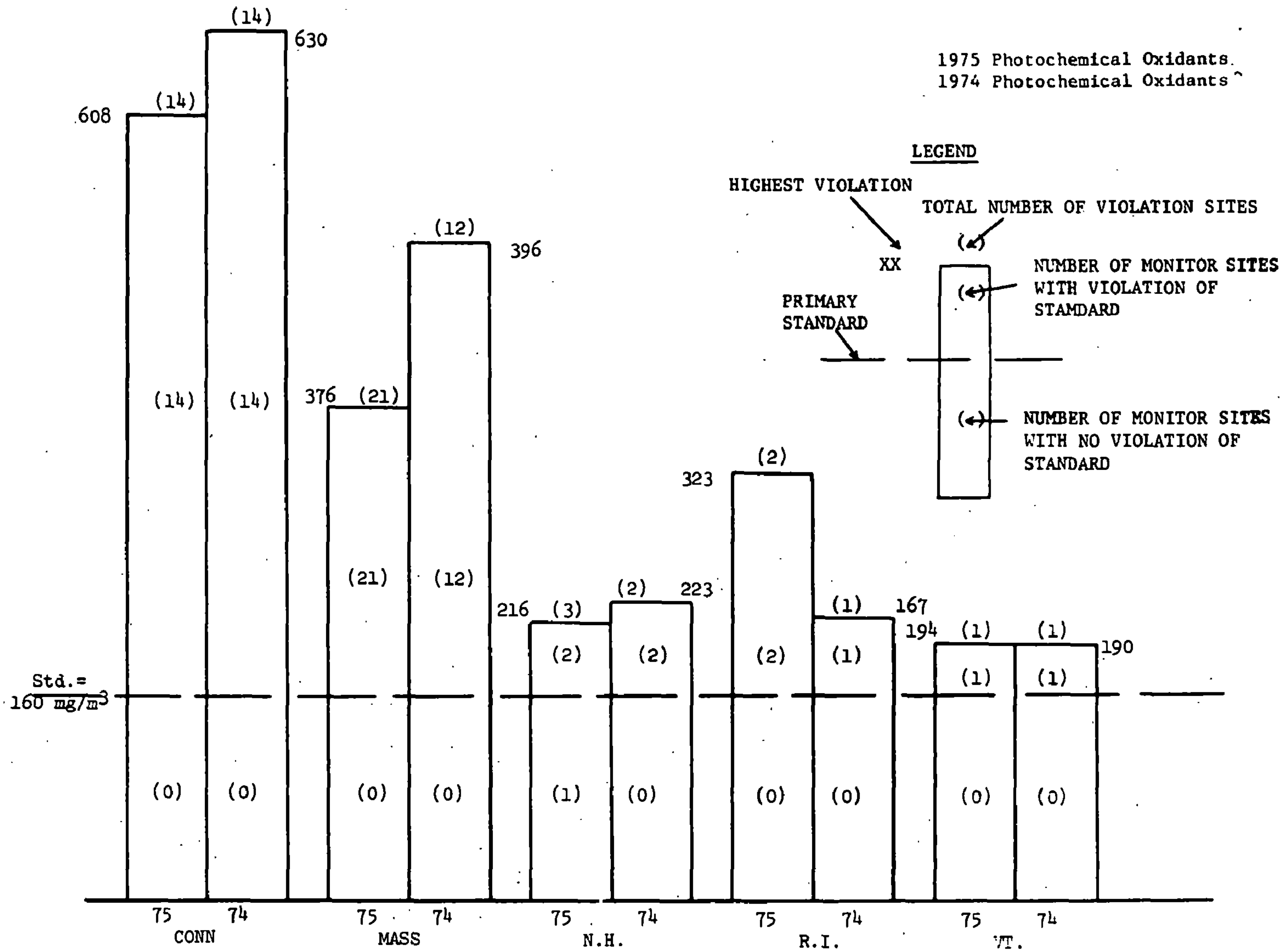

1975 Photochemical Oxidants
1974 Photochemical Oxidants
LEGEND
HIGHEST VIOLATION
TOTAL NUMBER OF VIOLATION SITES
XX
PRIMARY STANDARD
NUMBER OF MONITOR SITES WITH VIOLATION OF STANDARD
NUMBER OF MONITOR SITES WITH NO VIOLATION OF STANDARD
Std.= 160 mg/m3
608
630
376
396
216
223
323
167
194
190
75
74
CONN
MASS
N.H.
R.I.
VT.

