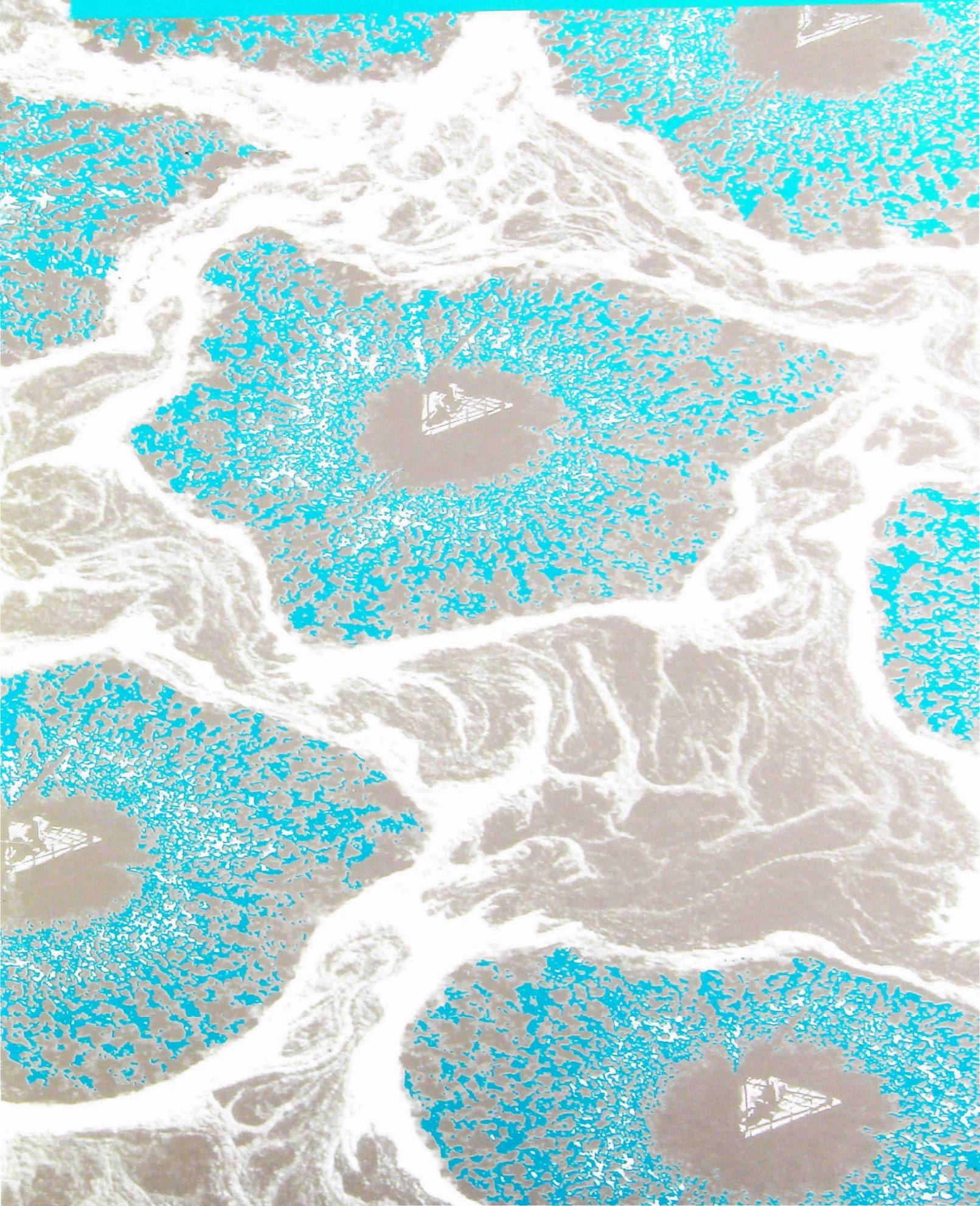


New England Regional Office
U. S. Environmental Protection Agency

1986 in Review



In the aeration lagoon at Consolidated Papers, Inc.'s Water Quality Center, oxygen is churned into effluent and micro-organisms remove biochemical oxygen demanding substances such as wood sugars, starches, and lignins.

Cover photo courtesy of Consolidated Papers, Inc.

Table of Contents

Michael R. Deland Regional Administrator	1
Paul G. Keough Deputy Regional Administrator	3
Air Management Division Louis F. Gitto, Director	5
Waste Management Division Merrill S. Hohman, Director	10
Water Management Division David A. Fierra, Director	14
Environmental Services Division Edward J. Conley, Director	19
Office of Regional Counsel Patrick A. Parenteau, Regional Counsel	21
Planning and Management Division Harley F. Laing, Director	23
Office of Government Relations and Environmental Review Stephen F. Ells, Director	25
Office of Public Affairs Brooke Chamberlain-Cook, Director	26
Connecticut Department of Environmental Protection Stanley J. Pac, Commissioner	28
Maine Department of Environmental Protection Kenneth C. Young, Jr., Commissioner	29
Massachusetts Executive Office of Environmental Affairs James S. Hoyte, Secretary	30
New Hampshire Department of Environmental Services Alden H. Howard, Commissioner	32
Rhode Island Department of Environmental Management Robert L. Bendick, Director	33
Vermont Agency of Environmental Conservation Leonard U. Wilson, Secretary	34



Dear friends of the New England environment:

A friend of mine once observed that if the United States had been settled from west to east, all of New England would have been designated a national park. That wistful thinking captures the sense of natural beauty that abounds in the northeastern corner of the nation and fortifies our dedication to preserve the quality of life provided by a healthy and vigorous environment.

In this, our annual report to you about our efforts to protect and improve our shared environment, we describe some of our major accomplishments and sketch what we think the future will hold. In 1986, we turned up the enforcement heat, provided leadership in the protection of our environment and public health, and developed new initiatives in response to emerging problems.

One of our highest priorities continues to be enforcement of the nation's environmental statutes. We kept the pressure on by filing more cases, issuing more orders and collecting more penalties than ever before. We have increased this pace annually since I became Regional Administrator.

In particular, we expanded our criminal enforcement activity, winning three major convictions in 1986 and collecting the two largest fines to date in the country. In two southern New England states, we completed major Superfund settlement negotiations at three sites. At another site, we entered into a consent agreement with 51 responsible parties for a total of \$5.8 million.

In response to our growing concern for health effects associated with ground level ozone or "smog," we successfully enforced against sources that emit volatile organic compounds.

Our dedication to firm, but fair enforcement continues. While we would prefer to reach agreement through negotiation, we have this capacity and the commitment to enforce environmental statutes whenever necessary.

We continue to fight the battles to protect the region's natural resources — most visibly the cleanup of Boston Harbor and the preservation of Sweedens Swamp. These campaigns are symbols of our resolve to defend irreplaceable resources throughout New England.

The Boston Harbor cleanup consists of a series of tasks that will take some years to complete. Last year, several significant steps in the long, often politically contentious, journey were taken. The Massachusetts Water Resources Authority selected Deer Island as the site for the new wastewater treatment plant, and the governor and the mayor of Boston pledged to relocate the prison now located there. At the end of the year, EPA and the Commonwealth jointly issued a new permit for the proposed secondary treatment facility and the combined sewer overflows — yet another critical step towards the cleanup. Meanwhile, the federal court continues to closely monitor progress as a result of the suit we and the Conservation Law Foundation filed.

One of our greatest challenges is not only to steward our natural resources for today, but to safeguard them for tomorrow. As our conservationist President Theodore Roosevelt wrote, "We behave well if we treat our natural resources as assets which we must turn over to the next generation increased, and not impaired, in value."

Wetlands and groundwater are two such resources. In 1986 we stopped the unnecessary destruction of Sweedens Swamp in Attleboro, Mass. by vetoing the proposed permit to fill a wetland for a shopping mall. This decision sets a national

precedent. It served as the catalyst for a number of activities that now provide broader protection for New England's wetlands, including a process to identify sensitive wetlands before they are endangered.

The advanced identification process is similar to sole source aquifer designations and the emerging wellhead protection program. In both cases, our aim is to prevent contamination of critical groundwater areas, rather than react once pollution has occurred.

In 1986, as our environmental protection agenda expanded, we responded with new initiatives. For example, we developed a strategy to deal with lead contamination of urban soil that will include demonstration cleanups, enforcement and community relations. We also initiated a leaking underground storage tank effort that snared several violators in 1986.

Last June, I hosted the first annual meeting of New England's commissioners of environmental protection, public health and agriculture at the Northeast Regional Environmental Public Center. This meeting was the first of its kind in the country and holds great promise for long-term cooperative ventures between agencies with an increasingly shared mission.

In 1987, we will incorporate a risk reduction perspective into our decision making to help assess and manage risks across media. Since Congress enacted media specific statutes, we are directed to address pollution media by media rather than holistically. This orientation too often resulted in solving one pollution problem while creating another. However, we clearly are no longer in the business of simply moving pollution around — we are in the business of managing risk.

We must seek new ways to integrate environmental public health efforts across all levels of government and encourage individual participation as well. While the axiom "think globally, act locally" still holds true, the time is fast approaching when EPA must also act globally. We can no longer avoid dealing with such challenges as the depletion of the ozone layer and global warming trends.

Closer to home, pollutants such as smog will require regional as well as local initiatives. New England's smog is part of a

larger air transport issue which plagues much of the Northeast Corridor. Smog control will require a departure from our traditional state-by-state approach, and will necessitate closer cooperation with our counterparts in the New York and Philadelphia regions.

However, as we increasingly broaden our attention span across regions and across the globe, we must not lose sight of the fact that our Congressional delegation, our citizens and our state partners are key players. Without their continued efforts, our pollution problems here at home simply cannot be solved.

Another goal for 1987 will be to expand the use of negotiation and consultation with an ever-widening range of representatives from all segments of our society. While striving to accomplish that, we will steadfastly continue to enforce our nation's environmental statutes.

This "Year in Review" covers a variety of EPA and state activities. However, it is only the tip of the iceberg. Most of our work is conducted with little fanfare by dedicated public servants in EPA and state agencies. Everyday these scientists, lawyers, engineers and environmental specialists write enforcement orders, manage environmental cleanups and respond to emergency situations. Their contributions are significant as individual actions, and when combined have the cumulative impact of a regional environmental, public health protection strategy — one that in my judgment is working.

I'm pleased with the job that we together are doing to protect our New England environment. However, we must never rest on our laurels. President Eliot of Harvard once said, "A good past is positively dangerous, if it makes us content with the present and so unprepared for the future." We have made progress in protecting our natural resources and public health, but the challenges which now confront us hardly leave room for contentment.

To prepare for the future — to leave New England's natural resources better guarded and public health better protected — is our common cause. I look forward to working with you in the coming years to accomplish just that.



As deputy regional administrator, I am responsible for the day-to-day operations of the regional office. I help to resolve resources issues and to administer a \$17 million regional operating budget.

People are the backbone of the organization, and perhaps my most important job is to serve as national chair of EPA's Human Resources Committee set up by Lee Thomas. I also head a regional human resources development program. The goals include developing new and better ways to recruit and retain able staff, train our employees and open up new career opportunities.

At the regional level, four branch chiefs temporarily changed places in 1986 to broaden their managerial perspectives. The program also offered a year-long management training course for all supervisors and initiated a human resources and affirmative action needs assessment program.

I continued the role assigned to me by the regional administrator as coordinator of the regional enforcement efforts. If people are the backbone of the organization, enforcement is the measure of achievement of environmental goals. I work as a liaison between the programs and the regional counsel's office. I track the enforcement targets to ensure the regional office reaches its goal. In addition, I work with the EPA criminal investigators and see they are unhampered in their tasks.

In 1986, EPA's New England office increased the number of civil referrals, criminal cases, administrative orders and penalties collected. The nation's first criminal conviction for violations of asbestos removal regulations sent a building wrecker to prison and cost him a substantial fine. The region recorded the first criminal conviction for violation of industrial pretreatment regulations under the Clean Water Act and a

Rhode Island boat builder was indicted on 46 counts for violation of a long list of environmental statutes.

The regional office has kept pressure on industry and municipalities to meet and maintain air and water pollution control standards and safely manage hazardous waste. The national municipal policy calls for achievement of secondary treatment of municipal sewage by 1988. Compliance schedules are issued to those municipalities that are not expected to meet the deadline. Special enforcement efforts in 1986 also were directed at volatile organic compounds from solvents in the coating industry and from automotive fuels, both of which are precursors of ground level ozone (smog). The region continued its strong drive for recovery of hazardous waste cleanup cost from responsible parties and achieved some landmark settlements.

In my role as liaison between the regional office and the state environmental secretaries, I try to work out problems that can occur and see that commitments are met. As a key official in resource allocation, I worked with our Superfund staff to maintain the momentum at hazardous waste site cleanups while the Superfund statute underwent reauthorization. The lengthy reauthorization process caused a program slowdown, forcing the region to put its diminished resources where they would do the most good.

During most of 1986 I was lead deputy regional administrator for groundwater protection. This is interdisciplinary, combining the Clean Water and Safe Drinking Water acts and pesticide and hazardous waste regulation. Late in the year I became the agency's lead deputy regional administrator for management issues.

This year the regional office allocated special resources for the following: a detailed study of lead in soil which is blamed for some central nervous system disorders in pre school children;

corrective action at hazardous waste facilities in accordance with the Hazardous and Solid Waste Amendments of 1984; and the Cape Cod Aquifer Management Program, a pilot project to demonstrate intergovernmental collaboration to protect groundwater.

In addition, I headed a task force studying the environmental impact of trash incinerators. More and more incinerators are coming on line as overtaxed landfills are closed. The agency must be ready to answer growing public concern over possible toxic emissions.





The Air Management Division works on air pollution abatement, pesticide controls, regulation of toxic substances and coordination of environmental radiation issues. The regional office makes direct grants to states, whose actions have the force of federal law. These grants also allow the states to provide technical assistance.

Ozone

Ground-level ozone, or smog, is one of the most serious problems facing the New England region. It is a highly reactive, oxidizing gas which irritates the respiratory tract, exacerbating existing problems or decreasing lung functions. While atmospheric oxygen is a molecule comprised of two atoms, ozone has three. Thus, it is less stable and more reactive.

