Your Guide to the United States Environmental Protection Agency

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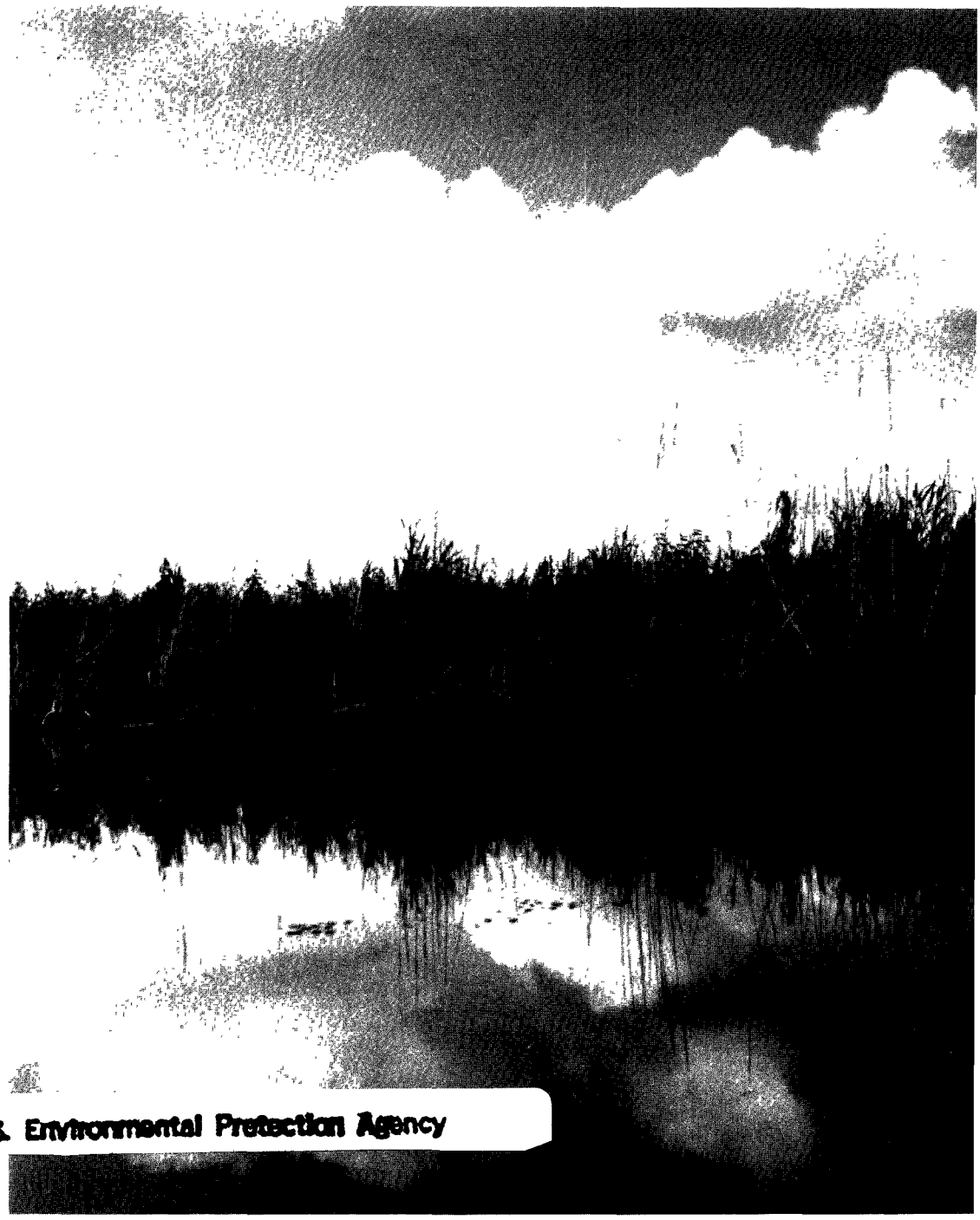
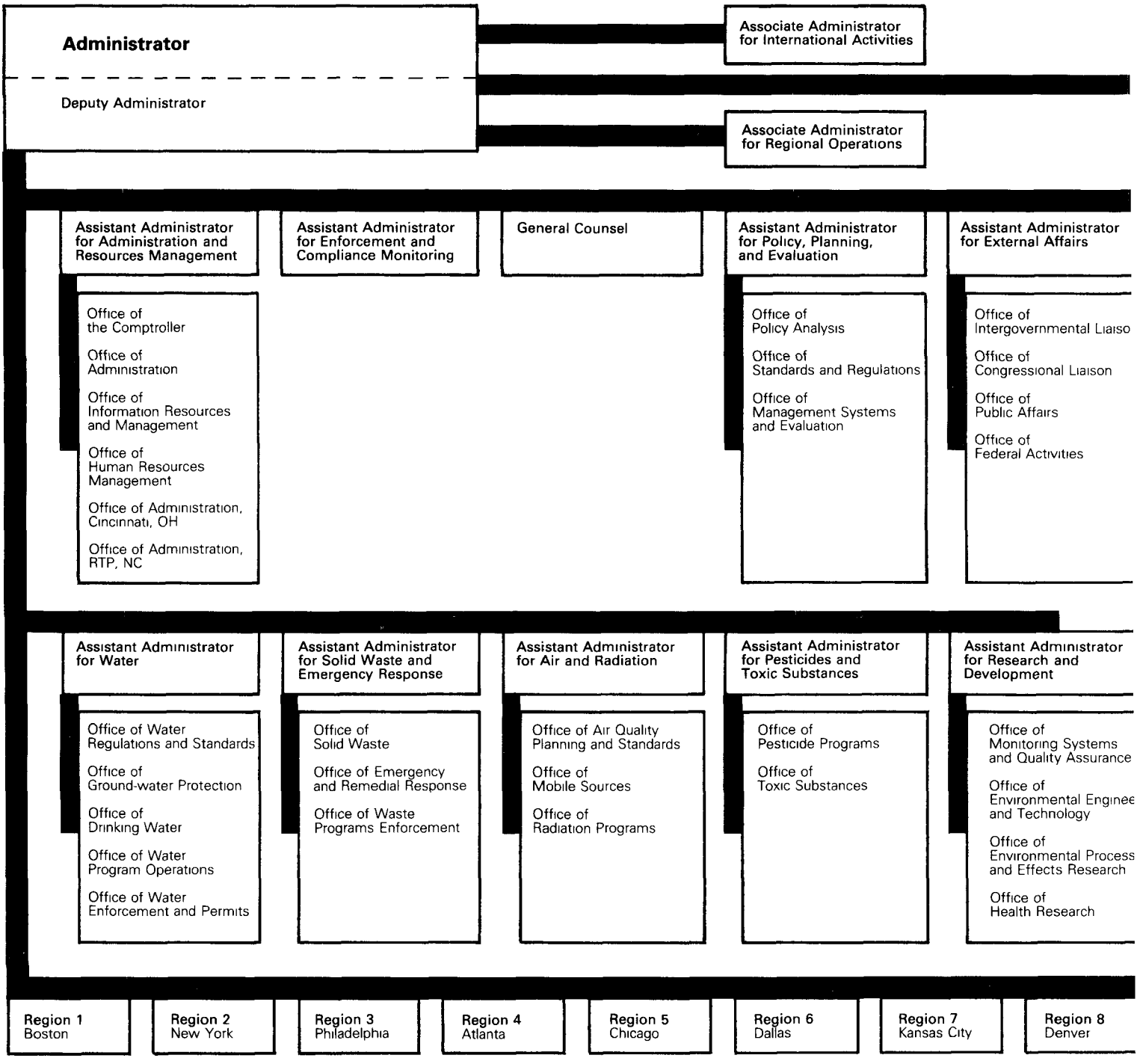