FIGURE 4

Violation Frequency
Photochemical Oxidant Standard
1974 & 1975

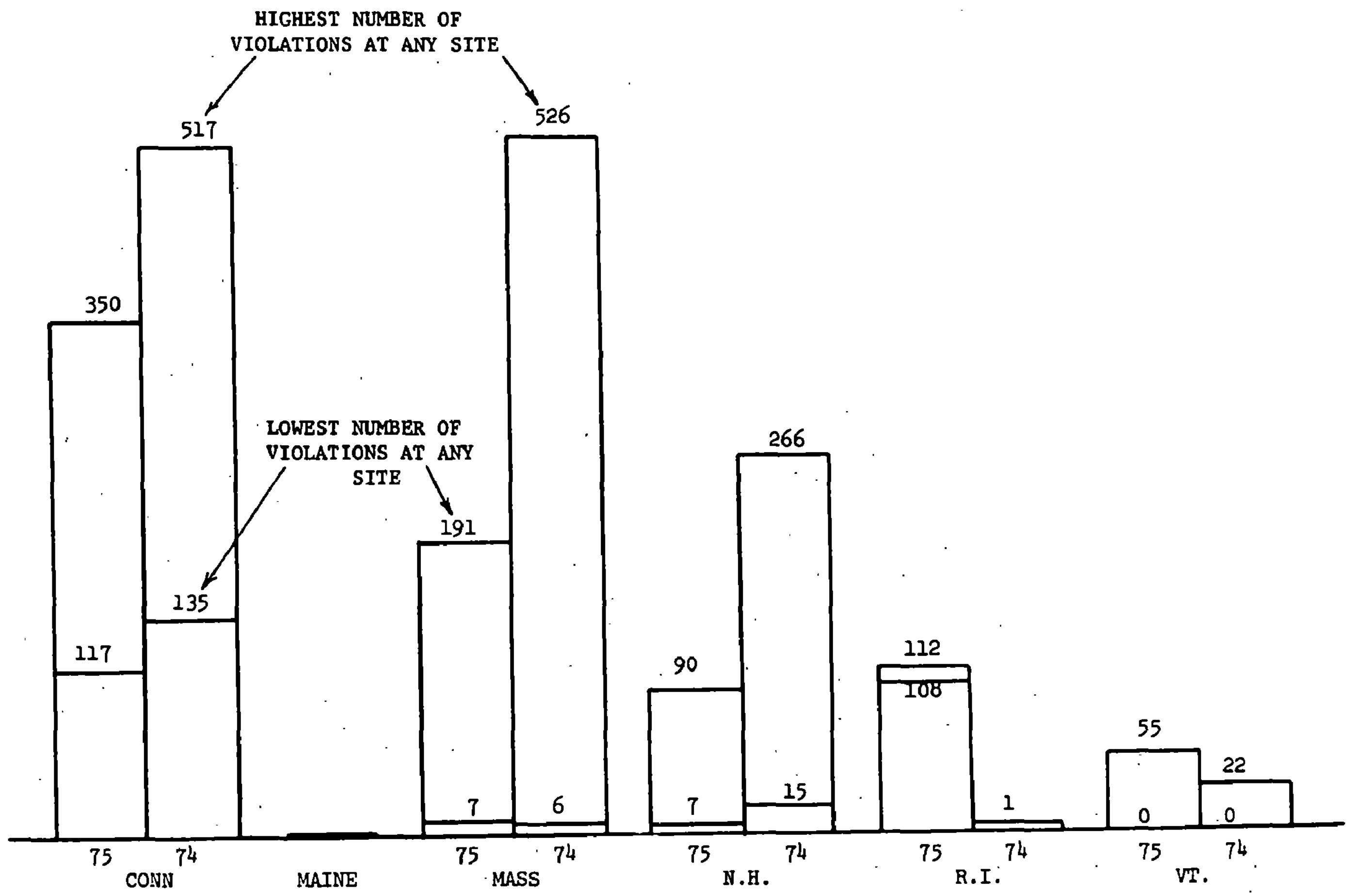


FIGURE 5

TABLE 1

Main Stem and Major Tributary River Mileage
Meeting Federal and State Standards

State	Major Water Areas (mainstems & major tributaries)				
	Miles Assessed	Now Meeting Class B (fishable/swimmable) Miles	%	Now Meeting State Water Quality Standards Miles	%
1. Connecticut	409	173	42%	173	42%
2. Maine	1907	1181	62%	1714	90%
3. Massachusetts	1399	357	26%	443	32%
4. New Hampshire	1280	691	54%	701	55%
5. Rhode Island	329	211	64%	302	92%
6. Vermont	1103	686	62%	708	64%
Total	6427	3299	51%	4041	63%

TABLE 2

SUMMARY OF WATER QUALITY

State of Massachusetts

Major Water Areas (including mainstem & major tributaries)	Total Miles Assessed	Miles now meeting Class B (fishable/ swimmable) standards or better	Miles expected to be Class B or better by 1983	Miles now meeting State water quality standards	Miles not meeting State water quality standards	*Water quality problems	Source of water quality problems M=Municipal I=Industrial CS-Combined Sewers NPS-Nonpoint Source
Blackstone	107	31	65	36	71	1,3,5,6	M,I,CS
Boston Harbor Streams	44	0	20	7	37	1,3,4,5,6	M,I,CS,NPS
Charles	81	0	25	2	80	3,5,6	M,I,NPS
Chicopee	112	44	85	67	45	1,2,3,5,6	M,I,CS
Connecticut	68	0	55	0	68	2,3,5,6	M,I,CS
Deerfield	70	34	70	70	0	2,6	M,NPS
Farmington	19	19	19	19	0	-	-
French & Quinebaug	57	19	40	20	37	3,5,6	M,I
Hoosic	43	17	40	20	23	2,5,6	M,I,NPS
Housatonic	96	26	75	31	65	1,3,5,6	M,I,NPS

* Water quality problems 1. Harmful Substances; 2. Physical Modification (Suspended Solids, Temp., etc.); 3. Eutrophication potential; 4. Salinity, acidity, alkalinity; 5. Oxygen depletion; 6. Health Hazards-(coliform)

TABLE 2

SUMMARY OF WATER QUALITY

State of Connecticut

Major Water Areas (including mainstem & major tributaries)	Total Miles Assessed	Miles now meeting Class B (fishable/ swimmable) standards or better	Miles expected to be Class B or better by 1983	Miles now meeting State water quality standards	Miles not meeting State water quality standards	*Water quality problems	Source of water quality problems M=Municipal I=Industrial CS-Combined Sewers NPS-Nonpoint Source
Connecticut	69	23	69	23	46	3,6	CS,NPS
Farmington	54	31	54	31	23	6	M
French	6	0	6	0	6	1,2,3,5,6	M, I
Hockanum	17	2	17	2	15	1,2,3,5,6	M,I,NPS
Housatonic	80	80	80	80	0	3,6(periodic)	NPS,CS,M,I
Naugatuck	35	20	35	20	15	1,3,4,5,6	M,I,CS,NPS
Pawcatuck	11	0	11	0	11	1,2,3,5,6	M,I,NPS
Pequabuck	15	3	15	3	12	3,5,6	M,I
Quinebaug	42	0	42	0	42	3,5,6	M,I
Shetucket	18	7	18	7	11	2,6	M
Thames	17	0	17	0	17	2,3,5,6	M,I,CS
Yantic	11	0	11	0	11	3,5,6	CS,M
Quinnipiac	34	7	34	7	27	2,3,5,6	M,CS,I
Totals	409	173 (42%)	409 (100%)	173 (42%)	236 (58%)		