Ozone is formed in the atmosphere when volatile organic chemicals (VOCs) mix with nitrogen oxides in the presence of sunlight. Ground-level ozone should not be confused with the upper atmospheric and stratospheric ozone. The latter shields the earth from harmful, ultraviolet solar rays.

Ground-level ozone is caused by a broad range of human activity, including evaporation of solvents in the paper and textile-coating industries and evaporation of paint solvents, motor vehicle exhaust, petroleum refining and distribution. To achieve nearly complete fuel combustion for automobiles, EPA requires that cars install exhaust recirculation devices and catalytic converters. Motor vehicles are responsible for nearly

half the smog in the lower atmosphere. VOCs from painting and coating operations are reduced through incineration, reclamation, or elimination of organic solvents.

Once the warm weather arrives, there are additional sunny days and increases in temperature that promote ozone conversion. Thus, there is an abundance of smog in summer and early fall.

Connecticut, Massachusetts, Rhode Island and parts of New Hampshire and Maine are "nonattainment" areas, reporting smog levels higher than the national ambient standard that occur more than twice a year. Some of the smog is transported from New York, New Jersey and other mid-Atlantic states by prevailing southwesterly summer winds.

Of New England's population of six million, approximately two million suffer ill effects from ozone. Half are healthy people who can't breathe as well and become less productive and active. The other half are those with respiratory ailments who are so sensitive to smog that they are often incapacitated by it on very bad days. Recent evidence indicates that adverse effects are measureable even at the national standard of .12 parts per million — often exceeded in the late summer and fall. Animal experiments indicate that repeated exposure may leave permanent scarring on lung tissue.

Ambient ozone has been shown to reduce crop yields by up to 33 percent in the eastern United States where smog is accompanied by high humidity. Damage to white pine in the eastern United States

has been demonstrated at smog concentrations of .08 parts per million (ppm) or more. It is becoming recognized as ranking with acid rain as a crop and forest growth inhibitor. Although the exact causes and nature of forest decline are not well understood, smog may play a significant role in the problem.

The region is far from reaching its goal of attaining the .12 ppm standard for smog by the end of 1987. In New England, the four highest ozone readings over the last three years range from .23 ppm in New London, Conn. to .13 ppm in Portsmouth, N.H. Even remote Arcadia National Park and Deer Island in Maine record .13 ppm.

Thanks to emission controls on 30 common industrial processes and motor vehicles, some progress has been made. Examples of the 30 common sources for which emission levels and control measures have been predetermined include coating and painting, petroleum refining, storage and distribution, graphic arts, degreasing and natural gas processing. Because the national VOC emission limits developed for 30 common stationary sources do not apply to many less common ones, the regional office required that three states, Connecticut, Massachusetts and Rhode Island include these less common sources in their control plans. The plans call for determination of control measures tailored to each source emitting at least 100 tons per year. The source is required to propose control measures to the state for approval and to adopt them when approved. Maine and New Hampshire, where the problem is

less severe, and is caused primarily by ozone transported from out of state, have only adopted regulations for the 30 common source categories.

During 1986 the regional office issued 15 formal notices of violation to facilities exceeding VOC emission standards. Four civil cases seeking compliance with VOC standards were referred to the U.S. Department of Justice for prosecution. At the same time, the office and the New England states conducted 70 inspections of VOC-emitting facilities.

public health and environmental agencies, and the news media.

The region's Office of Government Relations has induced newspaper guest editorials by members of the congressional delegation and also stirred interest among governors and municipal officials.

The regional Office of Public Affairs mounts an annual campaign to get ozone information included in weather forecasts during the summer. Air management personnel were interviewed by journalists for articles including a

coastal ozone monitoring sites in Maine at Cape Neddick and Port Clyde, Scituate, Mass., and Concord and Portsmouth, N.H., in order to get a better grasp of ozone transport patterns. Also, EPA plans to set up an ozone monitor at its regional laboratory in Lexington, Mass.

Mobile sources are responsible for nearly half the VOC emissions. VOC emission reduction from mobile sources is largely achieved by controls on cars and light trucks. Exhaust gas recirculation and catalytic converters combine to bring the combustion of gasoline near completion, leaving only traces of unburned VOCs. Both devices serve to reduce carbon monoxide.

Two of the region's states with severe ozone violations, Connecticut, and Massachusetts, have annual state emission control inspections as part of their regular safety inspection. New Hampshire adopted an annual state inspection effective September 1987 to meet carbon monoxide standards. The purpose is to flag those vehicles which have had their controls tampered with or which are in need of tuneups.

An inspection report on a failed vehicle tells the motorist what repairs may be needed. There is a ceiling on the cost of repairs that may be imposed as a condition of continued registration. A 1985 EPA survey revealed that tampering had occurred nationally in 20 percent of the cars built with emission controls. That figure was far lower in states conducting inspections and lower for newer cars and trucks. Anti-tampering programs resulted in even greater reductions. The programs inspect emission control equipment and gasoline tank fuel inlet restriction. The latter are often enlarged by drivers who want to use the larger nozzles. Cheaper leaded gasoline pumps are equipped with such nozzles. Leaded gasoline damages and eventually renders ineffective the catalytic converter. This may cause a 500 percent increase in VOC emissions.

Testifying in 1986 in favor of the proposed renewal of Connecticut's inspection program, EPA witnesses said it was one of the best in the country. They suggested that an anti-tampering inspection be added to the existing



One of the notices of violation was issued to General Motors' automobile painting facility in Framingham, Mass. The facility has emitted up to 85 percent more VOCs than the legal limits for this industrial category since it opened in December 1985. GM plans to replace the painting facility in the near future and come into compliance.

Enforcing ozone standards across the region and the nation is difficult. This has prompted the regional office to adopt an ozone communications strategy. The Air Management Division meets quarterly with environmental and industrial groups and has obtained a grant to sponsor an ozone conference at the Northeast Regional Environmental Public Health Center in 1987. The audience will include the agricultural,

feature article in the *New York Times* this summer, and by several New England radio stations.

The region has taken a strong stand in favor of addressing ozone transport along the Northeast corridor from Washington, D.C. to Maine, treating it as a single air basin. The regional office was successful in having headquarters concur with establishing a regional oxidant modeling project for the Northeast corridor. The project will analyze the transport problem, providing a better scientific base for future control strategies.

In 1987 the office will work with both headquarters and EPA offices in New York and Philadelphia to develop a work plan for 1988 to 1990. In addition, ozone monitoring by the states will be stepped up in the summer of 1987 with additional

tailpipe inspection. Currently, anti-tampering inspection takes place only on vehicles that fail the emissions test.

Mobile Source Enforcement

The regional office uses mobile source inspections and public information to combat tampering with emission controls and misfueling with leaded gasoline. The region supplements EPA headquarters' inspections, using staff of the regional technical support branch and one or two workers employed under a contract with the American Association of Retired Persons to do more than 800 inspections per year.

EPA randomly inspects automobile repair shops, filling stations, dealers and private and government fleet operators. Tips received through a toll-free hotline also trigger inspections. Advertisements, brochures, fact sheets, the "Tailpipe" newsletter, presentations to dealer associations, and presentations at car-care fairs are public education efforts initiated by the regional office. In 1987 the team will help newly established anti-tampering programs in Maine and New Hampshire.

It will try to enlist the support of municipal weights and measures inspectors who already inspect gasoline pumps as part of their regular duties. In 1985 and 1986, EPA headquarters issued 30 notices of violation as a result of the region's inspections with proposed penalties of over \$300,000.

How You Can Help Reduce Ozone and Stay Comfortable in Ozone Episodes

Carpool or take public transportation, especially when ozone episodes are predicted. Keep your car tuned. Don't accelerate. It wastes fuel and releases more oxidants, thereby increasing the ozone level. Fill your tank the evening before a predicted ozone episode. Escaping vapors add to ozone formation. Use water-based paints whenever possible. Dispose of solvents properly, following local board of health instructions. Keep solvents, degreasing compounds and other chemicals in closed containers.



For your comfort during ozone episodes, stay indoors if you have any respiratory or cardiovascular ailments. Limit heavy exercise and running to the early morning before ozone levels rise.

Indoor Air Toxics

Indoor pollution has come to be recognized as potentially more harmful to your health than the contaminants that taint the outdoors.

Radon is a colorless, odorless, radioactive gas found in soil and groundwater, especially in New England's granite rock formations. It is a product of the radioactive breakdown of naturally occurring radium. It is blamed for an estimated 5,000 to 20,000 deaths per year nationally from lung cancer. It is present in an estimated eight million American homes in dangerous concentrations.

EPA is addressing this problem with research, public education and state assistance in pinpointing those homes where radon presents a serious health risk. This winter the agency provided Rhode Island and Connecticut with granulated activated carbon canisters for radon detection. Next winter, New Hampshire and Massachusetts will receive similar assistance for radon screening.

A \$3 million EPA research project produced, among other results, a booklet called "Radon Reduction Methods, a Homeowner's Guide." This booklet and

"A Citizens Guide to Radon" are available upon request from EPA. The agency is sponsoring research at the University of New Hampshire on radon removal methods from public water supplies. Also, research at Maine Medical Center about cancer incidence in zones of high radon is ongoing. A regional office workshop in January 1986 concluded that the problem in New England was far less severe than in the Reading prong area in eastern Pennsylvania, but still needing attention. EPA's regional staff have begun quarterly information exchange meetings with radon coordinators from each state.

In addition, an early 1986 survey indicated that state health agencies generally took responsibility for state radon concerns. It found they were also addressing other typical indoor air pollutants like formaldehyde, carbon monoxide and asbestos in homes and workplaces.

These agencies expressed interest in EPA-sponsored information workshops. The first of these was held in July. It covered health effects and current research along with a review of possible regulations under consideration at the national level.

Asbestos

Asbestos fibers are known to cause cancer in humans when inhaled or ingested. EPA's National Emission Standards for Hazardous Air Pollutants (NESHAPS) call on building owners and contractors to give advance notice of demolition and renovation jobs where asbestos removal occurs, to observe work rules and to dispose of waste asbestos safely. EPA's regional office conducted several seminars in 1986 to inform contractors of their obligation. EPA headquarters funded a continuing Asbestos Information Center at Tufts University.

The regional office received approximately 300 notices per month from owners and contractors planning renovation or demolition projects in 1986. Field personnel conducted 84 inspections at the project sites during 1986, resulting in 24 letters demanding compliance, 23 administrative orders,

two temporary restraining orders, four civil referrals and one criminal referral to the U.S. Department of Justice.

Asbestos in Schools

Since June 1983 when regulations went into effect, the regional office has inspected 1,824 schools. In 1986 EPA enforcers issued 50 administrative complaints and assessed penalties of more than \$1 million for asbestos violations. Schools are required to inspect for friable (crumbling) asbestos, notify parents and employees and keep records of inspections and notices.

Two inspectors under contract with the American Association of Retired Persons work full time on inspections and case development. Technical assistance has been given to the schools since 1979. In 1985 and 1986, EPA awarded more than \$435,000 to the New England states to establish training and certification of inspectors and skilled asbestos workers, along with loans and grants to schools lacking sufficient funds to remove or seal crumbling asbestos. Rhode Island, Vermont and Connecticut started certification, and Massachusetts, New Hampshire and Connecticut were expected to start soon.

The region's responsibility will be expanded in the fall of 1987 when the New Asbestos Hazard Emergency Response Act of 1986 goes into effect. EPA regulations are now being prepared. They will spell out standards for asbestos abatement and reinspection of buildings containing asbestos. They will establish a model accreditation plan for inspectors and asbestos abatement workers.

Polychlorinated Biphenyls

The manufacturing of polychlorinated biphenyls (PCBs) was discontinued in 1977 when they came under strong suspicion of being carcinogens. Millions of gallons remain in use as fire-resistant, coolants in transformers and capacitors used in industry and commercial buildings.

The Toxic Substances Control Act spells out safe marking, storage and disposal methods to prevent their release to the environment. About 300 inspections

each year by the regional office and by state personnel in New Hampshire and Connecticut resulted in 17 civil complaints and 38 notices of non-compliance with PCB rules. In addition there were 16 state enforcement actions in Connecticut. More than \$350,000 in penalties were assessed against violators.

The regional office is responsible for monitoring mobile equipment used for on-site chemical destruction of PCBs, a technique adopted nationwide to supplement incineration and landfilling as options for PCB disposal.



Air Toxics

Section 112 of the Clean Air Act requires EPA to list and establish emission standards for all air pollutants which may cause irreversible or incapacitating illness. Standards have been set for asbestos, beryllium, mercury, vinyl chloride, benzene, and radionuclides. EPA has proposed emission standards for arsenic and has listed coke oven emissions and methylenechloride.

Notices of intent to list cadmium, chromium, 1, 3 butadiene and six chlorinated hydrocarbons were published late in 1986. Based on health effect studies, EPA decided not to list manganese, toluene, polycyclic organic matter and seven other chlorinated hydrocarbons.

States are in a better position to deal with certain air toxics because of sharply differing local conditions and usage. EPA has developed guidance and funds

for multi-year state plans to do so. Connecticut has adopted regulations for 850 pollutants for which "hazard limiting values" will be set, risk assessments performed and ambient standards adopted.

Maine has developed a chemical priority list and appointed a science advisory panel to recommend ambient levels. In the interim, occupational levels are used to set ambient guidelines. New Hampshire and Vermont have adopted interim guidelines also based on occupational levels. Massachusetts has developed a

method for evaluating acute and chronic toxicity, mutagenicity, carcinogenicity and developmental reproductive toxicity, and is prepared to apply this to occupational levels to set ambient standards. Rhode Island has proposed regulation of 40 toxic chemicals in widespread use. Users of these chemicals will have to register with the state, and those posing the greatest health risk will need permits with limits on emissions. Rhode Island and Vermont are focusing on dioxin and other potentially hazardous emissions from waste incinerators. The office sponsored several workshops in 1986 on ambient air toxics and contributed to risk assessment studies of perchloroethylene and trichloroethylene by the Northeastern States for Coordinated Air Use Management.

Pesticides

The Office of Pesticides and Toxic Substances in 1986 began reviewing state programs for the certification of pesticide applicators and the state training of applicators to keep pace with new technology and regulatory changes. At the same time, state inspections of pesticide users and producers resulted in 1,184 inspections, 307 warning letters, 48 license actions and 22 penalties during the year, a sharp increase over 1984 and 1985. Much of this activity resulted from Maine's tracking the illegal distribution and use of the weed killer Fusillade by 109 potato farmers. Also, the region issued notices of intent to deny registration to 53 pesticide producers for neglecting to report production during 1985 as required.