Preface

Our environment has been threatened by many decades of human activities undertaken without regard for the effects on the life-sustaining, economic, and recreational value of the air, land, and water. To protect and restore the quality of these essential and irreplaceable resources, Congress enacted a series of laws which have brought about significant environmental improvements though many challenging problems remain.

The U.S. Environmental Protection Agency (EPA) is responsible for executing the federal laws protecting the environment. Questions concerning air, water, and land affect nearly every aspect of our lives As our understanding of environmental issues has grown, so have EPA's responsibilities. This booklet describes how EPA addresses the major environmental problems confronting our nation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Office of Water Regulations and Standards
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Office of Drinking Water
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Office of Mobile Sources
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Office of Environmental Enginee and Technology
Office of Environmental Process and Effects Research
Office of Health Research
Region 1 Boston
Region 2 New York
Region 3 Philadelphia
Region 4 Atlanta
Region 5 Chicago
Region 6 Dallas
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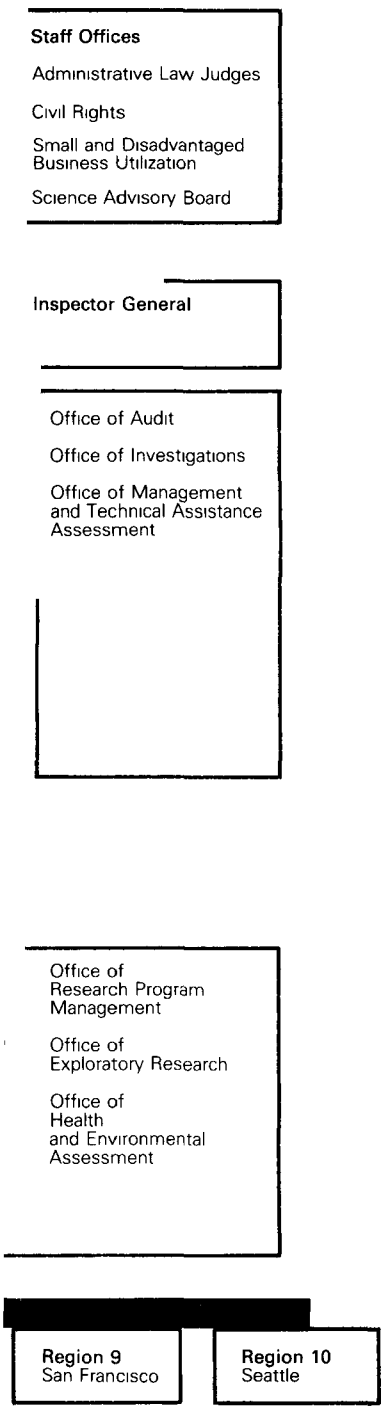
Region 8 Denver

History and Organization of EPA



The U S. Environmental Protection Agency was created through an Executive reorganization plan designed to consolidate a number of federal environmental activities into a single agency. The plan (Reorganization Plan #3 of 1970) was sent to Congress by President Nixon on July 9, 1970, and EPA was formally established as an independent agency in the Executive Branch on December 2, 1970.