* Water quality problems 1. Harmful Substances; 2. Physical Modification (Suspended Solids, Temp., etc.); 3. Eutrophication potential; 4. Salinity, acidity, alkalinity; 5. Oxygen depletion; 6. Health Hazards-(coliform)

TABLE 2

SUMMARY OF WATER QUALITY

State of Maine

Major Water Areas (including mainstem & major tributaries)	Total Miles Assessed	Miles now meeting Class B (fishable/ swimmable) standards or better	Miles expected to be Class B or better by 1983	Miles now meeting State water quality standards	Miles not meeting State water quality standards	*Water quality problems	Source of water quality problems M=Municipal I=Industrial CS-Combined Sewers NPS-Nonpoint Source
Penobscot	379	180	364	364	15	4, 5, 6	M, I
Kennebec	325	152	263	263	62	4, 5	M, NPS
Androscoggin	320	150	314	314	6	1, 2, 5, 6	M, I
St. John	351	269	279	260	91	2, 5, 6	M, I, NPS
Salmon Falls-Piscataqua	157	120	157	157	0	5, 6	M
Saco	230	212	228	228	2	1, 5, 6	M,I
St. Croix	87	77	77	77	10	5, 6	I
Presumpscot	58	21	58	51	7	5, 6	M,I
Totals	1907	1181 (62%)	1740 (91%)	1714 (90%)	193 (10%)		

* Water quality problems 1. Harmful Substances; 2. Physical Modification (Suspended Solids, Temp., etc.); 3. Eutrophication potential; 4. Salinity, acidity, alkalinity; 5. Oxygen depletion; 6. Health Hazards-(coliform)

TABLE 2

SUMMARY OF WATER QUALITY

State of Rhode Island

Major Water Areas (including mainstem & major tributaries)	Total Miles Assessed	Miles now meeting Class B (fishable/ swimmable) standards or better	Miles expected to be Class B or better by 1983	Miles now meeting State water quality standards	Miles not meeting State water quality standards	*Water quality problems	Source of water quality problems M=Municipal I=Industrial CS-Combined Sewers NPS-Nonpoint Source
Blackstone	89	48	54	76	13	5,6	M,I
Moosup	25	25	25	25	0	-	-
Moshassuck	17	8	10	14	3	5,6	M,CS,NPS
Narragansett Bay	117,764Ac	107,959Ac	112,832Ac	107,959	9,805Ac	6	M,I,CS
Pawcatuck	115	94	102	111	4	5,6	M,I
Pawtuxet	60	28	30	56	4	5,6	M,I
Woonasquatucket	23	8	13	20	3	5,6	M,CS,NPS
Totals	329	211 (64%)	234 (71%)	302 (92%)	27 (8%)		

* Water quality problems 1. Harmful Substances; 2. Physical Modification (Suspended Solids, Temp., etc.); 3. Eutrophication potential; 4. Salinity, acidity, alkalinity; 5. Oxygen depletion; 6. Health Hazards-(coliform)

TABLE 2

SUMMARY OF WATER QUALITY

State of Massachusetts

Major Water Areas (including mainstem & major tributaries)	Total Miles Assessed	Miles now meeting Class B (fishable/swimmable) standards or better	Miles expected to be Class B or better by 1983	Miles now meeting State water quality standards	Miles not meeting State water quality standards	*Water quality problems	Source of water quality problems M=Municipal I=Industrial CS-Combined Sewers NPS-Nonpoint Source
Merrimack	50	0	30	0	50	2,3,5,6	M,I,CS
Millers	58	7	40	7	51	2,3,5,6	M,I
Nashua	103	5	55	5	98	2,3,5,6	M,I,CS,NPS
North River	53	0	40	12	42	3,5,6	M,NPS
SuAsCo*	86	0	45	0	86	3,5,6	M,NPS
Taunton	134	18	70	35	99	1,3,5,6	M,I,CS,NPS
Ten Mile	38	4	25	4	34	1,3,5,6	M,I
Westfield	114	69	95	73	41	2,5,6	M,I
Totals %	1399	357 26%	960 69%	472 34%	928 66%		
*Sudbury, Assabet, Concord							

* Water quality problems 1. Harmful Substances; 2. Physical Modification (Suspended Solids, Temp., etc.); 3. Eutrophication potential; 4. Salinity, acidity, alkalinity; 5. Oxygen depletion; 6. Health Hazards-(coliform)

TABLE 2

SUMMARY OF WATER QUALITY
State of New Hampshire

Major Water Areas (including mainstem & major tributaries)	Total Miles Assessed	Miles now meeting Class B (fishable/ swimmable) standards or better	Miles expected to be Class B or better by 1983	Miles now meeting State water quality standards	Miles not meeting State water quality standards	*Water quality problems	Source of water quality problems M=Municipal I=Industrial CS-Combined Sewers NPS-Nonpoint Source
Androscoggin	98	75	82	75	23	2,5,6	M,I,CS
Merrimack	448	287	419	297	151	2,5,6	M,I,CS
Connecticut	457	150	440	150	307	2,5,6	M,I
Piscataqua & Coastal	183	85	183	85	98	2,5,6	M,I
Saco	94	94	94	94	0	2,5,6	-
Totals	1280	691 (54%)	1222 (95%)	701 (55%)	579 (45%)		

* Water quality problems 1. Harmful Substances; 2. Physical Modification (Suspended Solids, Temp., etc.); 3. Eutrophication potential; 4. Salinity, acidity, alkalinity; 5. Oxygen depletion; 6. Health Hazards-(coliform)

TABLE 2

SUMMARY OF WATER QUALITY

State of Vermont

Major Water Areas (including mainstem & major tributaries)	Total Miles Assessed	Miles now meeting Class B (fishable/ swimmable) standards or better	Miles expected to be Class B or better by 1983	Miles now meeting State water quality standards	Miles not meeting State water quality standards	*Water quality problems	Source of water quality problems M=Municipal I=Industrial CS-Combined Sewers NPS-Nonpoint Source
Battenkill-Hoosic	46	25	43	27	19	1,2,5,6	M,I
Poultney	44	36	40	38	6	2,6	M
Otter Creek	83	70	76	77	6	2,5,6	M
Lake Champlain	25	19	20	23	2	2,3,5,6	I,M
Missisquoi	88	61	82	20	67	2,3,6	M,I
Lamoille	90	21	69	14	70	3,5,6	M,NPS
Winooski	115	72	95	85	30	2,3,5,6	M,I
White	69	54	59	59	10	6,2	M,I
Ottauquechee	65	19	38	37	28	1,2,6	M,I
West, Williams, Saxton	76	71	74	74	2	2,6	M
Deerfield	34	24	34	16	18	2,3,6	M