Acid Rain

Final results of an eastern lakes survey conducted in 1984 were released in June 1986, revealing that nine percent of the lakes in the Northeast have pH levels below the critical 5.5 which impairs biological productivity. Another 20 percent show extremely low buffering capacity, indicating that a small increment of acid deposition could result in

a sharp drop in pH. Any pH reading below seven is acidic.

National funding for acid rain research has risen from \$33 million in 1984 to \$65 million in 1985 and \$85 million in 1986 — the same figure expected for 1987. Almost \$2.2 billion has been spent on clean coal technology, and another \$700 million is allocated for the same purpose between 1986 and 1991.

Under the \$3 million State Acid Rain Program (STAR), about \$565,000 has gone to New England. The Northeastern States Committee on Combined Air Use Management (NESCAUM) is evaluating sulfur dioxide control technologies, studying emissions management plans, and promoting information exchange between state and public utility officials. Connecticut conducted a model study of how the public and industry could contribute to strategy development. Massachusetts and New Hampshire studied strategy development, emission control strategies and the impact of various control technologies. Vermont studied emission inventories and maintenance of low emission levels. Massachusetts and New Hampshire have adopted legislation capping sulfur dioxide emissions and setting targets for future emission reductions. Maine also passed an emissions cap.

Fusillade Case Study

A far-ranging investigation was launched by the Maine Board of Pesticides and EPA Region I after the board learned the herbicide Fusillade was being used on potato fields, which is not a registered use. EPA provided supplementary funding to the board and provided a list of distributors to whom Fusillade had been shipped by the manufacturer. The board investigated the purchasers to learn if Fusillade had been used on potatoes. Potatoes were tested by the Food and Drug Administration for illegal residues. The upshot was that civil action was taken against 109 users and three dealer outlets. Users were assessed penalties of \$100 to \$600 and signed consent agreements not to use Fusillade again. The dealers were assessed penalties of \$750 to \$4,000 and eight of their employees were required to attend a training program administered by the state and EPA. Maine settled all the dealer cases and 101 of the user cases. The FDA detected no residues, and the crop did not have to be embargoed.





The Waste Management Division administers two federal programs, one to clean up hazardous waste sites resulting from improper management in the past and the other to establish "cradle to grave" safe management now and in the future.

The Comprehensive Environmental Response, Compensation and Liability Act, known as Superfund, was enacted in 1980 and was renewed and expanded in scope and funding in 1986 to clean up existing sites. The Resource Conservation and Recovery Act (RCRA), amended in 1984 by the Hazardous and Solid Waste Act (HWSA), sets up a federal-state partnership and a regulatory framework governing the generation, treatment, storage, transportation and disposal of hazardous waste.

The division's initiatives this year under these statutes include reorganization to integrate Superfund, RCRA and enforcement branches along geographic lines, to establish a regular forum for federal-state cooperation and exchange, and to continue progress both in cleaning up sites on the Superfund national priorities list and unlisted emergency sites.

In addition, the division negotiated private-party, hazardous waste site cleanups or private party reimbursements for government actions, and it put the RCRA waste management program into action through state program development and delegation of authority to states for permitting, enforcement and monitoring. This will foster safe handling and final disposal at permitted sites.

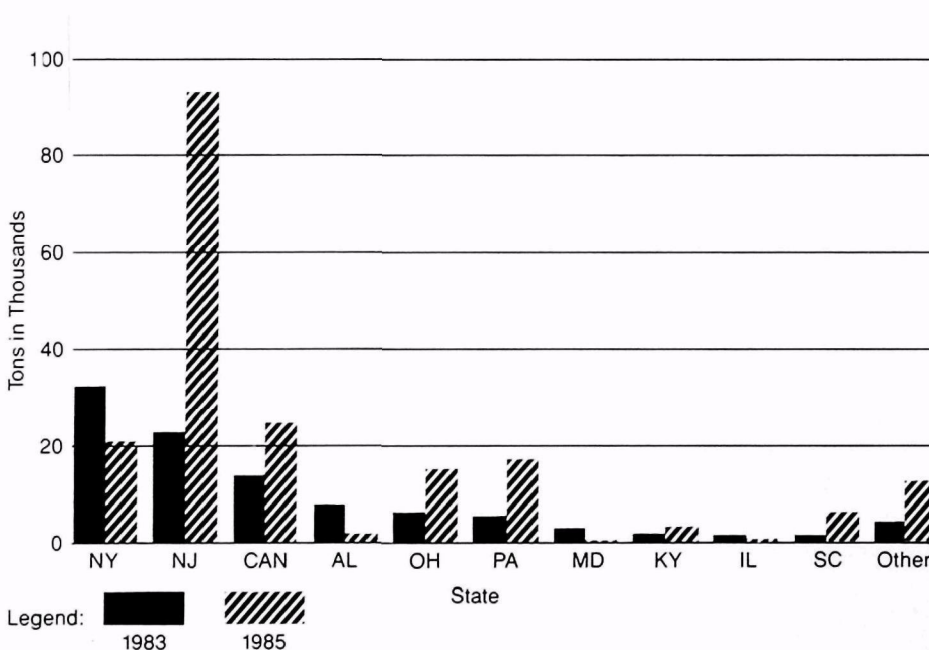
Despite the continuing shift from manufacturing to service industries in New England, the region generated 30 percent more hazardous waste in 1986 than in 1983 for a total of 441,000 tons. While much of this waste is shipped outside the region for final disposal (figure 1), EPA and the states are still responsible for regulating waste management and for encouraging recycling, reuse, waste exchange and process changes as alternatives to waste generation and disposal.

New England has 58 sites on the Superfund national priorities list. Most of them affect water supplies and/or wetlands. Additional water supplies are affected by leaking underground storage tanks. In the new Superfund statute, Congress imposed additional underground tank controls.

The division has continued to grow to keep up with these expanded responsibilities. Six employees were assigned by the regional office to work on implementation of RCRA in 1976. By the time

Figure 1

States Receiving New England's Hazardous Waste: 1983 & 1985



Note: Preliminary Data in 1985
Source: 1983 & 1985 Biennial Report

Superfund became law in 1980, the number had grown to 17. A separate waste management division was established for the first time in 1982.

The aim of the reorganization has been to address waste management within each state through integration of the three programs — Superfund, RCRA, and Enforcement. This allows the agency to focus on the unique nature of each state and maintain a balance among states. It encourages staff to use the statute which best suits the problem at a site or facility. Through reorganization, site management becomes an integrated process with Superfund-site cleanup managers, RCRA permit writers and enforcement staff on the same team.

This year, integration was expanded through establishment of the New England Waste Management Organization Association (NEWMOA) with funding and staff support from the division. NEWMOA held technical and management meetings throughout the year for federal and state personnel to exchange ideas and information about environmental regulations and technical issues.

Another refinement introduced in 1986 was improving searches for potentially responsible parties who polluted sites. The division set up a special team to find and to establish contact with those parties. The 1986 Superfund reauthorization simplified the government's cost recovery process, especially from small waste generators which can number in the hundreds at a given site. Early identification of these potential responsible parties speeds the cleanup process.

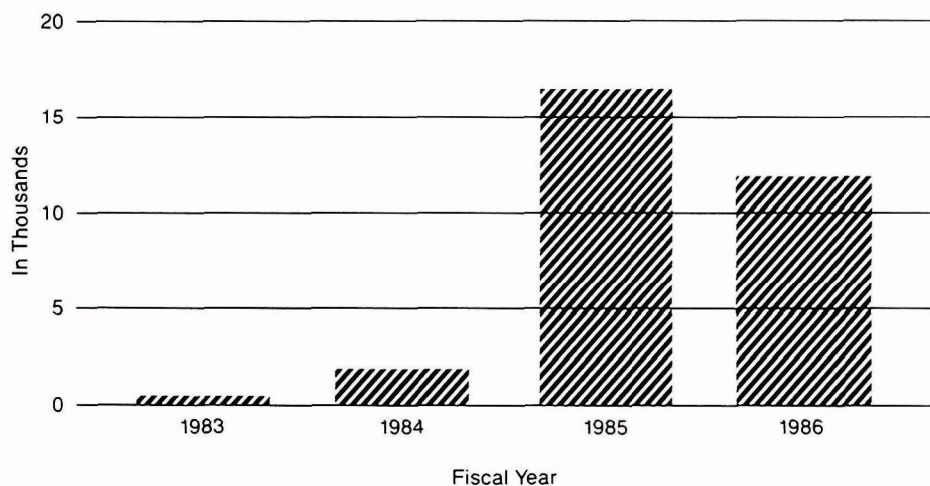
In New England 1,381 hazardous waste sites have been discovered. Preliminary assessments had been done at 84 percent of these sites by the end of 1986. Site inspections by EPA or the states have been done at 21 percent of them. If further action is needed, the state or EPA evaluates the risk to humans and the environment. A numerical score is calculated according to the hazard ranking system and the most hazardous sites are listed on the national priorities list (NPL). New England has 58 sites on the NPL.

The division has started cleanup studies, known as remedial investigation and feasibility study (RI/FS), at 66 percent of the NPL sites. Some complex sites are broken down into "operable units," permitting a phased cleanup. For example, steps are taken to control the source of contamination, leaving groundwater restoration for a later time. The division has started remedial investigations and feasibility studies at 44 "operable units" at 38 NPL sites.

Superfund's authority expired in December 1985. Until the new statute, the Superfund Amendments Reauthorization Act (SARA), was enacted in late 1986, the division relied upon carry-over funds and a series of interim funding measures (figure 2). While these monies kept the program going, planning was impossible. No new remedial designs or remedial actions began in 1986. Funds could be used only at those sites which already had studies

Figure 2

Superfund Expenditures in Region I: 1983 - 1986



Imminent threats to public health or the environment may be discovered in the course of an RI/FS. If this happens, EPA conducts an emergency cleanup, while long-term site studies are suspended. Throughout the studies and cleanups, the public must be informed and consulted. At least two public hearings, one to discuss findings and the second to consider possible remedies, help EPA select an acceptable remedy. Finally, the division enforces the RI/FS process through searches for potentially responsible parties and through cleanup negotiations with them.

The backbone of Superfund enforcement is the legal authority to compel responsible parties to clean up or pay up. Although EPA is willing to negotiate with private parties, the agency has the authority to force those responsible to remove or contain the hazard, or to reimburse the government for cleanup costs.

or cleanup underway. States provided matching funds in advance to keep some projects moving. The legislative delay stretched out an already time-consuming process.

The division has developed a management system with laboratories under the contract lab program to speed the turnaround of quality control and quality assurance checks. Even so, the process is inherently slow. The remedial investigation and feasibility study (RI/FS), which must be performed at each Superfund site, is a multi-disciplinary process. Hydrogeologists, public health officials, chemists, engineers, economists, regulatory officials, lawyers and wetlands biologists are involved. Besides several EPA offices, the interested parties include state and local governments, the Corps of Engineers (investigators and cleanup supervisors) the U.S. Fish and Wildlife Service, the

potentially responsible parties and the affected public living near a site. All are essential participants in a balanced, quality study. Coordinating all interests is time consuming.

Finally, design of the selected remedy can take six months to a year. The remedy itself, containment or removal, may take up to three years to implement, or even decades if the remedy is to pump and treat groundwater.

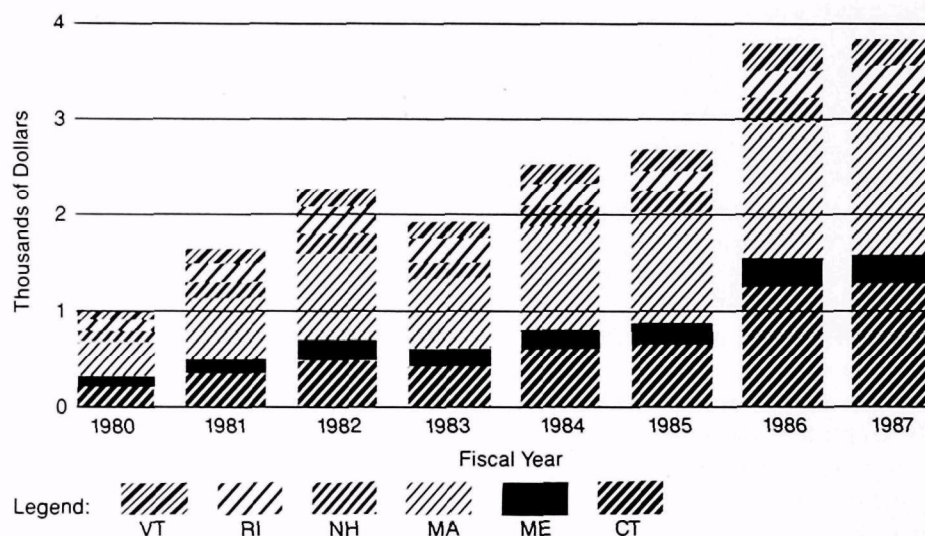
The waste management system prescribed by RCRA and the amendments of 1984 calls for waste generators to notify the government for permits for treatment, storage and disposal facilities and for a manifest system to track waste on the way to final, safe disposal or destruction.

RCRA also encourages waste reduction. The 1984 amendments under the title of Hazardous and Solid Waste Act (HSWA) set timetables for issuance of RCRA permits, mandated corrective action to stop hazardous waste releases and established a special permitting process to encourage alternative treatment technologies. It requires EPA to develop a process to prohibit certain untreated wastes from land disposal and to curb leaking underground storage tanks.

EPA and the states regulate 8,210 hazardous waste generators in New England. As of December 1986, they regulated 506 treatment, storage and disposal facilities. Four of the six New England states have received authorization to take over the RCRA program. The fourth state, Rhode Island, was authorized in 1986. Decisions are expected in 1987 on authorizations for Maine and Connecticut. Figure 3 shows the amount of state grants issued by EPA since 1980 for permitting, inspections and enforcement. The states are required to add a matching amount equal to 25 percent of the federal grant.