EPA was formed by putting together 15 components from five Executive departments and independent agencies Air pollution control, solid waste management, radiation, and the drinking water program were transferred from the Department of Health, Education, and Welfare (now the Department of Health and Human Services). The federal water pollution control program was taken from the Department of the Interior, as was part of a pesticide research program From the Department of Agriculture, EPA acquired authority to register pesticides and to regulate their use, and from the Food and Drug Administration the responsibility to set tolerance levels for pesticides in food EPA was assigned some responsibility for setting environmental radiation protection standards from the old Atomic Energy Commission, and absorbed the duties of the Federal Radiation Council

The enactment of major new environmental laws and important amendments to older laws in the 1970's greatly expanded EPA's responsibilities. The Agency now administers nine comprehensive environmental protection laws: the Clean Air Act (CAA); the Clean Water Act (CWA); the Safe Drinking Water Act (SDWA); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or "Superfund"); the Resource Conservation and Recovery Act (RCRA); the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA); the Toxic Substances Control Act (TSCA); the Marine Protection, Research, and Sanctuaries Act (MPRSA); and the Uranium Mill Tailings Radiation Control Act.

The Agency is directed by an Administrator and a Deputy Administrator, who are appointed by the President with the advice and consent of the Senate Nine Assistant Administrators, who manage specific environmental programs or direct other Agency functions; the Agency's General Counsel; and its Inspector General also are named by the President and subject to Senate confirmation. Ten Regional Administrators across the country cooperate closely with state and local governments to make sure that regional needs are considered and that federal environmental laws are properly implemented. (Appendix I lists these Regional offices.) The Agency's executive staff includes Associate Administrators for International Activities and Regional Operations. The chart shows how EPA is organized.

Water Quality

Oceans, rivers, streams, lakes, estuaries, underground aquifers, and wetlands are essential, in one way or another, to all forms of life, and play a central role in much of our economic activity and recreation.

These functions have been seriously threatened by the long- standing use of natural bodies of water as dumping places for human and industrial wastes, by the destruction of major parts of water systems such as wetlands, and by poor land management practices that choke waters with sediment and poison them with toxic pollutants

Water pollution has two major origins: *point* sources and *nonpoint* sources Point sources are specific points of discharge, such as outfall pipes from industrial facilities or sewage treatment plants. Nonpoint sources, on the other hand, cannot be located so precisely. Runoff from city streets, from construction sites, and from farms and mines are examples of nonpoint sources. Both sources contribute heavily to the pollution of our nation's waters.

Water has been polluted by many kinds of substances Some pollutants, such as sewage from households, are discharged in very large amounts Unless treated, sewage can overload the natural capacity of water bodies to cleanse themselves. Other pollutants, *toxic substances*, can cause damage to our waters, even in very small amounts

The first federal legislation to protect our waters from pollution was the Rivers and Harbors Act of 1899 Congress enacted stronger legislation in 1948, 1956, 1965, 1966, and 1970 However, EPA's current program of water pollution control is based upon the Federal Water Pollution Control Act Amendments of 1972, also known as the Clean Water Act Amendments passed in 1977 and 1981 made some important changes, but the basic objectives and procedures of the Clean Water Act remained

The major objective of the Clean Water Act is to restore and maintain the "chemical, physical, and biological integrity of the Nation's waters " The Act seeks to secure "water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and provides for recreation in and on the water." Progress toward this objective has required spending billions of dollars and the control of hundreds of thousands of water pollution sources

The Act requires each state to set *water quality standards* for every significant body of surface water within its borders Water quality standards represent the goals which pollution controls are meant to secure To set these standards, states specify the uses of each body of water (such as drinking water, recreation, commercial fishing) and restrict pollution to levels that permit those uses

To curb pollution from household and commercial sewage, the Act requires that all publicly-owned municipal sewage systems provide *secondary treatment* of wastewater (a bio-chemical process) before it is discharged

Since few communities could afford the facilities needed to provide such treatment, Congress established a financial assistance program of *construction grants* as part of the 1972 law. Under this program, EPA provides funds to the states, which allocate the money to local communities to help finance new or improved treatment facilities. In the first 10 years, construction grants to the states amounted to about $33 billion Amendments enacted in 1981 reduced the federal share in funding new facilities, but EPA still expects to provide about $24 billion in construction grants during the program's second decade

To ensure that communities meet treatment requirements, sewage facilities must secure permits under the *National Pollutant Discharge Elimination System (NPDES)*. The permits specify the types and amounts of pollutants that may be discharged.

Industries discharging pollutants into waterways or publicly-owned sewage systems also are subject to control requirements, with an ultimate goal of completely eliminating the discharge of pollutants into the Nation's waters. Nationwide standards are established by EPA for industrial pollutants, with specific requirements tailored to the availability and economic feasibility of control technology. These *effluent limitations* will become increasingly stringent through the 1980's, particularly for discharges of toxic pollutants.

Like municipal dischargers, industrial point source dischargers must secure permits under the NPDES program. Industries using public sewage systems must meet *pretreatment standards* designed to prevent the discharge of pollutants, particularly toxics, that adversely affect or simply pass through secondary treatment facilities

Sometimes, however, even stringent control of industrial and municipal point sources is not enough to attain stipulated water quality standards. There are two

major reasons for this. First, many bodies of water are heavily polluted by nonpoint sources. Second, even with stringent controls, the amount of pollution discharged from point sources may be too much for the receiving water to accept. This may be the case in urban regions particularly.