* Water quality problems 1. Harmful Substances; 2. Physical Modification (Suspended Solids, Temp., etc.); 3. Eutrophication potential; 4. Salinity, acidity, alkalinity; 5. Oxygen depletion; 6. Health Hazards-(coliform)

TABLE 2

SUMMARY OF WATER QUALITY
State of Vermont

Major Water Areas (including mainstem & major tributaries)	Total Miles Assessed	Miles now meeting Class B (fishable/swimmable) standards or better	Miles expected to be Class B or better by 1983	Miles now meeting State water quality standards	Miles not meeting State water quality standards	*Water quality problems	Source of water quality problems M=Municipal I=Industrial CS-Combined Sewers NPS-Nonpoint Source
Connecticut	238	153	170	172	66	1,2,3,5,6	I,M
Stevens, Wells	16	6	12	6	10	1,2,4,6	M,I,NPS
Passumpsic	47	20	28	25	22	6	M,I
Lake Memphremagog Black, Barton, Clyde	67	35	61	35	32	2,3,6	M
Totals	1103	686 (62%)	901 (82%)	715 (65%)	388 (35%)		

* Water quality problems 1. Harmful Substances; 2. Physical Modification (Suspended Solids, Temp., etc.); 3. Eutrophication potential; 4. Salinity, acidity, alkalinity; 5. Oxygen depletion; 6. Health Hazards-(coliform)

TABLE 3

INVENTORY OF INTERSTATE CARRIER WATER SUPPLIES

Report Date 06/17/76

CONNECTICUT

REGION I BOSTON

CITY OR NAME OF PRIVATE SUPPLY	POPULATION SERVED	STATUS & REASONS (OTHER THAN APPR)	DATE PROV. APPR CLASS. EXPIRES	DATE LATEST STATE SURVEY	DATE LATEST JOINT SURVEY	DATE LAST BACT EXAM
BRIDGEPORT HYDRAULIC COMPANY	340287			12/00/74	17/05/72	09/75
DANBURY	35000			12/00/74	09/27/72	09/75
GROTON WATER DEPT	31420			12/00/75	06/22/72	09/75
HARTFORD (MET. DISTR. COMM. OF HARTFORD)	393000			04/00/75	05/24/76	08/75
NEW HAVEN WATER CO.	371135			06/00/75	11/20/72	09/75
NEW LONDON WATER DEPT.	38902			05/00/75	06/07/72	09/75
STAMFORD WATER CO.	100925			12/00/74	11/01/72	09/75
WATERBURY WATER DEPT.	126000			10/00/74	06/27/72	09/75
WINDSOR LOCKS (BRADLEY INT'L. AIRPORT)	3000			08/00/75	08/22/72	09/75

STATE SUMMARY

TOTAL SUPPLIES	9
TOTAL APPROVED	9
TOTAL PROV APPR	0
TOTAL POPULATION	1439669

INVENTORY OF INTERSTATE CARRIER WATER SUPPLIES

REPORT DATE 06/17/76

MAINE

CITY OR NAME OF PRIVATE SUPPLY	POPULATION SERVED	STATUS & REASONS (OTHER THAN APPR)	PROV. APPR CLASS EXPIRES	DATE LATEST STATE SURVEY	DATE LATEST JOINT SURVEY	DATE LAST BACT. EXAM.
BANGOR WATER DISTRICT	45,000			07/10/74	07/10/74	12/75
BAR HARBOR WATER COMPANY	5,200	Prov. Q	08/31/76	02/18/76	10/11/72	12/75
BUCKSPORT WATER COMPANY	2,400	Prov. Q	08/31/76	08/29/74	01/10/73	12/75
PORTLAND WATER DISTRICT	135,000			06/19/75	06/19/75	12/75
SEARSPORT WATER DISTRICT	3,100			07/17/75	07/08/74	12/75
WISCASSET WATER COMPANY	1,200	Prov.Q	08/31/76	03/25/76	12/02/69	12/75

STATE SUMMARY

TOTAL SUPPLIES	6
TOTAL APPROVED	3
TOTAL PROV APPR	3
TOTAL POPULATION	191,900

NEW HAMPSHIRE

CITY OR NAME OF PRIVATE SUPPLY	POPULATION SERVED	STATUS & REASONS (OTHER THAN APPR)	PROV. APPR CLASS EXPIRES	DATE LATEST STATE SURVEY	DATE LATEST JOINT SURVEY	DATE LAST BACT. EXAM.
MANCHESTER WATER WORKS	100,000			01/27/75	05/29/74	12/75
PORTSMOUTH WATER WORKS	40,000			02/04/75	02/19/68	12/75

STATE SUMMARY

TOTAL SUPPLIES	2
TOTAL APPROVED	2
TOTAL PROV APPR	0
TOTAL POPULATION	140,000

INVENTORY OF INTERSTATE CARRIER WATER SUPPLIES

REPORT DATE 06/17/76

MASSACHUSETTS — REGION I BOSTON

CITY OR NAME OF PRIVATE SUPPLY	POPULATION SERVED	STATUS & REASONS (OTHER THAN APPR)	DATE PROV. APPR CLASS EXPIRES	DATE LATEST STATE SURVEY	DATE LATEST JOINT SURVEY	DATE LAST BACT. EXAM.
BOSTON	641071				04/30/75	12/75
CHELSEA	30625				03/24/75	12/75
EVERETT	42458				04/09/65	12/75
FALL RIVER WATER WORKS	100000	PROV F	12/31/75	01/04/73	02/24/73	12/75
FALMOUTH WATER DEPT.	15942			11/03/72	09/19/68	12/75
NEW BEDFORD	101777	PROV F	12/31/76	07/07/72	05/02/69	12/75
QUINCY	87966			05/31/73	05/31/73	12/75
SALEM-BEVERLY WATER SUPPLY BOARD	78904				11/25/74	12/75
SOMERSET	18008			04/04/74	04/04/74	12/75
SPRINGFIELD	217000			02/14/73	01/02/75	12/75
TEMPLETON WATER DEPARTMENT	5000			02/14/73	10/07/71	12/75
TISBURY	2257			08/22/72	08/25/75	12/75
WEYMOUTH	54610			10/06/72	12/10/68	12/75
WORCESTER	176572	PROV F	08/31/76	05/10/74	05/10/74	12/75