The HSWA amendments set deadlines for "grandfathered" treatment, storage and disposal facilities to receive their final permits, starting with land disposal facilities in November 1988. At the same time, HSWA required "grandfathered," or interim status, land disposal facilities to submit final permit applications and

Figure 3
RCRA Federal Base Grants : 1980 - 1987



Legend: VT RI NH MA ME CT
Note: Does not include State match or bonuses
Source: Ken Blumberg, Waste Management Division

certify compliance with groundwater and financial responsibility requirements by November 1985. The federal strictures forced 28 land disposal facilities, mostly private disposal sites used exclusively by the waste generating industry, to shut down, leaving 109 regulated land disposal sites in New England.

Several research, development and demonstration permits came under special review in 1986 and will be processed expeditiously to permit early testing of innovative and experimental technologies. In another HSWA initiative, the division started during 1986 to survey licensed facilities to determine where corrective action must be taken to stop releases of hazardous waste to the environment. Facilities will be ranked according to "environmental insignificance". EPA will conduct assessments at the priority facilities and issue a corrective action permit. The ranking formula for corrective action is very similar to that for Superfund sites.

EPA conducted 24 inspections and the states conducted 137 inspections for compliance with RCRA permit or interim status requirements in 1986. The states issued 67 administrative orders, and EPA issued eight. The agency assessed a total of \$387,700 in fines and

filed seven civil cases in federal court on behalf of state agencies.

The New England office began the first civil cases in the nation against three Connecticut land disposers who refused to shut down despite failure to comply with groundwater protection and financial responsibility requirements for retaining interim status.

The office issued \$272,000 in grants for special projects to help small quantity generators, those producing between 100 kilograms and 1,000 kilograms of hazardous waste per month. One grant went to the Cape Cod Planning and Economic Development Commission for compliance instruction to small business, establishment of a regional data base on hazardous waste and assistance in waste volume reduction. The Cape Cod project includes "milk runs" to pick up waste from small quantity generators on a regular schedule. Special project grants will be available again in 1987 to carry on this and other projects.

Recent estimates indicate about 150,000 underground storage tanks at 50,000 sites in New England. Although potentially dangerous, they cannot be regulated in the same way as hazardous waste facilities. Compliance must be largely voluntary. Five New England states had regulations in place by the end of 1986

and a sixth, Vermont, is expected to put regulations in place early in 1987. EPA issued \$120,000 in grants to each state to manage state notification programs in which tank owners and those who owned tanks taken out of service in the previous 10 years notified the state about their tanks.

Federal regulations on leak detection, leak prevention and other controls should be in place in 1988. Meanwhile, the New England states are leading the way. EPA will use their experience in

designing the federal regulations. The New England Interstate Water Pollution Control Commission, a consortium of water pollution control agencies, is one of the first multi-state coordinating committees to focus on underground tank leaks. EPA headquarters selected the commission as the national coordinating group. The New England office has started three enforcement actions against tank owners who failed to comply with the federal interim prohibitions regarding new tank installation.



Fighting Lead Three Ways

Lead in the soil is one of the most pervasive toxic substances in the environment, contaminating air, drinking water and soil. EPA is attacking the lead poisoning problem on three fronts. Effective in January 1987, the agency reduced permissible lead content in gasoline by 90 percent, to an infinitesimal .1 gram per gallon. Lead in gasoline will be completely eliminated in 1988. Recently, EPA proposed that the maximum contaminant level (MCL) in drinking water be reduced from 50 milligrams per liter (ug/l) to 20 ug/l. While no standard has been adopted for lead in soil, the Centers for Disease Control (CDC) has confirmed a correlation between moderate levels of lead in soil and elevated levels of lead in the blood of children who are exposed to this soil.

The new Superfund reauthorization contains provisions sponsored by two New England senators to reduce soil exposure of children to lead in soil. Sen. Lowell Weicker's amendment calls for a national survey to be conducted by the Agency for Toxic Substances and Disease Registry (ATSDR) and EPA. The report will examine the nature and extent of the lead problem in the United States, using the Superfund hazard-ranking system and identifying gaps in existing statutory framework. Sen. Edward Kennedy added an amendment calling for \$15 million for soil cleanup at one to three demonstration sites.

EPA legal and technical staff developed information and provided technical assistance to legislators and policy makers based on findings by the Boston Office of Environmental Affairs and the Environmental Services Division's laboratory analyses.

The Boston survey, conducted between June 1984 and May 1985, covered 80 percent of the city's children under six, the age group most susceptible to lead poisoning. About 1,500 of them showed blood levels of 25 micrograms per deciliter or more. The CDC recently reduced the standard from 30 micrograms to 25 based on evidence that adverse health effects are associated with the lower level of toxicity. In 1978 the standard was 50 micrograms.

Lead poisoning causes central nervous system dysfunction affecting intelligence, behavior control and motor coordination. There is evidence that blood levels even below 25 micrograms may result in permanent loss of learning ability and behavior control.

The Boston report identifies 28 hot spots in the city, covering about 2.7 square miles in aggregate where lead in soil concentrations average 2,000 parts per million. While no standard has yet been adopted, CDC's level of concern is 500 to 1,000 parts per million. By comparison, the average concentration in the remaining 47 square miles of the city is 600 to 700 parts per million.

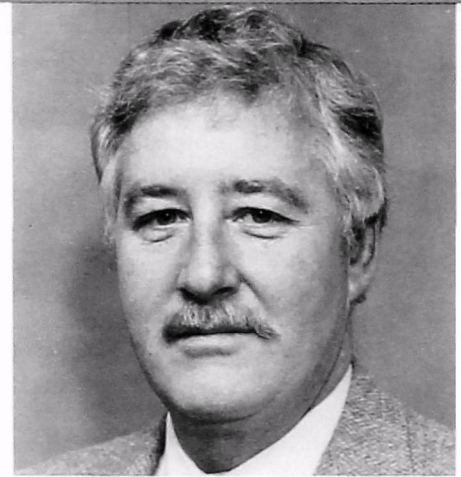
While only five percent of the children live in these hot spots, about 30 percent of the lead poisoning was reported among children in these areas. In each of the hot spots more than one child in four was found to have blood levels of 25 micrograms per deciliter or more.

The principal source of lead in soil is believed to be lead paint which has fallen or been chipped away from the walls of wooden houses. Exhaust fumes from vehicles using leaded gasoline may also be partly responsible. It is not necessary for a child to play in contaminated soil to be exposed, because this soil may be tracked into houses on shoes or blown in by the wind, even though all interior lead paint has been removed. Lead in soil translates to lead in dust.

In order to pinpoint the immediate cause of lead in blood, EPA has awarded a grant to the University of Massachusetts at Amherst for a lead isotope ratio analysis. This is a technique which enables researchers to fingerprint the sources of exposure of children.

Because the lead used for paint pigments and the lead used for tetraethyl lead to boost the octane rating of gasoline are different isotopes of the base metal, they can be fingerprinted. Analysis of blood samples will reveal the ratio of lead that is traceable to peeling paint and that is due to motor exhaust.

It is hoped that removal of contaminated soil from the demonstration areas can begin in the summer of 1987. The demonstration project is the first step on the road to developing sensible public policy strategies for a public health problem of great concern to New England.



The Water Management Division administers federal programs for water pollution control and abatement, drinking water protection and for protection of the marine environment. The division also evaluates the environmental impacts of EPA's and other federal agencies' actions covered by the National Environmental Policy Act. The following report describes progress during 1986 with emphasis on the Boston Harbor cleanup, groundwater protection, wetlands protection, control of toxic water pollutants, protection of the marine environment, and enforcement of water laws, including the National Municipal Policy.

The Clean Water Act

During 1986 the New England office provided more than \$13.6 million in federal assistance to state governments for water pollution control, water quality management, monitoring, permit development, and enforcement and management of construction grants to local governments. Total federal construction grants for wastewater treatment facilities in 1986 was \$163.5 million.

Boston Harbor

The Massachusetts Water Resources Authority (MWRA) agreed to accept responsibility for correction of 108 combined sewer overflows (CSOs), which constitute a major part of raw sewage discharges, and the New England office issued a new permit for secondary treatment facilities at Deer Island and the CSO outfalls.

The permit for the treatment plant includes limits on acute and chronic toxic contamination and calls for the regular testing of marine biota for healthy survival in whole effluent. Harbor fish are to be tested for bioaccumulation of toxic compounds under terms of the contested permit. CSO treatment facilities are to be monitored for discharges of conventional pollutants, organic matter and coliform bacteria, plus metals, pesticides, polycyclic aromatic hydrocarbons, volatile organic compounds, and other pollutants. The permit also calls for continued implementation of a pretreatment program for industries discharging to local sewers.

The authority ended a decade of uncertainty amid the frequently heated public debate over treatment-plant siting when it selected Deer Island. The commonwealth committed itself to relocating the Deer Island House of Correction as mitigation of the public facility's impact on the town of Winthrop. Notable improvements in the water quality of Boston Harbor will occur during the next five years as the operation of the primary treatment plants at Deer and Nut islands are upgraded and the combined sewer effluents are treated in accordance with the new permit.

Control Of Toxic Pollutants

As with the MWRA permit for discharge to Boston Harbor, all other municipal discharges with significant industrial contribution or those receiving less than 35-to-1 dilution in the receiving waters are required to do whole-effluent toxicity testing. In other words, marine or fresh

water biota must survive and reproduce in the effluent.

Permits were issued to 16 industrial and municipal dischargers on the Ten Mile River in Massachusetts with very stringent limits on heavy metal discharges. This small river in southeastern Massachusetts and Rhode Island is effluent-dominated, ranging up to 90 percent effluent in the dry season.

Permits and Enforcement

During 1986 EPA referred six new cases to the U.S. Department of Justice for civil penalties and one for criminal penalties. Penalties assessed against industrial polluters during the year totaled about \$1.5 million, including approximately \$1 million in a criminal case against USM Corporation in New Bedford, Mass. Penalties were also assessed in smaller amounts against Independent Plating Co. of Worcester, Mass., Victory Plating Co. of Providence, R.I. and Mohawk Co. of Nashua, N.H.

In addition, EPA and the states issued 16 administrative orders to install pretreatment and approved 13 other pretreatment plans submitted by municipalities. Three pretreatment cases were referred for civil action and one for criminal action. EPA and the states issued a total of 59 other administrative orders for compliance with permit limits for wastewater discharges. Finally, the regional office issued 40 major new permits and the delegated states issued 91 major permits. The regional office and delegated states issued a total of 302 minor permits.

Protection of The Marine Environment

EPA Region I administers several planning and regulatory programs to protect New England's valuable marine environment. The New England office issued new permits for significant municipal and industrial discharges into Boston Harbor and Buzzards Bay with tightened restrictions on toxics. The regional office is giving special attention to reissuance of bulk fuel storage permits by designing a generic permit. This will make it possible to issue a large number of permits with tighter restrictions on stormwater runoff from such facilities at ocean ports.

The Marine Protection, Research and Sanctuaries Act allows EPA, in conjunction with the U.S. Army Corps of Engineers, to designate dredge spoil disposal sites in the ocean. Due to the nature of harbors and rivers, periodic dredging is necessary to maintain navigable channels. EPA and the Corps began preparation of environmental impact statements on interim dredge disposal sites off Maine and Massachusetts. Investigations have also begun through environmental impact statements to designate a dredged material disposal site in Rhode Island Sound.

Ocean Discharge Waivers

Under Section 301(h) of the Clean Water Act, coastal communities may apply to EPA for waiver of the secondary treatment standard. The New England office has reviewed 39 applications as to the physical, chemical, biological, recreational, aesthetic and water quality impacts of less than secondary treatment for municipal wastewater. All but five applications have been acted upon. The office denied the 301(h) application of MWRA (Boston Harbor) and New Bedford, Mass. for ocean disposal of sewage after primary treatment. The remaining five applications will be acted upon in 1987.

Water Quality Planning and Standards

EPA worked with the New England states on the development of strategies for the control of toxic pollutants from point source discharges. Connecticut, Maine and Massachusetts submitted draft revisions of water quality standards. EPA and New Hampshire jointly conducted an intensive water quality survey of the Ashuelot River to be used for purposes of waste-load allocation for point-source discharges. This practice is required when a stream cannot tolerate multiple discharges of municipal and industrial treated wastewater, and therefore advanced treatment must be undertaken. It is the first effort of its kind in New Hampshire.

Clean Lakes grants were awarded for the restoration of Lake Buel, Whitmans Point and Eagle Lake in Massachusetts, Bantam Lake and Candlewood Lake in Connecticut and Gortons Pond in Rhode Island.

Non-point Source Controls

EPA and the states recorded substantial progress in controlling rural and urban runoff. Connecticut amended its regulations to require best management practices (BMPs) for runoff at industrial and commercial sites and tightened salt storage regulations. Maine adopted a lakes management strategy that will include model local ordinances and staffing and funding recommendations for runoff control. Massachusetts introduced legislation to set up a state-wide non-point source control program, including storm-water management. New Hampshire tightened earth moving regulations. Rhode Island adopted a plan for reduction of sediment, nutrient and pesticide runoff to reservoirs and Narragansett Bay. Finally, Vermont legislated a permit program covering large on-site wastewater systems as a means of protecting headwater and other nearly pristine streams. EPA worked with the Soil Conservation Service and the Cooperative Extension Service to bring about land management practices that will help to protect Lake Champlain and numerous, prized recreational lakes and fishing streams throughout New England.

Construction Grants

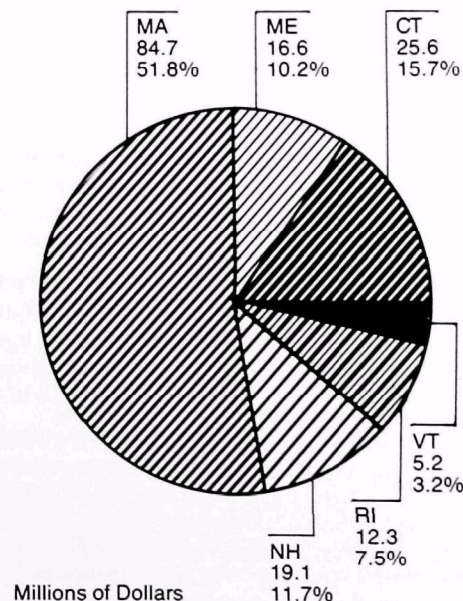
(see figure 1)

Grants for the construction of wastewater treatment facilities constitute one of the largest intergovernmental assistance programs of the federal government. In 1986, the regional office awarded \$163.5 million through more than 160 grants to help local governments build treatment plants and other facilities designed to improve water quality. The key objectives during the year were to achieve maximum water quality improvement for each grant dollar, help treatment plants to meet technical standards, prevent waste, fraud and mismanagement, and develop corrective action plans at facilities not in compliance with permits. Projects undertaken to meet the July 1, 1988 statutory deadline for secondary treatment took on added significance from a priority list and construction-schedule perspective.