To bridge this gap, state and local governments must devise plans laying out the steps they will take to bring water quality up to acceptable levels. In general, these plans will involve a mixture of controls on nonpoint sources and more stringent controls on point sources, including a general prohibition against the discharge of toxic materials in toxic amounts. To determine if they are discharging toxic amounts, sources may be required to conduct biological tests on fish and shellfish in receiving waters. Such tests are often more useful than standard chemical tests for showing the effects of complex pollutant mixtures. Funding to the states for planning their control strategies is provided through EPA's *water quality management* program.

Two other programs that are important in the protection of water resources are the *dredge and fill* permit system and the regulation of ocean dumping.

Under section 404 of the Clean Water Act, EPA and the U.S. Army Corps of Engineers are jointly responsible for protecting waters against degradation and destruction caused by disposal of dredged spoils or fill. This protection extends to the Nation's wetlands - its marshes, swamps, bogs, and similar areas. Wetlands are vital elements of natural water systems, providing flood control benefits, habitats for fish and wildlife, and natural pollution filters. Permits to carry out dredge and fill activities are granted by the Corps of Engineers, subject to EPA approval.

Under the Marine Protection, Research, and Sanctuaries Act of 1972, EPA is required to protect the oceans from indiscriminate dumping of wastes. The Agency is authorized to designate safe sites for dumping, to issue permits for dumping, and to assess penalties for improper dumping.

Water quality is protected by nearly all of the laws EPA administers. Air pollution controls, for example, keep harmful pollutants from entering the water from the atmosphere. Laws governing radiation, toxic substances, and pesticides also deal with special pollution problems which may affect water quality. In addition, a major objective in regulating solid wastes is to prevent the contamination of ground water and surface waters by the seepage of harmful substances from disposal sites

Safe Drinking Water

Less than 100 years ago, epidemics of waterborne diseases were a major public health menace in the U.S. Today, we hardly give them a thought. Twentieth century methods of water purification — particularly chlorination — have been remarkably effective in reducing instances of cholera, typhoid, dysentery, and infectious hepatitis Waterborne diseases still occur with unnecessary frequency, but major epidemics have been all but eliminated in this century.

In recent years, however, public health professionals have become increasingly concerned about other contaminants in our water supplies. These include inorganic chemicals such as nitrate, arsenic, and lead, as well as toxic organic chemicals which have been produced in ever-growing volumes Certain pesticides also have been added to the list of contaminants that have found their way into drinking water in some places. Some of these pollutants are harmful even in small amounts, and can be extremely difficult to remove once they have contaminated a water supply.

To deal with these problems, Congress passed the Safe Drinking Water Act of 1974, and amended that act in 1977. Under the Act, EPA establishes national standards for drinking water from both surface and *ground water* sources. (Ground water comes from underground aquifers.) These standards provide *maximum contaminant levels (MCLs)* for pollutants in drinking water. States are primarily responsible for enforcing the standards, with financial assistance from EPA.

The Safe Drinking Water Act also authorized EPA to protect aquifers against contamination from the disposal of wastes by injection into deep wells. Some states have assumed responsibility for managing these *underground injection control* programs as they develop their own regulatory systems.

Ground water sources are very vulnerable to serious, perhaps irreversible, contamination from other sources, such as leachate from hazardous waste landfills or leaking underground storage tanks. Protection of essential aquifers is one of the major environmental challenges of the 1980s. EPA has developed a comprehensive strategy to safeguard ground water and has established a separate staff within its Office of Water to oversee this effort.

Air Quality

People have known for centuries that air can carry poisons. That's why miners used to take canaries with them into the coal pits. A dead bird meant the presence of lethal gases. But before the smokestack boom of the industrial revolution, "bad air" was an isolated phenomenon. By the beginning of the twentieth century, however, it was a common urban characteristic, and by mid-century, it had become a serious, sometimes fatal, health hazard. In 1952, for example, a "killer fog" in London was responsible over five days for some 4,000 more deaths than would have occurred normally in the same period of time.

Air pollution is not limited to industrial cities. Automobile exhaust is a major contributor to air pollution; heavy traffic can cause air quality problems even in cities with little or no industry Neither is air pollution a respecter of boundaries. Its effects frequently appear far away from its sources.

Federal legislation to control air pollution was first enacted in 1955, and strengthened in 1963, 1965 and 1967. However, it was the Clean Air Act of 1970 that shaped the control program we have today. Congress reviewed and amended the law in 1975 and 1977, but retained the basic principles of the 1970 Act

The fundamental objective of the Clean Air Act is the protection of the public *health and welfare from harmful effects* of air pollution. To define this goal, EPA sets two kinds of *National Ambient Air Quality Standards (NAAQS)* specifying maximum acceptable levels for pollutants in outdoor air. *Primary standards* set limits which protect human health, including "sensitive populations" such as children, asthmatics or the elderly *Secondary standards* protect plants, animals and material from harmful effects of air pollution

EPA has set primary and secondary standards for six *criteria pollutants* carbon monoxide, nitrogen oxides, ozone; lead; sulfur oxides; and particulates. These standards are based on medical and scientific evidence of a pollutant's health and environmental effects. EPA reviews this evidence every five years and analyzes any new data available If the review indicates changes are needed, the standard is revised.