STATE SUMMARY

TOTAL SUPPLIES	14
TOTAL APPROVED	11
TOTAL PROV APPR	3
TOTAL POPULATION	1,572,190

INVENTORY OF INTERSTATE CARRIER WATER SUPPLIES

REPORT DATE 06/17/76

RHODE ISLAND

REGION I BOSTON

CITY OR NAME OF PRIVATE SUPPLY	POPULATION SERVED	STATUS & REASONS (OTHER THAN APPR	DATE PROV. APPR CLASS EXPIRES	DATE LATEST STATE SURVEY	DATE LATEST JOINT SURVEY	DATE LAST BACT EXAM
BRISTOL COUNTY WATER COMPANY	46300			01/08/74	00/00/00	09/7.
EAST PROVIDENCE	49975			10/16/74	10/15/65	09/7.
NEWPORT	62000			07/15/74	07/15/74	09/7.
NORTH TIVERTOWN (NORTH TIVERTOWN FIRE DISTRICT)	7635	PROV Q	03/31/76	10/07/74	12/19/73	09/7.
PROVIDENCE	280100			03/17/76	03/17/76	09/7!
WAKEFIELD WATER COMPANY	11240			03/13/74	06/18/74	09/7:
CITY OF WARWICK	79000			10/21/74		09/7!

STATE SURVEY

TOTAL SUPPLIES	7
TOTAL APPROVED	6
TOTAL PROV APPR	1
TOTAL POPULATION	536250

INVENTORY OF INTERSTATE CARRIER WATER SUPPLIES

REPORT DATE 06/17/76

VERMONT REGION I BOSTON

CITY OR NAME OF PRIVATE SUPPLY	POPULATION SERVED	STATUS & REASONS (OTHER THAN APPR)	PROV. APPR CLASS. EXPIRES	DATE LATEST STATE SURVEY	DATE LATEST JOINT SURVEY
BURLINGTON WATER DEPARTMENT	41000	Prov. F	12/31/76	03/11/75	05/22/74
RUTLAND WATER DEPT.	19000	Prov. Q, F	12/31/76	06/14/76	06/14/76
SOUTH BURLINGTON WATER DEPARTMENT	9200	Prov. Q, B	12/31/76	05/22/74	05/22/74
WHITE RIVER JUNCTION (HARTFORD WATER DEPARTMENT)	5000	Prov. Q, B, F	12/31/76	11/21/74	09/22/75

STATE SUMMARY

TOTAL SUPPLIES	4
TOTAL APPROVED	-
TOTAL PROV APPR	4
TOTAL POPULATION	74200

REGION SUMMARY

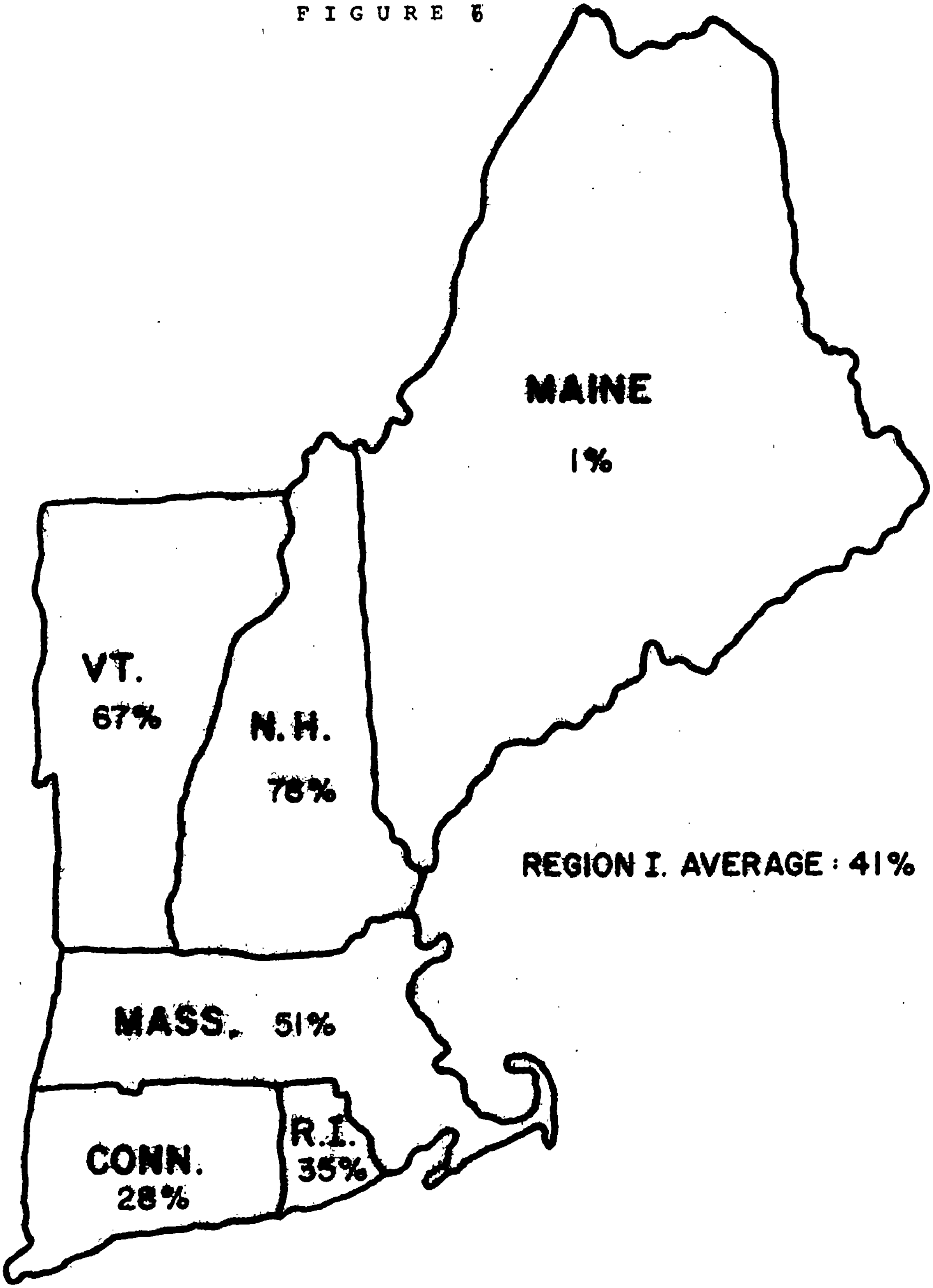
TOTAL SUPPLIES	43
TOTAL APPROVED	31
TOTAL PROV APPR	11
TOTAL POPULATION	3,954,209