Congress appropriated an additional \$60 million in 1986 under the Clean Water Act Amendments of 1981 for elimination of combined storm and sanitary sewer overflows to marine waters. Of the total, \$17 million was obligated for 11 projects in New England coastal communities. Six of

Figure 1

**Construction Grants Obligations
Oct. 1, 1985 to Sept. 30, 1986
Region I Total: \$163.5 Million**



these were completed in 1986, helping to eliminate overflows to the Housatonic Estuary (Conn.), Neponset River Estuary (Boston Harbor), Great Bay/Piscataqua Estuary (Maine and N.H.), and St. George Estuary (Maine). The other five will improve water quality off the Maine coast near Old Orchard Beach and bring further improvements in Boston Harbor and Great Bay/Piscataqua Estuary.

Operation and Maintenance

Regional staff performed 101 compliance inspections of municipal wastewater treatment plants during FY '86. Operations management evaluations brought significant improvement in plant management and performance. The states, with EPA support, also provided extensive technical and management assistance to 84 smaller communities in the region to improve their operation and maintenance of sewage treatment plants.

The regional office also supported and assisted each state and the New England Interstate Wastewater Institute in conducting classroom training and certification of operators.

The nation has invested more than \$40 billion on wastewater treatment facilities since the Clean Water Act was enacted in 1972. In 1986 EPA inaugurated a program of awards for excellence in the operations and maintenance of these facilities. The criteria for selection are continued permit compliance, outstanding operation and maintenance, effective financial management and ongoing operator training.

In January 1986 the regional office presented awards to six plant managers, one from each state, for consistent, outstanding plant management. This is the start of a new incentive program.

In 1985 the office instituted an awards program to recognize those communities with exceptionally well-managed wastewater treatment facilities.

The first annual awards were presented to the staffs of the following facilities: Meriden, Conn., Sanford, Maine, Amherst, Mass., Waterville Valley, N.H., East Providence, R.I., and Lyndonville, Vt. Each of the awards was based upon superior performance in consistently meeting permit limits and

for sustaining outstanding operations and maintenance.

In addition to the regional award, East Providence, R.I. received a national award in October 1986 as one of six outstanding treatment facilities in the country. The national awards were presented at the Water Pollution Control Federation meeting in Los Angeles.

Drinking Water Quality

The Safe Drinking Water Act of 1974 requires public water supply systems to meet minimum national standards set by EPA to protect public health. The regional office provided about \$1.8 million to the New England states to regulate these systems. The accompanying chart (see figure 2) shows improved compliance with standards for coliform bacteria and turbidity with one exception, a percentage point decline in coliform compliance in Maine. Vermont improved its coliform compliance rate from 79 percent in 1985 to 94 percent in 1986 and its turbidity compliance rate from 90 to 99 percent. Maine and Rhode Island achieved 100 percent compliance with the turbidity standards. Rhode Island achieved 100 percent for the third straight year. Local surface water supply systems that remain out of compliance will now have to consider whether to

provide filtration or switch to other sources.

Cape Cod Aquifer Management Program

Four levels of government are working out a groundwater protection strategy for Cape Cod. The Cape Cod Aquifer Management Project is a combined effort of the towns of Barnstable and Eastham, the Massachusetts Department of Environmental Quality Engineering, the Cape Cod Planning and Economic Development Commission, the U.S. Geological Survey and EPA, New England office.

The two-year initiative began in September 1985 and consists of aquifer assessment, data management and implementation. Recommendations have been advanced on the strengths and weaknesses of the current operating procedures for the protection of groundwater through the management of landfills, sewage treatment plants, subsurface discharges and classification of aquifers. Changes are in the process of being implemented. Work was in progress during 1986 on six distinct services to local government, including a detailed study of existing land uses and threats to groundwater in the town of Barnstable; guidance to local, regional

Figure 2

Percentage of Water Systems in Compliance with the Maximum Contaminant Level for Coliform Bacteria

	FY84	FY85	FY86
Connecticut.....	95	97	97
Massachusetts.....	88	92	92
Maine.....	94	94	93
New Hampshire.....	85	86	88
Rhode Island.....	96	97	98
Vermont.....	78	79	94
National Goal.....	93	93	93.5

Percentage of Water Systems in Compliance with the Maximum Contaminant Level for Turbidity

	FY84	FY85	FY86
Connecticut.....	94	93	96
Massachusetts.....	97	94	96
Maine.....	94	98	100
New Hampshire.....	96	97	99
Rhode Island.....	100	100	100
Vermont.....	96	90	99
National Goal.....	97	97	97

and state officials on the suitability of specific management controls for groundwater contamination sources, such as landfills and underground storage tanks; and assistance to groundwater quality managers in accounting for nitrate loading in zones of contribution of public water wells. Other services to local government included, improved water table maps in Barnstable and in Eastham, guidance on hydrological principles relevant to the location of private water supplies and on-site wastewater disposal systems, using Eastham as an example; and guidance for Eastham in the development of an adequate water supply plan.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA), enacted in 1974, requires EPA to set standards for protecting public health and welfare, and establishing procedures for the state implementation of these standards. The act authorizes EPA to designate sole source aquifers, which merit special federal protection from contaminants. The SDWA amendments of 1986 strengthened the protection of groundwater by establishing a sole-source-aquifer demonstration program, and state programs to develop wellhead protection areas with federal assistance. The Cape Cod Aquifer Management Program (CCAMP) is an example of the

latter. The amendments also tighten restrictions on underground injection of hazardous waste, ban the future use of lead piping and lead solder, and set deadlines for the regulation of additional contaminants.

The regional office made grants totaling \$1,833,200 to the states for public water supply supervision and \$278,000 for their work in the Underground Injection Control Program. This includes groundwater protection measures, mapping, data systems and monitoring, and regulation of deep wells used for industrial temperature control. There is limited underground injection of waste in New England.

Bay Studies

The National Estuarine Program initiated by Congress in 1985 designated four coastal estuaries for special, comprehensive water quality management, including Narragansett Bay, Buzzards Bay and Long Island Sound in Region I. The fourth was Puget Sound in Washington state. In 1986 two other estuaries, Pamlico/Albemarle Sound, N.C. and San Francisco Bay, Calif. were added to the program.

Studies are in progress to improve management of wastewater treatment facilities, and urban and rural runoff. The studies will try to understand their impact on water quality, marine life and public health. The multidisciplinary studies involve all levels of government, dozens of private research institutions, and groups representing citizens and users of the bays. The studies include review of historical data to determine the current status and historical trends within each bay. The program will produce a comprehensive management and conservation plan for each bay. The Narragansett Bay study began in fiscal year 1985 with the funding of bay-wide water quality monitoring, research on health, the distribution and contamination of shellfish and the development of hydrodynamic and water quality models. The budgets for 1985 and 1986 were \$1.1 million per year. The 1986 projects included intensive water quality monitoring of the more polluted areas of the bay, pollution impacts on winter flounder, and characterization of current status and trends. Recreation on the entire bay and water quality at beaches in the upper bay were also objects of research started in 1986.

A key experiment underway at the EPA Narragansett laboratory replicates the ecosystem of Greenwich Cove and subjects it to whole-effluent dosing. Results will be compared with the standard bioassay technique where a single species is tested for survival in whole effluent. EPA hopes to discover if a simple bioassay test using a single species can be used to predict the effects on an entire ecosystem.

The projects undertaken in 1986 in the Buzzards Bay study with a \$500,000 budget includes a case study of Buttermilk Bay to identify sources of coliform related to land use and soil type. Others included a survey of contaminants and diseases of fish (integrated with Superfund studies in New Bedford Harbor,



which is contaminated with heavy metals and PCBs), and an assessment of the inflow of nutrients and pesticides into Buzzards Bay from cranberry bogs. A key objective is to develop local action plans to control bacterial contamination of shellfish beds, many of which are now closed for health reasons.

As in the Narragansett Bay study, the Long Island Sound study, with a 1986 budget of \$1 million, includes analysis of the impact of pollution on winter flounder. This species was chosen both for its importance to the fishery and its likely exposure to contaminants. Winter flounder do not tend to move great distances, thus, it is possible to compare pollution impacts along gradients of pollution intensity. Each flounder is likely to remain in the same gradient, subject to the same pollution. These studies will help to ascertain the reproductive health and long-term prospects of winter flounder in the western sound. An estimated billion gallons of sewage, some of it receiving only primary treatment, enters the sound each day from bordering counties with a total population of 8.5 million.

Other research contributing to the Long Island Sound study includes investigation of the cause and extent of low oxygen threatening marine life in bottom waters, the potential for widespread distribution of pollutants through resuspension of contaminated sediments, and analysis of historical data in search of trends in environmental quality.

Future Directions

During 1986 the region made significant progress in accomplishing many of the highest priority water issues in New England. For 1987 the region will focus the division's resources on the following high priority or emerging water issues:

- Continuing emphasis on estuarine protection programs, for example, Boston Harbor, special estuary studies, ocean disposal of dredge material and 301(h) waivers.
- Implementing the regional wetlands protection strategy with an emphasis on designating high priority areas for greater protection and for strengthening the overall wetlands enforcement program.
- Implementation of strong ground-water protection programs including working with the states to initiate comprehensive ground-water programs in wellhead protection areas.
- Controlling the discharge of toxics to surface waters.
- Developing and complementing a sludge management strategy to control non-point sources of water pollution.
- Maximizing the benefits of the municipal construction grants program, including the establishment of revolving funds.
- Implementing an enforcement strategy to aggressively pursue violations of NPDES permits, pretreatment requirements and drinking water requirements.

Wetlands Strategy

New England's wetlands are an irreplaceable natural resource. They are essential to the survival of our coastal and inland fish and wildlife populations. Their importance in maintaining water quality through uptake or control of sediments, nutrients and pollutants is increasingly recognized. Wetlands often act as natural flood storage areas and, along the coast, as a buffer against storm damage and erosion. Biologically, wetlands are among the most productive and diverse ecosystems on earth.

Section 404 of the Clean Water Act regulates the disposal of dredged or fill material into waters of the United States, including wetlands. Jointly administered by EPA and the U.S. Army Corps of Engineers, the section requires a permit for such disposal. Section 404 has come into use as a wetlands protection statute as a result of numerous court decisions. It also provides for advance designation of sites that are unsuitable for development.

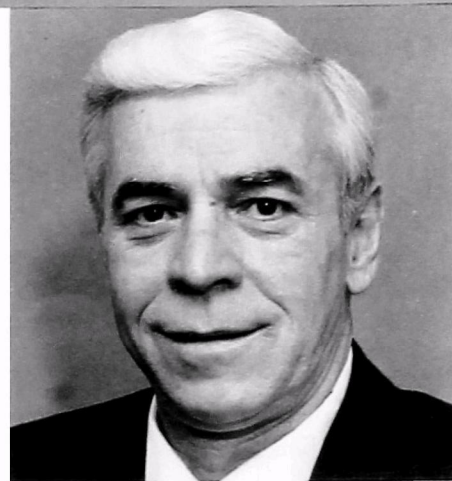
The New England list of wetlands was first developed in 1985 and updated in 1986 in consultation with federal, state and local government agencies and private organizations. It serves as warning to developers about the location of known or suspected trouble spots. Some general listings comprise entire river segments and others define narrow areas. The list will be updated again in 1988.

Region I's strategy for wetlands protection also includes: increased technical review capability for responding to the Corps' permit and policy decisions; expanded and standardized Section 404 enforcement in conjunction with the Corps, the U.S. Fish & Wildlife Service, the National Marine Fisheries Service and the states; a clear policy on effective compensation for unavoidable wetland losses; improved internal coordination between 404, environmental impact considerations, ground-water protection and Superfund; and heightened public awareness of wetland values.

The region's determination to protect wetlands was reaffirmed at the headquarters level in 1986 when Jennifer Joy Manson, assistant administrator for intergovernmental affairs, upheld

Regional Administrator Michael R. Deland's denial of a permit for a shopping mall in Sweedens Swamp, Attleboro, Mass. The developer, Pyramid Corp., proposed to fill in 45 to 49 acres and create compensating wetlands nearby. Manson, taking note of Pyramid's mitigation plan and the conditions that would be needed to ensure that the created wetlands would be successful, ruled against the destruction of natural wetlands of proven environmental value.





The Environmental Services Division at the regional EPA laboratory in Lexington, Mass. provides the air, waste and water divisions with field laboratory services including collection analysis and evaluation of samples and environmental data, oil spill response and emergency cleanup of hazardous waste.

The Air Section continues its efforts to improve the timeliness and completeness of ambient air data submissions from the state agencies. With few exceptions, greater than 90 percent data capture is being achieved at all sites in the region, and more than 90 percent of the data is being submitted to EPA within 120 days of each calendar quarter as required. The Air Section processed approximately 15,000 daily suspended particulate and lead data points from 250 sites and 1.3 million hours of sulfur dioxide, ozone, nitrogen oxide and carbon monoxide and meteorological data from 150 sites. In 1986 violations to carbon monoxide, ozone and total suspended particulate National Ambient Air Quality Standards were reported in New England. In July the section issued the 1985 Annual Report on Air Quality in New England.

Special purpose monitoring networks were established in all the New England states to collect data on the proposed PM10 (small particle) standard for suspended particulates. A total of 51 samplers at 33 sites have now been established in potential non-attainment areas and in all 12 urban areas in New England with populations greater than 100,000. Only Presque Isle, Maine, report air quality levels in excess of 150 $\mu\text{g}/\text{m}^3$.

The Air Section observed and/or evaluated 31 emission tests including, four in conjunction with GCA/Technology Division. Of the 15 field observations, 11 were for particulate emissions and four for volatile organic chemicals.

One hundred and twenty performance audits for particulates, sulfuric dioxide, carbon monoxide, lead, nitrogen dioxide and ozone were conducted at 58 state and local ambient air monitoring stations and 62 national monitoring stations. Twelve of the instruments audited failed to meet established error limits and were subsequently corrected.