Some regions of the Nation, such as national parks and wilderness areas, have exceptionally good air quality—better, in fact, than the quality that could be assured by the primary and secondary standards To retain this quality, such areas must meet *prevention of significant deterioration (PSD)* standards established to preserve the pristine air and clear vistas that contribute to the natural beauty of these national lands

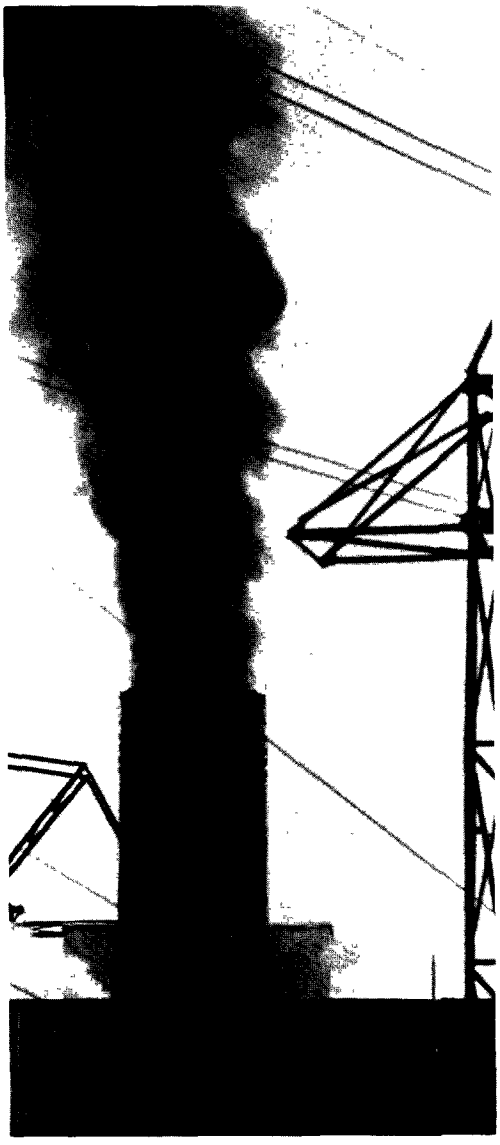
The Clean Air Act also requires that EPA establish *National Emissions Standards for Hazardous Pollutants (NESHAPS)* to control the emission of substances so toxic that even small amounts may adversely affect health. EPA has established NESHAPS for asbestos, berylium, mercury, and vinyl chloride, and has proposed standards for *benzene and arsenic*

Most air pollution comes from *stationary sources*, such as factories, power plants, and smelters, or from *mobile sources*— automobiles, buses, trucks, locomotives, and airplanes Some facilities, such as major highways and shopping centers, are called *indirect sources* because traffic concentrates at those places and increases local pollution levels.

To control pollution from mobile sources, the Clean Air Act and supporting regulations provide for automobile emission controls that have become more stringent as increasingly effective technology has developed. The use of catalytic converters and unleaded gasoline in newer model cars has been particularly important in achieving better air quality despite a continuing rise in the number of motor vehicles on the road.

To help ensure compliance with air quality standards by stationary sources, EPA sets *New Source Performance Standards* that limit emissions allowed from new industrial plants and existing plants that are substantially modified. By requiring uniform emission limits on new sources regardless of location, Congress has prevented air pollution controls from becoming a source of regional rivalry Standards are now in effect for most major industries.

Since national performance standards apply only to new or modified plants, these controls generally are not adequate in themselves to assure acceptable air quality. State governments must therefore draw up and enforce *State Implementation Plans (SIPS)*, which spell out additional measures that will be undertaken to achieve compliance *Typically, these include controls on older* industrial plants and other stationary sources of pollution, along with measures to cut back traffic volumes or in other ways reduce emissions related to motor vehicles. SIPS are subject to EPA approval If a State plan is not acceptable, EPA is required to provide an



implementation plan which the State must then enforce.

Some rural areas have air quality problems, but atmospheric pollution is primarily an urban problem. And it can pose a cruel dilemma for the nation's older cities, which seek to regain their economic vitality by attracting new industrial development. New industry means new sources of pollution, and this can threaten progress already made in cleaning up the air.

EPA has sought innovative approaches to pollution control that will allow both new industrial development and continued progress toward cleaner air One such approach is the *bubble concept*, which treats a plant as though it were covered by an imaginary bubble with only one opening through which pollutants can reach the surrounding air. Instead of having to meet emissions limits at each individual stack or source within a facility, managers can devise an overall control plan that may save millions of dollars without compromising progress toward improved air quality Another approach is *emission trading* This allows a company to receive *credits* for reducing emissions below levels required by EPA and the State implementation plan. With State approval, another company that wants to expand its facilities or put up a new plant may *buy* the credits earned by the first company Again, the result is economic growth accompanied by continued progress in air quality.

In recent years, the nation has seen a steady improvement in air quality. Since 1975 the ambient levels of all six criteria pollutants have decreased, in some cases dramatically. Ambient lead, for example, has dropped already by 64 percent, largely due to the increasing use of unleaded gasoline. Particulate levels decreased by 15 percent, ozone levels by 18 percent, carbon monoxide levels by 31 percent, and sulfur dioxide levels by 33 percent. Although nitrogen dioxide levels increased between 1975 and 1979, they began dropping in 1979; by 1982, ambient levels were the same as in 1975, and well below the standard. The number of times that the standards were exceeded also dropped significantly during this time.