REASONS FOR PROV. APPROVED STATUS
ARE DEFICIENCIES IN:

Q = WATER QUALITY
B = BACT. MONITORING
F = FACILITIES
O = OPERATION
N = NO CURRENT REPORT

* = BACT. DATA OVER 15 MONTHS OLD

FIGURE 5



% POPULATION SERVED BY ENVIRONMENTALLY ACCEPTABLE SOLID WASTE DISPOSAL

TABLE 4

WATER SUPPLY SAMPLING RESULTS FOR PCB'S

Sample No.	Location		Aroclor ppb
	New Bedford		
42144	Little Quitticas Pond	raw	0.1
42145	Little Quitticas Pond	finished	K0.05
	North Adams		
42118	Broad Brook	raw	K0.05
42119	James Brook	raw	K0.05
42120	Mount Williams Reservoir	raw	K0.05
	Bridgeport, Conn.		
42217	Hemlocks Reservoir	raw	K0.05
42218	Hemlocks Reservoir	finished	K0.05
42219	Easton Lake	raw	K0.05
42220	Easton Lake	finished	K0.05
42221	Trap Falls Reservoir	raw	K0.05
42222	Trap Falls Reservoir	finished	K0.05
42223	Maples Well	raw	K0.05
42224	Maples Well	finished	K0.05
42225	Housatonic Well	raw	K0.05
42226	Housatonic Well	finished	K0.05
42227	Seymour Reservoir #1	raw	K0.05
42228	Seymour Reservoir #1	finished	K0.05
	Dartmouth, Mass.		
42229	Well	raw	K0.05
42230	Well	raw	K0.05
	Pittsfield, Mass.		
42272	Cleveland Reservoir	raw	K0.05
42273	Farnham Reservoir	raw	K0.05
42274	Upper Sackett Reservoir	raw	K0.05
42275	Ashley Lake	raw	K0.05
	Lowell, Mass.		
40429	Merrimack River	raw	K0.05
40430	Merrimack River	finished	K0.05

K = Less than

TABLE 5

INDUSTRIAL EFFLUENT SAMPLING RESULTS FOR PCB'S

Cornell-Dubilier Electric Corporation
1605 East Rodney French Boulevard
New Bedford, Massachusetts 02744

Station	Date	Sample[1] Type	Time (hours)	Flow Rate m^3/day	Flow Rate GPD	Total PCB ug/1	Daily Quantity[2] grams	Daily Quantity[2] ounces
CDED01	01/14/76	G	0945	--		*	--	--
	01/16/76	G	1245	--		*	--	--
CDED02	01/14/76	C	0800-1500	91	24,000	710	65	2.3
	01/16/76	C	0730-1430	76	20,000	460	35	1.2
CDED03	01/14/76	C	1040-1340	230[3]	60,000[3]	110	25	0.9
	01/16/76	C	1100-1400	230[3]	60,000[3]	41	9.4	0.3
CDED04	01/14/76	C	0800-1500	34	9,000	2,900	99	3.5
	01/16/76	C	0730-1430	30	7,800	580	17	0.6
				Total Plant Discharge[1]				
				01/14/76			189	6.7
				01/16/76			61	2.1

* Below detection limit of 0.5 ug/1.

1 "G" - grab sample
"C" - composite sample, incremental samples collected at one hour intervals, Times shown indicate collection time of first and last sample.

2 Assuming the company production line operates 24 hours per day and flow rate is constant.

3 Company's estimate of total daily flow, not a flow rate.

SAMPLING RESULTS

JARD Company, Inc.
Bennington, Vermont 05201

Station	Date	Sample[1] Type	Time (hours)	Flow Rate m^3/day	Flow Rate GPD	Total PCB ug/l	Daily Quantity[2] Grams	Daily Quantity[2] Ounces
JARD 01	1/21/76	T.C.	0800-1500	33	8600	270	8.9	0.31
	1/22/76	T.C.	0730-1430	35	9200	75	2.6	0.09
JARD 02	1/21/76	G	0830	--	--	400	--	--
JARD 03	1/21/76	G	0840	--	--	19	--	--

1 T.C. - Time composite - equal aliquots of sample composites at hourly intervals
G - Grab sample

2 Assumes the flow is constant and discharge continues for 24 hours

SAMPLING RESULTS

UNIVERSAL MANUFACTURING CORPORATION

BRIDGEPORT, CONNECTICUT 06607

Station	Date	Sample Type[1]	Time (hours)	Flow Rate m^3/day	Flow Rate GPD	Total PCB ug/l	Daily Grams	Quantity[2] Ounces
UNIV 01	1/28/76	FC	0945-1645	6.1	1600	13	0.08	K0.01[3]
	1/29/76	FC	0730-1430	6.1	1600	17	0.10	K0.01
UNIV 02	1/28/76	TC	0955-1655	20	5300	20	0.40	0.01
	1/29/76	TC	0735-1435	20	5300	89	1.80	0.06
UNIV 03	1/28/76	G	1115	--	--	8.3	--	--
UNIV 04	1/28/76	G	1120	--	--	0.5	--	--