An additional eleven instruments gave marginal results and were investigated by the operating agencies. The remainder were reported as operating in a satisfactory manner.

For the Chemical Emergency Preparedness Program, the Air Section conducted hazardous materials training and safety audits at chemical facilities in the region for the benefit of state and local public safety personnel. In addition, Air Section personnel have been working with the six New England states to establish state emergency response commissions and implementation plans.

The section's toxic field monitoring capability was expanded to include formaldehyde and phenols. Last summer, Air Section conducted a field study of volatile organic chemicals at a manufacturing site in Stratford, Conn. This study was presented in a technical paper at the 1987 meeting of the Air Pollution Control Association in Worcester, Mass. The section continued its assistance to

the Superfund team, reviewing air monitoring plans at 21 hazardous waste sites, doing field monitoring at two sites and overseeing the responsible parties' air monitoring program at the McKin site in Gray, Maine.

The Water Section surveyed water quality of the Ashuelot, Charles and Merrimack rivers, studied the bioaccumulation of dioxin in fish downstream from paper mills and worked on other aspects of the national dioxin study.

There were 73 sampling compliance inspections, 14 performance audit inspections, eight compliance evaluation inspections and seven pretreatment inspections. In the area of groundwater protection, ESD personnel sampled 22 wells in the vicinity of the Wellfleet landfill on Cape Cod and also sampled wells at Otis Air Force Base in a continuing investigation of environmental impacts of Cape Cod military installations.

Water Section personnel worked on several studies for permit issuance or reissuance to ICI Americas in Dighton, Mass; Millipore in Jaffrey, N.H.; and Pratt and Whitney in North Berwick, Maine, and numerous Superfund sites were sampled throughout the Region.

The most notable studies for the RCRA Program were sampling for lead in soil in the Dorchester and Mattapan section of Boston and sampling for chemical waste at the Derecktor Shipyard in Middletown, R.I. The lead in soil study, conducted with the chemistry laboratory, confirmed the presence of high concentrations, probably from peeling exterior house paint and motor exhaust. The Derecktor case involved regional EPA

criminal investigators and the national EPA laboratory in Narragansett, R.I. Sampling at a farm owned by Derecktor also disclosed the presence of discarded PCB transformers.

The Oil and Hazardous Materials Section completed 10 hazardous waste removals and started eight others. The 18 removals are estimated to cost a total of \$3.1 million. These included removal of thousands of drums containing toxic or explosive waste, installation of caps over asbestos sites, removal of cylinders containing hazardous gases under high pressure and the on-site incineration of soil contaminated with dioxin and PCBs (see case study). Personnel fielded 1,238 reports of oil or chemical spills, an average of more than three a day, each requiring some degree of federal action and some requiring federally funded cleanup.

Finally, the division has formed a team of personnel and air monitoring equipment which has provided support to police and fire departments throughout the region during releases of chemicals requiring evacuation of civilians. The division will continue working with the National Oceanic and Atmospheric Administration on improved air response systems for use in such emergencies.

The laboratory's work on lead in soil has led an intensive investigation of its pattern of environmental lead poisoning. ESD personnel are involved in an agency committee which is planning to implement the lead in soil provisions of SARA. A site will be selected by the committee for the first demonstration cleanup of inner city lead in soil contamination. Boston is among the likely candidates for this project.

The laboratory has continued to conduct field testing of methods and training of state and local agencies in the detection of organic contamination from underground storage tanks or hazardous waste sites.

The chemistry laboratory has developed a college intern program that offers training in field monitoring and in-house analytical techniques for environmental pollutants.

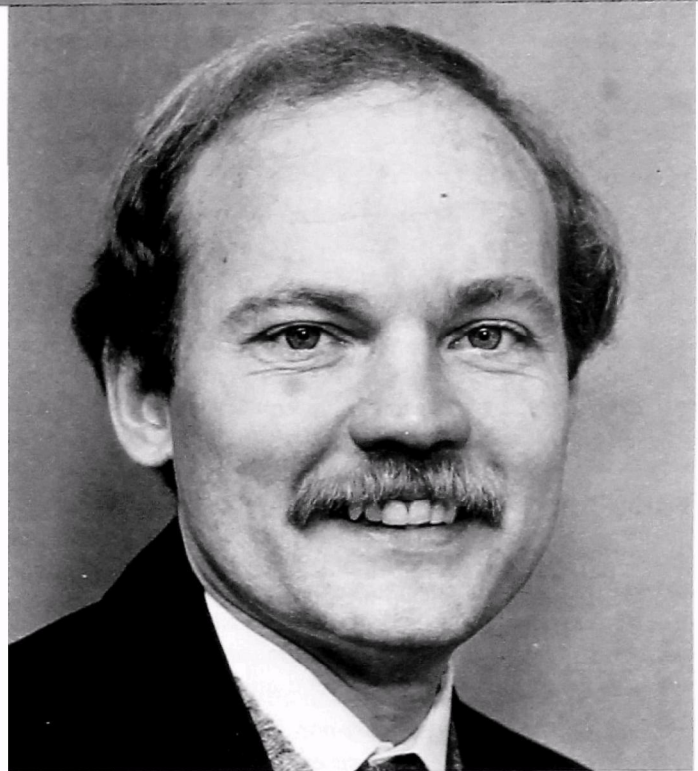
Dioxin/PCB Incineration: A Region I Breakthrough

For the first time under Superfund, the incineration of dioxin-contaminated soil was authorized as proven technology at an emergency removal site. The 12-day burn of five cubic yards of contaminated material took place in November at the Tibbetts Road Superfund site in Barrington, N.H. The pilot-scale incinerator built and operated by Shirco Infrared Systems of Dallas, Texas burned 25 to 50 pounds of contaminated soil per hour under carefully monitored temperature and turbulence conditions. Combustion efficiency was monitored continuously. Samples of emissions and ash were taken every half hour for future analysis. It was the first time in the country that an emergency-response cleanup contractor was authorized to detoxify dioxin-contaminated soil by incineration. The process had been tested earlier in Missouri and Florida while still in its experimental phase. *The Barrington burn was the first time the process was not considered experimental and thus eligible for use at an emergency removal site, which is a site where contamination presents an imminent threat to public health or the environment.*

The electrically powered incinerator was brought to the site the day before the burn to be inspected by more than 100 neighbors, environmentalists, EPA and state personnel, news media, consultants and educators. The decision to burn the contaminated soil was generally accepted as an alternative to on-site containment or removal and off-site land disposal.

Concentrations of dioxin in the contaminated material had ranged from 1 to 10 parts per billion (ppb). PCB concentrations had ranged from 600 to 1,200 parts per million. More than one ppb of dioxin is considered to present unacceptable risk. PCB contaminated soil may be landfilled only if the concentration is less than 50 parts per million.

The ash was stored in 55-gallon drums on the site pending completion of the sample analysis. Assuming that the ash, which is a mineral stripped of organic matter, is free of dioxin, PCBs and related contaminants, it can be landfilled safely.



This office prepares lawsuits, negotiates settlements, collects penalties and helps prosecute criminal violations. It also defends the region against legal challenges, especially those directed against its enforcement efforts and cleanup operations. The office clears legal obstacles to EPA's regulatory mission and handles bid protests and grant appeals in the construction grants program.

Boston Harbor

The office and the water management division worked closely on negotiations with the Massachusetts Water Resources Authority (MWRA) on cleanup of Boston Harbor. The U.S. District Court set deadlines for completion of a new primary wastewater treatment plant at Deer Island by 1995 and a secondary treatment plant by 1999, for elimination of scum from existing plants at Deer and Nut islands and for ending sludge dumping in Boston Harbor by 1991.

Other cleanup highlights include the MWRA's withdrawal of its off-the-New-Jersey-shore, sludge dumping application to EPA; and selection of Deer Island for the \$1.2 billion secondary plant, followed by state legislation to remove the existing prison. In addition, the office gained further mitigation of impacts on the neighboring town of Winthrop through agreement with the MWRA to barge construction materials to the work site, bus and ferry construction workers and ban the use of chlorine unless "clear and convincing" need and safe handling are demonstrable and maximum feasible odor control is possible.

Criminal Enforcement

Two landmark criminal cases resulted in fines totaling \$1.7 million against a Rhode Island boat yard and its owner and

against a New Bedford, Mass. metal plating plant. Robert E. Derecktor and his company, Robert E. Derecktor of Rhode Island, Inc., pleaded guilty to criminal violations of the Clean Water Act, the Clean Air Act, the Toxic Substances Control Act and Superfund. The fine was \$675,000 of which \$200,000 was suspended on the condition that Derecktor make restitution of an equal amount to the Rhode Island Department of Environmental Management's Response Fund.

USM Corporation of Hartford, Conn. pleaded guilty to repeated violations of the Clean Water Act at its New Bedford metal plating plant and was fined over \$1 million. The court suspended \$225,000 provided USM achieved adequate pretreatment of heavy metal wastes discharged to the New Bedford sewer system. This was the first criminal prosecution brought in the country for violations of the categorical or industry-specific pretreatment standards.

Superfund Settlements

The office reached three major Superfund settlements during 1986 in Beacon Falls, Conn.; Burrillville, R.I.; and at 22 asbestos sites in southern New Hampshire and Billerica, Mass.

The office negotiated an administrative order for 31 companies to design and construct a water supply system for homeowners whose wells were contaminated or threatened by the Beacon Heights hazardous waste landfill in Beacon Falls. Negotiations continued with the same 31 companies to cap the landfill, collect and treat the leachate and install a security fence. The landfill was used until 1979 for disposal of rubber, plastics, oils and chemicals.

Fifty-one responsible parties entered a consent decree for a settlement totaling \$5.8 million to pay for past and future cleanup costs and to conduct certain work at the Western Sand

and Gravel hazardous waste site in Burrillville, R.I. It covers both state and federal costs, including the design and installation of a new water system for homes near the site with contaminated wells. One company, Olin Hunt Specialty Products, Inc., is required to cap contaminated sludges and conduct studies leading to groundwater restoration.

The office settled claims against Johns-Manville Corporation for \$3 million to be applied to the cost of covering and securing 22 waste sites in Nashua and Hudson, N.H. The same company agreed to a \$1.26 million settlement for costs incurred in securing an asbestos dump at the Iron Horse Park Superfund site in Billerica, Mass. The settlement does not protect Manville from liability if additional sites require cleanup.

Volatile Organic Chemicals

Volatile organic chemicals (VOCs) and evaporated solvents and fuels are forerunners of ground level ozone (smog). The office has assisted the air management division in several enforcement measures against VOC emitting sources. This year was the most active in Massachusetts history for enforcing VOC controls.

The office sent a notice of violation to Polaroid Corporation for excess emissions from film coating processes at plants in New Bedford, Waltham and Norwood, Mass. Massachusetts issued an enforcement order and assessed penalties.

The region and the Massachusetts Department of Environmental Quality Engineering started negotiations in October, 1985 with General Motors in Framingham, Mass. over emission of excess VOCs by its automobile paint line as part of a national EPA move to reduce these emissions. EPA issued a formal notice of violation. At year's end, the parties were in the process of negotiating a resolution. The plant, scheduled for partial replacement, emits 800 tons a year of VOC, of which 28 to 80 percent is excess emissions.

In Rhode Island, the region filed a civil action against Arkwright, Inc. in Fiskville alleging violations of VOC emission limits on its plastic film coating line. The case is pending.

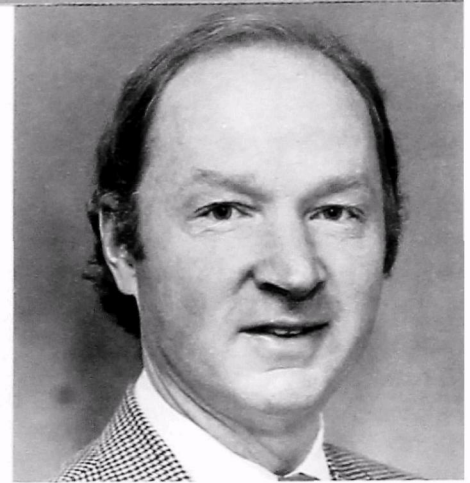
In Connecticut, EPA and the state Department of Environmental Protection issued notices to Gilford Gravure in the town of Gilford, and Frismar, Inc. in Clinton, alleging violations of VOC limits on their printing and paper coating lines. Both companies submitted plans and compliance schedules for state and EPA approval.

Illegal Waste Disposal

The U.S. Department of Justice filed suit on EPA's behalf against three Connecticut companies charged with operating waste disposal facilities illegally. The office took administrative enforcement action against a fourth Connecticut company and one in Massachusetts for similar violations.

The actions arose from a 1984 amendment of the Resource Conservation and Recovery Act. It called for certified compliance with groundwater monitoring and financial responsibility requirements by November 8, 1985 to retain so-called interim status, or temporary operating authority, pending issuance of final permits. Named in civil suits were Stanley Plating Company, Inc. of Forestville, Plainville Electroplating Company, Inc. of Plainville and Susan Bates, Inc. of Chester, all in Connecticut. Alleged violations included continued use of surface impoundments for hazardous waste disposal after losing interim status.

Administrative enforcement action was taken against Summit Corporation of Thomaston, Conn. and Reliable Electroplating of Chartley, Mass. All five cases remained unsettled at year's end. They were among EPA's first attempts to enforce the so-called, loss-of-interim-status amendments adopted by Congress in 1984 as a means of establishing a measure of control over land disposal of industrial waste pending the issuance of extremely complex and potentially controversial final operating permits and as a means to assure that such facilities were properly monitoring groundwater and providing financial responsibility.



The Planning and Management Division staff provide support to federal and state environmental programs, including programs in data processing and information services, human resources management, state grants administration, state program communications and review, regional planning and environmental priority setting, and overall financial management. In FY'87 the division is involved in the following areas:

Regional Planning and Priority Setting

Working with federal and state program managers, the division began planning for FY'89 and developed a priority list which ranked significant environmental problems in New England. The following areas were judged most significant on a qualitative basis by the program managers, who used criteria such as the extent of the problem and the severity of the risk, as well as the feasibility to deal with them.

In the area of groundwater resources, the program managers determined the significant environmental impacts were releases from hazardous waste management facilities, and releases from federally unregulated sources, such as solid waste landfills, mineral extraction, and salt storage and application. Other significant problems affecting groundwater included releases from leaking underground storage tanks, contamination from pesticide applications and releases from uncontrolled hazardous waste sites.