Waste

The numbers alone are overwhelming. We Americans discard billions of tons of solid waste every year, and we all want it to go somewhere else.

In the past, it usually did go away. The philosophy was "out of sight, out of mind." Through ignorance or carelessness, we literally dumped it anywhere, regardless of the consequences. Now we know that irresponsible disposal methods not only put off real solutions, but can cause severe health and environmental effects. Improper disposal, particularly of hazardous wastes, can contaminate surface and ground water and contribute to air pollution.

Congress recognized the serious problems associated with waste disposal as early as 1965, when the Solid Waste Disposal Act was passed. By the mid-1970's, however, it was clear that a more vigorous national effort was needed. In 1976, Congress enacted the *Resource Conservation and Recovery Act (RCRA)*, which authorized EPA to regulate current and future waste management and disposal practices Congress was particularly concerned about the management of hazardous wastes, the careless disposal of which we now have learned may lead to the contamination of entire neighborhoods and communities. At Love Canal in New York, for example, hazardous waste buried over a 25-year period contaminated ground and water and finally forced the evacuation of an entire neighborhood. In Times Beach, Missouri, oil contaminated with highly toxic dioxin was sprayed on roads, eventually leading to a federal "buyout" of all homes and businesses in the community

RCRA can help prevent future Love Canals and similar tragedies, but it does not address a legacy of abandoned waste sites or emergencies created by spills or other releases of hazardous substances. To deal with these situations, Congress in 1980 passed the *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or "Superfund")* Financed for the most part by a tax on chemical manufacturers, Superfund sets up a $1.6 billion trust fund over five years and gives EPA the authority to respond to hazardous substance emergencies which threaten public health or the environment.

RCRA

Although RCRA has important provisions encouraging sound municipal disposal practices and resource recovery, EPA's major priority under the Act has been the development of "cradle-to-grave" regulations governing the generation, storage, transport, treatment, and disposal of hazardous wastes. These wastes include toxic substances, caustics, pesticides, and other flammable, corrosive, or explosive materials EPA recently estimated that over 71 billion gallons of such wastes are produced every year. That amounts to more than one ton of waste for every man, woman, and child in the country.

To carry out RCRA's provisions, EPA is responsible for:

- identifying the characteristics of hazardous wastes in general and identifying specific hazardous wastes;
- developing standards applicable to generators and transporters of hazardous wastes, and to operators of hazardous waste treatment, storage, and disposal facilities. Under these standards,

– *generators* must identify the wastes they produce and report the means of on-site treatment, storage, or disposal

– *transport* of such wastes is monitored through a *uniform manifest* system which ensures a verifiable record of the origin, route, and destination of each shipment.

– *treatment, storage, and disposal* facilities must have permits to operate, and their design must be adequate to prevent dangerous waste from leaching through the soil and contaminating water sources Active land disposal sites must be monitored constantly to prevent ground-water contamination; closed sites must be capped properly, as well as monitored. In addition, owners or operators of such facilities must demonstrate financial responsibility for damage occurring during active operations, and set aside funds for monitoring and maintenance after the site is closed.

Another major goal under RCRA is to encourage states to develop comprehensive programs for managing non-hazardous solid waste, and every state now has a solid waste management agency. EPA has supported research and demonstration projects to stimulate promising new methods of waste disposal, resource/energy recovery, and innovative technology The Agency also has laid out guidelines for developing waste management plans, established criteria for classifying land disposal facilities according to their environmental acceptability, and published a national inventory of unacceptable facilities.

Superfund

Superfund authorizes EPA to respond immediately to situations or sites that pose a danger to public health or the environment. While some emergencies occur because of accidents in the handling or transporting of hazardous wastes, the vast majority of hazardous waste emergencies are the result of improper or uncontrolled disposal practices in the past. EPA already has identified some 17,000 uncontrolled hazardous waste sites across the country and estimates that the total could reach 22,000

Superfund authorizes EPA to take the following direct actions in emergency situations:

- *Immediate removals* are begun in cases of imminent danger (oil spills, train derailments, leaking barrels, fires, explosions, etc). Their objective is to bring the situation under control by stabilizing or stopping the release of the hazardous substances. The law ordinarily limits immediate removal actions to six months and total costs of one million dollars.
- *Planned removals* are carried out when a hazard is substantial, but does not necessarily require immediate removal The objective is to minimize any increase in danger or exposure that might otherwise occur Planned removals are complete when the situation is stabilized and the imminent threat is abated They are subject to the same time and cost limitations as immediate removals

Superfund also authorizes the Agency to take long-term, *remedial actions* to achieve a permanent cleanup of hazardous waste sites Remedial actions are permitted only at sites identified on EPA's

National Priorities List. More than 500 site in 47 States and five territories have beer declared eligible for remedial actions.

EPA encourages owners to clean up abandoned sites voluntarily, but if the owners are unknown, or unable or unwilling to assume the cleanup responsibility, EPA and the states will perform the work. In such cases, the owners may be liable for punitive damages of up to triple the costs of federal remedial work. When EPA and states perform cleanup work, the state contributes 10 percent of the costs for privately-owned sites, and 50 percent for publicly-owned sites. In addition to cost-sharing, states participate in site selection and in establishing cleanup priorities States also must designate approved sites to receive wastes removed in cleanup operations.