1 - FC = Flow composite - hourly samples collected and composited proportional to flow

TC = Time composite - equal aliquots of sample composites hourly

G = Grab sample

2 - Assumes constant flow and discharge for 24-hours

3 - K means value less than that shown

SAMPLING RESULTS

General Electric Company
100 Woodlawn Avenue
Pittsfield, Massachusetts 01201

Station	Date	Sample Type	Time (hours)	Flow Rate m^3/day	Flow Rate MGD	Total PCB ug/l	Daily Quantity[1] Grams	Daily Quantity[1] Ounces
GE005	01/21/76	C[2]	0820-1530	4,200	1.1	14	59	2.1
	01/22/76	C[2]	0830-1530	3,800	1.0	30	110	4.0
GE006	01/21/76	C[2]	0835-1535	2,000	0.53	10	20	0.71
	01/22/76	C[2]	0840-1540	2,000	0.53	4.3	8.6	0.30
SCRU01	01/22/76	G	1535	--	--	9.1	--	--
SCRU02	01/22/76	G	1520	--	--	9.7	--	--

1 - Assuming flow rate constant 24 hours/day

2 - Eight-hour time/flow composite sample. Incremental samples collected at one-hour intervals

SAMPLING RESULTS

Aerovox Industries, Inc.
740 Belleville Avenue
New Bedford, Mass. 02741

Station	Date	Sample Type[1]	Time (hours)	Flow Rate m^3/day	Flow Rate MGD	Total PCB ug/1	Daily Quantity[2] Grams	Daily Quantity[2] Ounces
AVOX 01	1/14/76	F.C.	0830-1500	2000	0.53	51	102	3.6
	1/15/76	F.C.	0830-1415	2000	0.53	29	58	2.0
AVOX 02	1/14/76	T.C.	0750-1450	450	0.12	400	180	6.3
	1/15/76	T.C.	1030-1430	450	0.12	72	32	1.1
AVOX 03	1/14/76	G	-	-	-	2.4	-	-

1 F.C. - Flow composite - hourly aliquots composited proportional to flow

SAMPLING RESULTS
Sprague Electric Company
87 Marshall Street
North Adams, Massachusetts 01247

Station	Date	Sample Type	Time (hours)	Flow Rate m3/day	Flow Rate GPD	Total PCBs ug/l	Daily Quantity[1] grams	Daily Quantity[1] ounces
SPRA01	01/21/76	C		760	200,000	120	91	3.2
	01/22/76	C	0705-1405	760	200,000	78	59	2.1
SPRA02	01/21/76	G	1315		--	14	--	--
SPRA03	01/22/76	G	1420		--	*	--	--

*

* Below detection limit of 0.5 ug/l.

1 Assuming the company production line operates 24 hours per day.

PBC SAMPLING STATIONS AT INDUSTRIAL SOURCES
January, 1976

Aerovox Corporation, New Bedford, Massachusetts

AVOX01	Vacuum pump noncontact, cooling water sampled at North Trough discharge to the Acushnet River.
AVOX02	Sanitary wastes sampled at pump station discharging to municipal sewer system.
AVOX03	Influent municipal water sampled near entrance to the plant.

Cornell-Dubilier Electric Corporation, New Bedford, Massachusetts

CDED01	Influent municipal water supply at chemical mix station for boiler feed water.
CDED02	Groundwater infilltration from basement sumps and some non-contact cooling water sampled at south moat. Discharges to municipal sewer. Company station designation 5S.
CDED03	Primarily vacuum pump non-contact cooling water, boiler blowdown, and drainage from building underdrains sampled at junction with municipal storm sewer. Company station designation serial #001 NPDES #MA0003930
CDED04	Groundwater infiltration from basement sumps and some non-contact cooling water sampled at north moat. Discharges to municipal sewer. Company station designation 5M.

JARD Company, Bennington, Vermont

JARD01	Sanitary wastes to municipal sewers sampled at manhole outside the plant.
JARD02	Cooling water wet well.
JARD03	Influent water.

Sprague Electric Company, North Adams, Massachusetts

SPRA01	Industrial effluent from Brown Street plant at open drainage ditch leading to Hoosic River.

SPRA02 Sanitary sewer from Brown Street plant discharging to municipal sewers. Sampled at manhole in parding area near industrial effluent drainage ditch.

SPRA03 Influent process cooling water from Tunnel Brook. Sampled at entrance to plant.

Universal Manufacturing Corporation, Bridgeport, Connecticut

UNIV01 Vacuum pump noncontact, cooling water effluent sampled at temperature equalization tank in the basement of the building. Discharges to municipal storm sewer system.

UNIV02 Sanitary wastes discharging to municipal sewer system. Company installed spigot for sampling.

UNIV03 Air compressor cooling water.

UNIV04 Influent water from municipal water supply.

General Electric Company, Pittsfield, Massachusetts

GE005 NPDES Permit No. MA0003891, Out fall Serial 005. Effluent from oil/water separator treats groundwater incinerator scrubber water, and flows from power and distribution transformer departments.

GE006 NPDES Permit No. MA0003891, Outfall Serial 006. groundwater, flows from the power transformer department, and runoff from adjacent city areas.

SCRU01 Influent scrubber water from influent end of oil/water separator at Outfall 005.

SCRU02 Effluint scrubber water returned to oil/water separator at Outfall 005.

Bennington, Vermont, Wastewater Treatment Plant

BENN01 Final effluent after chlorination.