In the area of water quality, the program managers decided the significant environmental problems were toxic discharges to estuaries, toxic discharges to streams and discharges of conventional pollutants to estuaries. Other significant problems affecting water quality included non-point source discharges to estuaries and streams, and discharges of conventional pollutants to streams and combined sewer overflows (CSO).

In the area of air quality, the program managers judged that the significant environmental problems were the long-range transport of air pollution, ozone, other national, ambient air quality pollutants with standards, releases from waste incineration, ambient air toxics and stratospheric effects.

In the area of damage to sensitive environmental resources, the program managers determined the significant problems were the loss or damage to wetlands by the failure to meet permit conditions, and the contamination of wetlands from abandoned hazardous waste sites. Other significant problems harming sensitive environmental resources included the loss or damage to wetlands from unregulated activities, and the lack of public understanding about the value of wetlands and EPA's statutory obligation to protect them.

In the area of threats to public health from direct exposure, the program managers decided the significant environmental problems were the contamination of drinking water from leaking underground storage tanks, abandoned hazardous waste sites, pesticide application and federally

unregulated sources. Other significant problems threatening public health included air impacts from abandoned hazardous waste sites, pesticide use and misuse, radon, indoor air pollution, and asbestos. Others also included lead in soil, non-compliance with chemical import requirements, violations of PCB rules and pesticide residue on food.

The division is currently developing a regional program planning process which will utilize this priority list, the agency operating guidance, and other criteria, such as risk assessment. This process will be used to plan for and direct FY'88 resources both at EPA and in the states to address these priority problems and to set regional management priorities. The division is one of three EPA regions experimenting with such a system.

Regional Staffing Levels and Human Resource Management

The agency's 1987 staffing level is 520 people in various programs and offices. The total of 520 represents an increase from 490 in 1986, 460 in 1985 and 400 in 1984. The majority of the increases in the agency's staff during this time have been in the area of waste management, especially for the Superfund program.

The division is continuing to emphasize human resource management initiatives throughout EPA. In Region I the division has been particularly active in the development and implementation of innovative training programs. The division is currently starting a Training Institute to

provide an organizational focus for training programs and particularly to provide courses taught by its own employees for the benefit of their co-workers. Through the institute, 55 employees will be teaching courses in 1987, and the division is investigating ways to extend the program to the New England state environmental agencies in the future.

Some of the institute's course titles include, "Managing Multiple Priorities for Managers and Supervisors," "Professional Fact and Expert Witness Seminar," "Geophysical Techniques for Finding Buried Waste," and "Correspondence Formats and Procedures." Another course title is "Communication with our Constituents - A Three-Part Seminar," which discusses issues such as, meeting the press, environmental advocacy and the politics of environmental protection.

Information Center and Library

The division has just completed the relocation of two separate information management services to one location on the 15th floor of the JFK Building, where data processing user-assistance and library services are now both located. The library is open to the public as well as EPA employees from 8:30 a.m. to 4:30 p.m. The library contains a variety of books and periodicals on environmental science, technology, policy and management, and various research tools and services. The information center provides hands-on assistance and training to regional employees utilizing computers, word processors, communication tools and related hardware and software.

Service Improvements

The division has been trying to find ways to improve the level of services it provides in a variety of ways to employees. In addition to such direct activities as improved procurement processing, faster travel voucher payment and accelerated hiring, the division has gotten better at providing information to employees through the use of service bulletins. Also, the division is communicating better with its own employees in a variety of ways, including an annual all-employee division retreat and quarterly management retreats.



This small office has three big jobs. It enlists the support of senior public officials to help EPA carry out its mission. It reviews the major actions of other federal agencies to minimize environmental damage. Lastly, the office director is senior policy advisor to the regional administrator and his deputy, serves as the regional administrator in their absence, and was the regional administrator's representative in the preparation of the landmark environmental impact statement (EIS) for the siting of wastewater treatment facilities in Boston Harbor. Below are some other examples of our activities.

National Environment Policy Act (NEPA) Reviews

We review and comment on all actions proposed by the federal government in New England, whether direct action, grants or permits, that could have a significant impact on the environment. The objective is to ensure that the federal government protects the environment as much as possible in its construction, grant awarding, licensing and other activities. We do this by consulting with the proposing agency early in the process, by requesting that environmental impact statements (EISs) be prepared for major projects that have not had adequate environmental review, by reviewing other agencies' environmental impact statements (EISs) and assessments, and by encouraging selection of environmentally preferable alternatives when required.

This year we were involved in projects throughout New England, such as the proposed high-level radioactive waste disposal sites in Maine and New Hampshire; the Sears Island Cargo Terminal in Maine; a Corps of Engineers' flood control dam on the Missisquoi River in Vermont; the Woonsocket

Industrial Highway in Rhode Island; Route 44 in Plymouth, Mass. and Route 6 in Connecticut. We also assisted EPA's Office of Federal Activities in Washington, D.C. in developing the agency's position opposing the Corps of Engineers' revisions to their NEPA regulations and supporting EPA's referral of this controversy to the President's Council on Environmental Quality. Of the 18 draft and final EISs reviewed, we expressed environmental objections to five and raised environmental concerns about another six. In many cases, the projects were either modified as a result of our concerns or additional information was provided to our satisfaction. In addition, the office reviewed and commented on 51 environmental assessments and 228 hydroelectric projects.

Government Relations

New England's congressional delegation and governors have traditionally played a leading role in shaping the region's environmental future. They actively support EPA's mission, and our office is responsible for helping sustain that mission. This year we enhanced our ability to interact effectively with state legislators and municipal leaders by providing assistance on the impact in New England of EPA actions as well as on the problems of a particular community. We also responded to more than 200 official letters this year from members of Congress, governors and other senior officials. Telephone calls from government officials presented a multitude of new issues every week. Hazardous waste management and water pollution control issues are areas of most frequent concern. Recognizing the strong bipartisan support for environmental protection programs, Regional Administrator Michael Deland has met at least once this year with most of the New England congressional delegation and governors or their senior staff.



The Office of Public Affairs (OPA) managed active news media coverage in 1986, expanded its public education program and continued its citizen outreach efforts through the Superfund community relations program.

Some stories handled through OPA this year included the permit denial for a Syracuse, N.Y. developer to build a shopping mall in an Attleboro, Mass. wetland; two criminal enforcement cases, one in Rhode Island and one in Massachusetts, totaling \$1.7 million in penalties for violations of several federal environmental laws; and a \$3 million settlement with the Johns-Manville Corporation.

The Attleboro case involved EPA's efforts to prevent the unnecessary alteration and destruction of nearly 50 acres of wetlands, which provide excellent wildlife habitat in that Massachusetts city.

The criminal case in Rhode Island against Robert Derecktor and his corporation for violations of the Clean Air Act, Clean Water Act and other environmental statutes at his shipyard resulted in a guilty plea and fines of \$675,000. The Massachusetts criminal case against USM Corporation of New Bedford was significant in its assessment of the maximum criminal justice fine for repeated and knowing Clean Water Act violations. Fines in this case totaled \$1,025,000.

The Boston Harbor cleanup case continued to dominate news in 1986. U.S. District Court Judge A. David Mazzone set schedules to end scum discharge into Boston Harbor by December 1988 and sludge discharge by December 1991. He also ordered construction of a primary waste water treatment plant by 1995 and a secondary plant for Boston Harbor cleanup by 1999. In addition, he assigned responsibility for sewer overflow pipes to the newly created Massachusetts Water

Resources Authority (MWRA). Finally, the regional office applauded the commonwealth's decision to relocate the Deer Island House of Correction to make way for treatment plant construction.

Denial of the permit to build an Attleboro, Mass. shopping mall in one of that city's wetlands was a top environmental news story this year. On March 4, 1986 EPA Regional Administrator Michael R. Deland recommended a "veto" of the Army Corps of Engineers' proposed permit to allow The Pyramid Companies of Syracuse, N.Y. to fill Sweedens Swamp in Attleboro. The veto recommendation was upheld by EPA's Washington office. The decision was a major victory for the effort to conserve the nation's dwindling wetlands.

The denial upheld the principle that a promise to attempt to create artificial wetlands will not be sufficient to authorize the destruction of natural wetlands where there is a practicable alternative that would avoid the wetland loss in the first place.

The Johns-Manville Superfund settlement recovered \$3 million to settle EPA claims for present and future costs incurred to cover 22 asbestos waste sites in Hudson and Nashua, N.H. and the Iron Horse Park site in North Billerica, Mass.

OPA committed resources to public education and outreach efforts in 1986, hiring a coordinator to manage subject-matter briefings, symposiums, conferences and environmental forums; develop audiovisuals on such environmental initiatives as the Boston Harbor cleanup and other EPA efforts; serve as liaison to the business and academic community and create a direct, person-to-person and group-to-group information exchange.

A sampling of upcoming plans include a briefing for citizens, local officials and members of the general public on the new Superfund Amendments Reauthorization Act (SARA); a

briefing for regional radio and television meteorologists on the ground-level ozone (smog) crisis facing the Northeast; and an EPA Environmental Forum.

Traditional outreach to elementary schools celebrated its 14th year. Some 4,000 schools submitted more than 10,000 entries for the Elementary Education Ecology Poem and Poster Program (EEEEPP). Paul Keough and Michael Deland awarded prizes at ceremonies in all New England states to those students who produced imaginative, environmentally-conscious poems and posters in support of a clean, protected and healthy environment.

"New England Environment," the region's quarterly summarizing regional activities and enforcement actions, expanded its circulation and substance. Circulation is now 1,500 with a more streamlined format.

OPA continued to field about 1,600 letters from citizens, at least 10,000 telephone calls, dozens of visits from citizens and 652 formal requests for information under the Freedom of Information Act, up from 503 in 1985.

The regional administrator and his staff continued to meet frequently with environmental and business organizations at least quarterly and with concerned citizens on an ad hoc basis.

The Superfund community relations program supports the Superfund office in planning and implementing outreach and public information efforts. The program focused on educating the community on the recently reauthorized Superfund law and its site-by-site effects.

In New Hampshire, for example, EPA legal and technical staff met with concerned citizens at the Ottati & Goss site in Nashua to discuss the remedy and ensure open communication as the site cleanup progresses.

The trend toward informational briefings, site tours, individual interviews and ad hoc regional office meetings with affected groups continued this year. At the Tibbetts Road site in Barrington, N.H. EPA explained and demonstrated on-site soil incineration techniques to destroy contaminated soils there. EPA personnel were available at the site during the week of the "test burn". Press and citizen inquiries were encouraged.

Many communities near Superfund sites are starting to form work groups which meet with EPA Superfund staff on a regular basis. At the Baird & McGuire site in Holbrook, Mass. EPA representatives met weekly with the citizens advisory group to exchange information as the feasibility study alternatives were developed. Two-way communication efforts like this continue at all regional sites.

Superfund community relations staff produced a spate of fact sheets, press releases, progress reports and responsiveness summaries designed to translate complex technical data and to supplement information released at site-specific public meetings and hearings. For example, at the Winthrop, Maine site, citizens review progress reports and receive interpretive newsletters regularly summarizing technical information and outlining upcoming activities.



The Department of Environmental Protection continued to effectively administer established environmental protection programs, and developed innovative and far-reaching new programs. The Clean Water Fund set up a mechanism to provide financing for wastewater treatment projects through to the year 2007. Environment/2000 was presented and enthusiastically received by the public. New regulations were adopted which greatly assisted air and water programs. Additional staff was assigned to both the hazardous materials and water compliance sections. And the new environmental concern — radon — was being investigated.

The department concentrated considerable efforts to bringing attention to and encouraging public participation in the development of Environment/2000. This document is a comprehensive and coordinated statement of the state's environmental goals and strategies. The document is the plan for Connecticut's future and contains 42 diverse environmental issues, ranging from toxic water pollutants, forests, tidal wetlands, to indoor air pollutants. The final Environment/2000 plan is to be released in June 1987.

Connecticut is consistently recognized as progressive in protecting and managing its surface and ground water resources. The department adopted guidelines for a comprehensive toxicity water pollution control that will regulate point source discharges of toxic substances through the issuance and enforcement of permit conditions. All major wastewater discharge permits were screened for potential toxicity. Toxicity testing studies

conducted on both industrial and municipal discharges found that the screening analysis was effective in identifying highly toxic effluents.

Protection of the state's groundwater continued with the publication of a new report on identification and protection of high and moderate yield aquifers. The recommended program will fit closely with EPA's wellhead protection program.

The second year of the estuary study of Long Island Sound continued its inventory of the sound's water quality data, carried out monitoring and field surveys, and assessed current water quality conditions, living marine resources, and potential water quality problems in the sound.

In 1986 the department initiated a state revolving loan and grant program designed to fully finance all the state's \$1.2 billion municipal wastewater needs by 2007. The program requires \$40 million of annual state funding to be complemented by the phasing out of the federal grant program. The Clean Water Fund provides a 20 percent grant and 80 percent loan at two percent interest for all wastewater projects, and a 50 percent grant and a 50 percent loan for combined sewer overflow projects. The department further promoted local assistance by adopting delegation of authority regulations for local and district health directors in the areas of air emissions and water discharges. Regulations for the underground storage and handling of oil and petroleum liquids became effective in late 1985 and by the close of 1986 more than 44,000 tanks

were registered. The department produced a video for state and regional distribution concerning the "LUST" program. The department produced a document entitled "Accidental Toxic Chemical Releases," and held a statewide conference which was attended by more than 350 people.

The department permitted three resource recovery facilities with a combined capacity of 3,320 tons/day and a capital cost of \$367 million. The department also improved its landfill water monitoring data analysis program with 119 landfills monitored for both surface and ground waters.

Air pollution control was enhanced by the adoption of toxic air regulations for known human carcinogens for new and existing sources. A significant number of new staff and equipment are being added to our air program to implement this most important environmental and public health program. In 1986 there was a decrease in the number of violations in ozone levels.

Also this year Commissioner Stanley J. Pac announced his retirement after more than two decades of state public service in the General Assembly, Department of Motor Vehicles and more than 10 years as the commissioner of environmental protection. Pac said it was a pleasure to be part of the great advances made in New England which improved the environment and protected the natural resources.