Both RCRA and Superfund activities tend to generate intense public interest and involvement. Congress has been careful to protect the interests of affecte citizens by including specific *public participation* requirements in the enablinç statutes Public participation means that there is ample opportunity for citizens to air their views, that the public is given ar opportunity to understand clearly the programs and actions proposed, and that officials respond substantively and in a timely fashion to public concerns RCRA legislation, for example, requires EPA an the states to assist and encourage public participation in the development, revisior implementation, and enforcement of actions taken under its authority. A key aspect of any Superfund response is to ensure that local citizens' and officials' concerns are taken into account and that information about the site is widely distributed.

Pesticides

Pesticides are chemical or biological substances used to control unwanted plants, insects, fungi, rodents or bacteria. About 35,000 products are registered for such use in this country, and we use more than a billion pounds of these pesticides every year on farms and in homes, hospitals, commercial establishments and elsewhere.

Pesticides have contributed greatly to modern agricultural productivity and to improved public health through control of disease-carrying pests. But pesticides have a dark side, too. Many of them are extremely toxic and cause serious harm, even death, if spilled on the skin, inhaled, or otherwise misused. We know that some pesticides have caused severe damage to wildlife populations Now studies are showing evidence that pesticides may cause long-term adverse health effects such as cancer and genetic damage in people, as well. Many pesticides persist in the environment over long periods of time and have been found to accumulate in the tissues of people, animals, and plants. Repeated applications of pesticides may also lead to resistant pest populations, which then may require ever stronger doses for control.

EPA regulates pesticides under two laws: the *Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)* and the Pesticide Amendment to the *Federal Food, Drug, and Cosmetic Act (FFDCA)*

As originally enacted in 1947, FIFRA made it illegal to detach or destroy pesticide labels and provided for pesticide inspections. It applied, however, only to products in interstate commerce and did not address pesticide-related health or environmental problems. In 1972, Congress amended the law to provide much broader regulatory coverage; further changes were enacted in 1975, 1978 and 1980.

Under these amendments, EPA is responsible for *registering* specified uses of pesticide products on the basis of both safety and benefits. FIFRA requires EPA to determine whether a pesticide can perform its intended function without causing *unreasonable adverse effects* upon human health or the environment while taking into account the potential benefits of the proposed use. This balancing of risks and benefits underlies all basic regulatory decisions under the Act.

Manufacturers of pesticides are required to provide data on the potential for skin and eye irritation; hazards to non-target organisms including fish and wildlife; the possibility of acute poisoning, tumor formation, birth defects, reproductive impairments, or other serious health effects; the behavior of the chemical in the environment after application; and the quantity and nature of residues likely to occur in food or feed crops.

Amendments to FIFRA enacted in 1972 also require EPA to assess the safety of pesticide chemicals already in use Most older pesticides do not meet the standards of testing required now. In the *re-registration* process, therefore, manufacturers of these older products must meet the same testing standards which new chemicals must meet. This normally requires undertaking and completing various tests which are then reviewed by the Agency to determine whether products may remain on the market.

If a pesticide ingredient poses a special concern due to a perceived health or environmental risk, the Agency can conduct a special review of the product's risks and benefits. The review process allows all interested parties — the general public, environmentalists, pesticide users, manufacturers, and scientists — to participate. At the conclusion of a special review, EPA may decide to continue, restrict, or cancel pesticide uses under consideration A regulatory decision to cancel uses of a pesticide may be appealed to the EPA Administrator for an adjudicatory hearing.

EPA inspectors periodically check marketed pesticide products for their conformity with label claims concerning content, effectiveness, and safety. Labels also are reviewed to ensure that their claims agree with those accepted by EPA at the time of registration Penalties for non-compliance may range from informal notices to manufacturers to initiation of civil or criminal proceedings.

Finally, EPA is required to classify and certify all pesticide products for either *general* or *restricted* use General use pesticides are considered safe for use by anyone, provided label directions, restrictions, and precautions are carefully observed. Restricted pesticides may be used only by persons who have been *certified* as trained applicators. Training and certification is administered through EPA-approved state pesticide programs.

FFDCA

Pesticide provisions of the FFDCA require EPA to establish *tolerances* for pesticide *residues* on feed crops and raw and processed foods. Tolerances are established at levels well below amounts that might cause harm to people or the environment For agricultural commodities, tolerances are enforced by the Food and Drug Administration; in meat, poultry, and fish products, they are enforced by the U.S Department of Agriculture.

Toxic Substances

Chemicals are a vital part of our lives, and most of them are not dangerous to our health or the environment if used properly. But some are toxic substances that even in minute amounts can cause death, disease, genetic damage, or severe environmental harm. Toxic substances include a number of manufactured chemicals, as well as naturally-occurring heavy metals and other materials. The damage already caused by uncontrolled releases of these substances has been enormous. Polychlorinated biphenyls (PCBs), dioxin, and asbestos are now among the toxic materials whose common use in earlier years has left a legacy of contamination that plagues wide areas of the country today

It was to provide a safeguard against the introduction of additional contaminants to our environment and to address the risks posed by existing chemicals that Congress in 1976 passed the *Toxic Substances Control Act (TSCA)* TSCA is intended to identify and control chemicals that pose an unreasonable risk to human health or the environment through their manufacture, processing, commercial distribution, use, or disposal (Eight categories of chemical products are exempt from TSCA because they are regulated under other laws. These include pesticides, tobacco, nuclear materials, firearms and ammunition, food, food additives, drugs, and cosmetics.)