TABLE 6

SOLID WASTE SAMPLING RESULTS FOR PCB'S

Site Location Sampled	Type of Sample Collected	Sampling Method	Date Sample Taken	Analytical Results 1016	1254	1260
1. New Bedford, Ma Sanitary Landfill	Groundwater-GW-1	pump wells	3/26/76	ND[1,2,5]	N.D.	N.D.
2. "	Groundwater-GW-2	"	"	1ppb	N.D.	N.D.
3. "	Groundwater-GW-3	"	"	N.D.	N.D.	N.D.
4. "	Groundwater-GW-4	"	"	N.D.	N.D.	N.D.
5.A "	Split Sample Leachate Seep	grab sample	"	10ppb	N.D.	N.D.
5.B. "	near well GW-3	"	"	73ppb[3]	of Aroclor	1232
6. "	Soil Sample-S-1 (0-7.5 ft.)	split spoons from well GW-3	"	5800ppb	1700ppb	N.D.
7. "	Soil Sample-S-2 (10-12 ft.)	"	"	N.D.	N.D.	N.D
8. "	Soil Sample-S-3 (15-17 ft.)	"	"	N.D.	N.D.	N.D.
9. New Bedford, Ma Industrial Disposal Site	Surface Stream	grab sample	"	N.D.	N.D.	N.D.
10. New Bedford, Ma Sewage Treatment Pl.	Sludge (sediment)	"	"	64000 ppb	9600 ppb	N.D.
11.A "	Split Sample Sludge (sediment)	"	4/21/76	28000 ppb	2800 ppb	N.D.
11.B "	"	"	"	39000 ppb[4]	N.D.	N.D.

Site Location Sampled	Type of Sample Collected	Sampling Method	Date Sample Taken	Analytical Results 1016	1254	1260
12. Pittsfield, Ma. Sewage Treatment Plant	Sludge	grab sample	2/10/76	liquid 1 ppb	3 ppb	3 ppb
				Sediment 1400 ppb	8000 ppb	8000ppb
13. North Adams, Ma. Sewage Treatment Plant	Sludge	"	5/11/76	Analysis not completed		
14. Bridgeport, Ct. Sewage Treatment Plant	Sludge	"	5/12/76			
15. Peabody, Ma. Municipal Disposal Site	Surface Leachate	"	2/25/76	N.D.	N.D.	N.D.
16. Danvers, Ma. Municipal Disposal Site	Surface Leachate	grab sample	2/25/76	N.D.	N.D.	N.D
17. Bangor, Me. Municipal Disposal Site	"	"	3/15/76	N.D.	N.D.	N.D.
18. Waterville, Me. Municipal Disposal Site	"	"	"	N.D.	N.D.	N.D.
19. Bristol, Ct. Municipal landfill	Leachate (composite-2 leachate seeps)	grab sample	4/6/76	N.D.	N.D.	N.D.
20. Windham, Ct. Municipal landfill	Leachate pond	"	"	N.D.	N.D.	N.D.
21. New Britain Mun. L.F. Berlin, Ct.	Groundwater	pump existing wells	"	24 ppb	22 ppb	N.D.

	Site Location Sampled	Type of Sample Collected	Sampling Method	Date Sample Taken	Analytical Results 1016	1254	1260
22.	Beacon Falls, Ct. Private Landfill	Surface Leachate	grab sample	"	N.D	N.D.	N.D.
23.	Sanitary Landfill Inc., Cranston, R.I.	Groundwater (5)	pump existing wells	4/8/76	N.D.	N.D.	N.D.
24.	"	" (6)	"	"	N.D.	2ppb	N.D.
25.	Bennington, Vt. Sewage Treatment Plant	Sludge	grab sample	3/18/76	liquid 4ppb	2ppb	N.D.
					sediment 2800 ppb	2000ppb	N.D.
26.	Bennington, Vt. Municipal landfill	Groundwater (L-1)	pump existing wells	1/20/76	N.D.	N.D.	N.D.
27.	"	Groundwater (D-2)	pump existing wells	1/20/76	N.D.	N.D.	N.D.
28.	"	Groundwater (D-3)	"		N.D.	N.D.	N.D.
29.	"	Leachate Seep-A	grab sample	"	N.D.	N.D.	N.D.
30.	"	"	"	3/31/76	1300 ppb	N.D.	N.D.
31.	"	Industrial lagoon	"	3/18/76	liquid 210000 ppb	N.D.	N.D.
					Sediment $4.0x10^7$ ppb	N.D.	N.D.
32.	"	Industrial lagoon	"	3/31/76	liquid 60,000 ppb	N.D.	N.D.
33.	"	Leachate seep-E operating lift	"	5/4/76	sediment 760 ppb	N.D.	N.D.

	Site Location Sampled	Type of Sample Collected	Sampling Method	Date Sample Taken	Analytical Results 1016	1254	1260
34.	Bennington, Vt. Municipal Landfill	Leachate seep-D	"	5/4/76	liquid 85 ppb	N.D.	N.D.
					sediment 3900 ppb	N.D.	N.D.
35.	"	Leachate seep-F swamp	"	5/4/76	liquid N.D.	N.D.	N.D.
					sediment 38ppb	35ppb	N.D.
36.	"	Leachate seep-C	"	5/4/76	liquid 5ppb	5ppb	N.D.
					sediment 110ppb	88ppb	N.D.
37.	"	Leachate Seep-B	grab sample	5/4/76	liquid 1ppb	N.D.	N.D.
					sediment 72ppb	52ppb	N.D.
38.	"	Polumbo well	pump existing well	5/4/76	N.D.	N.D.	N.D.

Footnotes

1. Unless otherwise indicated, PCB analysis performed by EPA National Enforcement Investigation Center, Denver, Colorado.
2. Not detected. This indicates that the PCB level was below the detection limit. The detection limit when extracting 1000 ml of water is 0.001 ug/ml (1 ppb). However, the detection limits of some of the Aroclors in these samples are higher because large amounts of one of the other Aroclors in a sample required that dilutions of that sample extract be used for quantitation.
3. Analysis performed on split sample by Westinghouse Ocean Research Laboratory, Annapolis, Md. under contract with OSWMP. Analysis suspect, Aroclor 1232 never known to have been used in Region.
4. Analysis performed by EPA Region I Surveillance & Analysis Division Laboratory, Lexington, Mass. 02173.
5. The gas chromatographic pattern of Aroclor 1016 greatly resembles that of Aroclor 1242 and it is not always possible to distinguish one from the other, especially in the presence of other Aroclors.