The department faced a number of important challenges during 1986. These included new leadership in the commissioner's office and on the board, the need to improve productivity in the face of sharply increasing workloads, and the legislative effort to secure additional resources and an adequate statutory base to support environmental protection. Additionally, it was incumbent upon DEP to improve relations with municipalities and with interest groups, to reduce unproductive adversarial tensions and to make our decision-making process more accessible.

It seems that the department has been successful overall in meeting these challenges and achieving its goals. Relations between the commissioner and the board are efficient and productive; changes in licensing units have improved productivity, and more continues to be done to fine-tune the process. The passage of the water reclassification bill and the defeat of the bill to gut air quality were important victories in the Legislature. And, for the first time, the department was successful in acquiring money to support expansion in existing programs. This was the first step in making clear that the department needs more resources to do the tasks already assigned to it. The joint DEP-MMA Policy Committee, newly created in 1986 to

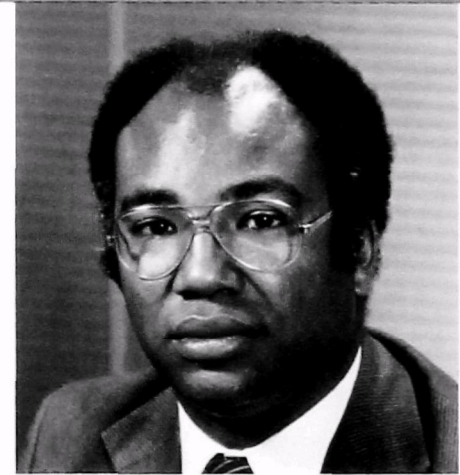
improve DEP-municipal relations, has begun to make headway as evidenced by the new protocol on municipal notification of DEP actions agreed to in November. Regulatory negotiation is now standard and there is an overall emphasis on reasoned discussion and accessibility to information.

The challenges of 1987 start with making the changes of 1986 pay off. This is particularly true in licensing and enforcement, and in fostering productive relations with applicants and interest groups.

In addition the department will deal with a renewed effort to secure resources for licensing and enforcement and couple that effort with a hard look at more wide-range steps aimed at boosting productivity. Also, a new solid waste management scheme is likely as are changes in the underground storage tank law.

Overall the situation is encouraging. There is a new awareness among Mainers of the important and immutable connection between what Maine is and the quality of our environment. People realize more clearly than ever that our economic well-being is dependent on our environment and that our ability to protect our environment depends on the resources produced by the economy. Actions to promote one over the other are prescriptions for long-range failure.

The challenge is to promote both for the benefit of all the people of Maine. The challenge is epitomized in the ongoing and very exciting discussions of Maine's policy for managing growth. It seems clear that 1987 will be a time of exciting activity, and a time of significant change at DEP. There is enormous opportunity inherent in any changing situation. The department's job will be to take maximum advantage of the opportunities afforded by that change. That means doing its job more effectively and more efficiently, building working relationships with diverse interest groups and effectively leading the state on environmental protection issues. The department is confident that it will succeed in this effort.



Massachusetts is a commonwealth of uncommon value. From the Boston Harbor Islands to the Berkshires, the state's natural resources and unique quality of life make Massachusetts a place that its residents are proud to call home.

In 1986 the office worked hard to maintain the environmental integrity and quality of life in Massachusetts. Two strategies guided the efforts. The office took strong environmental protection laws and turned them into practice. And it worked in concert with state, federal and local officials to ensure that the state's valuable environmental resources remain the legacy of its children. As a result, Massachusetts was cited as having one of the 10 strongest state programs in the country for 1986, according to a national study by the Fund for Renewable Energy and the Environment.

Here are some of the reasons why.

For the first time, the Department of Environmental Quality Engineering (DEQE) was able in 1986 to use the state's new administrative penalties statute or "pollution penalties" law to crackdown on polluters without waiting for lengthy court action. The law took effect in September 1986, and in the first six months more than 50 companies and municipal organizations were fined a total of \$700,000. DEQE officials say the law is a morale-booster within the agency and a deterrent to companies that might consider using illegal environmental practices.

from the liability insurance crisis that hit many industries in 1986. The commonwealth was forced to step in and help create a new system to provide insurance for companies that are needed to handle the state's waste stream. And many of the major disputes regarding future handling of hazardous waste, solid waste and low-level radioactive waste were resolved in 1986, allowing Governor Michael S. Dukakis to issue a special message to the Legislature in early 1987 on his proposal for a comprehensive plan to address related problems.

Boston Harbor remained near the top of every environmental agenda in 1986. The Massachusetts Water Resources Authority (MWRA), created by the Legislature to coordinate the cleanup of the historic harbor, began the lengthy process of making the hard decisions on how the Greater Boston area should pay for the necessary improvements to the water and sewage systems needed to bring back life to the harbor. The MWRA worked closely with Region I of the U.S. Environmental Protection Agency in moving toward secondary treatment of the millions of gallons of sewage generated annually.

Progress on the harbor project was aided when the Legislature approved funding in 1986 for the relocation of the Deer Island Prison, thereby allowing a new sewage treatment plant to be built on the island. The MWRA also adopted a far-sighted water conservation policy designed to help meet future needs.

The office continued its aggressive effort to preserve farmland and open space for future generations. Through

the Agriculture Preservation Restriction program, it protected 3,105 acres of farmland last year from possible conversion into shopping malls or condominiums. The office's innovative Bay Circuit program acquired 340 acres of land between Routes 495 and 128, launching a "greenbelt" program that will encircle the Greater Boston area. Both programs would be aided by a \$27 million open space bond issue proposed by Dukakis in early 1987.

Along the coastline, the Legislature approved changes in Massachusetts law designed to balance continued development of coastal land with the public's historic right to use and enjoy the shore. And the state's Water Resources Commission, taking advantage of a new inter-basin transfer law, denied a transfer of water from one river basin to another at least until greater planning and conservation in the user communities is realized.

After years of lobbying, the office also won legislative approval to have wildlife habitats added as an eighth protected category under the state Wetlands Protection Act.

Acid rain remained a priority in 1986. The office and its individual agencies spent \$500,000 on 18 research projects related to the environmental threat, while the Department of Fisheries, Wildlife and Environmental Law Enforcement spent an additional \$330,000 for monitoring and research related to the liming of lakes and streams to negate the effects of the pollution. Data from the Acid Rain Monitoring Project show that 82 percent of the state's surface water bodies are sensitive to acid rain.

Massachusetts has enjoyed extraordinary economic success because it realizes that the quality of life — promoted through sound environmental policy — is essential to making the state an attractive place to live in and to build a business.

Massachusetts remembers the challenge set forth by John F. Kennedy 25 years ago:

“The thin layer of earth, a few inches of rain, and a blanket of air make human life possible on our planet.... Sound public policy must assure that these essential resources will be available to provide the good life for our children and future generations.”



The department experienced renewed environmental awareness in New Hampshire in 1986, highlighted by an increased activity of new programs in groundwater mapping and protection, solid waste siting for landfills and resource recovery facilities, a motor vehicle emission program, and river basin studies.

An increased commitment to the cleanup of Superfund sites was demonstrated by design, construction and commencement of the operation of an innovative groundwater treatment facility at the Gilson Road site in Nashua. This plant, designed, built and now operated by contract forces, shows that close cooperation between EPA and state officials and the consulting engineer can provide innovative solutions to complex environmental problems. This facility constructed at a cost of \$5.6 million will operate for a projected two-year minimum to restore acceptable water quality to an important aquifer. The design of the plant was recently awarded the Grand Conceptor Award by the Consulting Engineers Council of New England and will be entered as a finalist for the top national award.

The New Hampshire Legislature also addressed the issue of air quality by approving final rules for a motor vehicle inspection and maintenance program to address deteriorating air quality in the southern areas of the state.

Another significant undertaking involves the state's assumption of the enforcement responsibilities with respect to those municipalities which are not expected to meet the July 1, 1988 abatement deadline for secondary treatment. Nearly \$100 million of construction is involved and suitable construction schedules to complete the compliance effort have been developed. Also, legislation introduced for the 1987 session will provide state funding for any shortfall or delay in the receipt of Clean Water Act funds.

Solid waste activities continue to consume much of our resources as we address the difficult problems of designing and siting appropriate landfill and resource recovery facilities to meet our future needs. Increased effort to identify the magnitude of landfill closure costs, and studies to find solutions for incinerator ash disposal are continuing.

Probably the most significant environmental happening in New Hampshire in 1986 was the passage of legislation creating a new Department of Environmental Services. The implementation plan to establish the new department was approved Nov. 24, 1986, and it brought together four agencies under one umbrella. The divisions of Water Supply and Pollution Control, Water Resources, Air Resources and Waste Management form the nucleus of the new organization. The Plumbers Board, Water Well Board and Wetlands Board are also included. Under a commissioner and

assistant commissioner, these four divisions are assisted by six units of the commissioner's office; namely, administrative services, laboratory services, geology, planning, risk analysis and management, and public information and permitting.

A major goal of the organization is to provide an integrated environmental organization with the resources to deal with today's problems, and to devote significant emphasis to long-range planning and the development of a state environmental policy.

The department enters 1987 with new challenges and an ever-increasing awareness by the citizens of New Hampshire that inevitable growth must not be allowed to compromise our environmental assets. We believe the new Department of Environmental Services will be better able than ever before to protect that precious heritage.



The department saw significant progress in management of Rhode Island's environment in 1986. A state Clean Water Act was approved by the voters to provide \$35 million in loan and grant funds to dovetail the federal Clean Water Act reauthorization. This will allow acceleration of the completion of secondary treatment facilities throughout the state. The state's new groundwater program moved toward identification and classification of all groundwater resources. This was done in conjunction with the joint (Department of Environmental Management/University of Rhode Island) computerized, geographic information system, which has been established to become the core of the state's environmental management system. Our inground tanks program is underway for violators. The state's air toxics program is fully established and hearings are soon to begin on emissions standards. The freshwater wetlands program staff has been expanded and the permitting function has been fully computerized.

Enforcement was a major priority in 1986 with expansion of both legal and criminal investigative staffs. During the year there were about 40 water enforcement actions, 14 air enforcement actions, 140 wetlands violations, 19 administrative hazardous waste actions, and six criminal hazardous waste actions. The criminal investigative unit has extended its 100 percent record of convictions to 11 cases. The governor has commended the department for its record in this area.

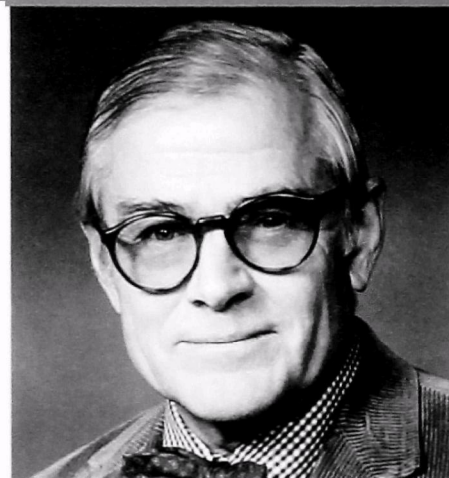
During the legislative session Rhode Island adopted a comprehensive solid waste management strategy which includes the nation's first mandatory recycling law.

These actions have resulted in real environmental improvements. The state's report to Congress on water quality shows 90 percent of river and stream-miles, 97 percent of lakes, and 91 percent of estuaries/ocean area supporting designated water uses. A review of air pollution showed a 1400-ton decrease in hydrocarbon emissions.

While treatment of point sources of pollution showed progress, rapid growth and development throughout the state suggests that non-point sources can in the future undermine point source progress. The preliminary work of a task force set up to preserve the quality of the Scituate Reservoir cites unplanned development as a major potential source

of water quality problems. Thus, the preservation of open space has become a major statewide issue. An additional \$14 million was approved by the voters for open space projects during the year and, using funds from a variety of sources, more open land was acquired by the state in 1986 than in any year since the Great Depression.

In 1987 major emphasis will continue to be placed on pretreatment and hazardous waste enforcement and on the land use and open land issues which are so critical to the control of different sources of environmental harm.



Upland water quality protection and solid waste management dominated Vermont's environmental protection agenda in 1986. Both issues reflected the impact problems attendant on the state's continuing, vigorous growth and development, particularly in areas characterized by small communities and fragile terrain.

The major legislative accomplishment in the water program was passage of a new law which affords additional protection to Vermont's upland streams and adds more stringent requirements to dischargers resulting from large, on-site sewage disposal systems. The law designates all waters over 2,500 feet in elevation as Class A and provides for reclassification of other waters as Class A based on a finding of "significant ecological value." On-site sewage disposal systems over 6,500 gallons per day design capacity are regulated as discharges in a manner similar to the permit requirements of the National Pollution Discharge Elimination System (NPDES). The law is designed to ensure that recreational development in Vermont's upland areas will occur in a manner consistent with the more fragile ecosystems found at higher elevations.

The agency reviewed and approved the state's first resource recovery facility after an extensive public process and a detailed risk analysis on the effects of dioxin/furan emissions. The project is under construction in Rutland and will process approximately 25 percent of the state's solid waste. The state established very stringent emission standards for the new plant with shutdown requirements if the standards are not met.

Also in the solid waste area, Vermont is completing a comprehensive statewide plan of solid waste management. The plan envisions an integrated approach of source reduction, recycling and reuse, waste treatment (including composting, mechanical separation and incineration) and landfilling. The specific solutions will be implemented at the local and regional level with guidance and assistance from the state. A top priority for the 1987 legislative session will be the passage of legislation to support the activities recommended in the plan.

The 1987 session of the General Assembly will be asked to pass legislation to establish a revolving fund mechanism to enable municipal borrowing for solid waste management facilities and for wastewater treatment systems. Other legislation that is on Governor Kunin's

priority agenda is a bill establishing and increasing environmental permit fees and setting processing performance standards, and a measure creating a rivers policy and planning process.

During Governor Kunin's first two-year term, a large body of environmental legislation was adopted including new authorities regarding groundwater management, underground storage tanks, toxic waste-site cleanup, wetlands protection, low-level radioactive waste management, on-site sewage systems and solid waste management. Rule-making, staffing, procedure-setting and other steps towards full implementation of these new programs has been a major preoccupation of Commissioner Jonathan Lash and the Department of Water Resources and Environmental Engineering. In July the National Governors' Association presented Lash with its Award for Distinguished Service to State Government in recognition of his role in initiating and managing the governor's environmental legislation package.