One of EPA's major regulatory tools under TSCA is its authority to screen new chemicals through the *premanufacture notification* process Manufacturers are required to notify EPA at least 90 days before producing or importing a new chemical substance. This enables the

Agency to assess the potential risks of a new chemical before manufacture begins. If a chemical substance is suspected of posing an unreasonable risk, but key data are missing, EPA may require manufacturers to test the substance for toxicity, cancer-causing potential, reproductive effects, or other characteristics. In addition, an Interagency Testing Committee of government experts advises EPA if certain chemicals should be tested Chemicals deemed to be harmful may be regulated in a number of ways, ranging from labeling requirements to outright bans on the manufacture or use of especially hazardous substances If appropriate, EPA may also refer chemicals to other Federal agencies with regulatory responsibility over toxic chemicals. These agencies include the Occupational Safety and Health Administration; the Food and Drug Administration; the Consumer Product Safety Commission; and the Food Safety and Quality Service of the Department of Agriculture.

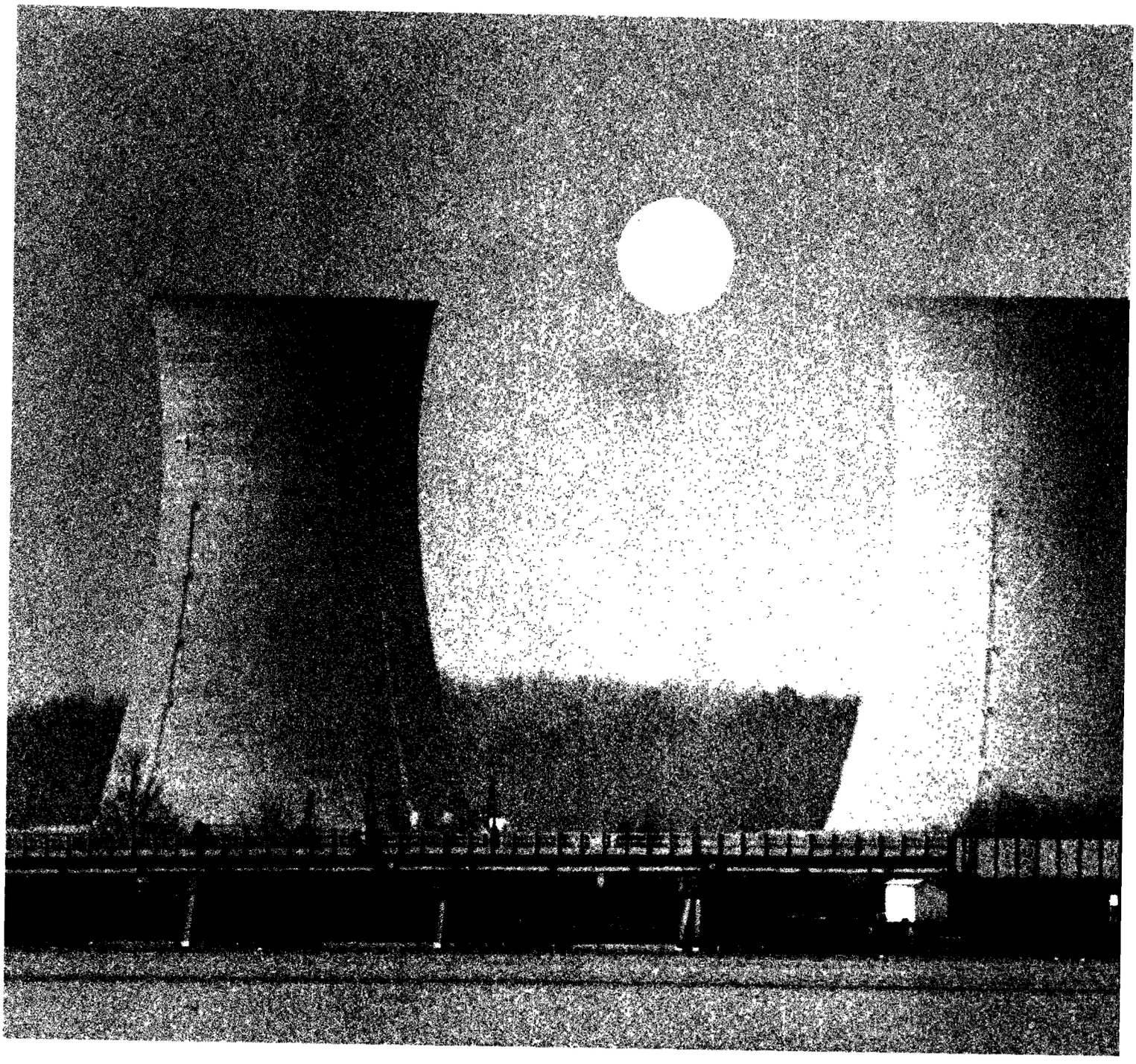
TSCA also requires EPA to develop and keep current a comprehensive *chemical inventory*. This inventory, which is based on information submitted by chemical manufacturers, processors, and importers, presents an overall picture of the chemicals used for commercial purposes in the U.S. (Although there are well over four million known chemical compounds, most of these are used only in research and development TSCA is applicable only to those chemicals in commercial use.) Chemicals not on the inventory must be reviewed by EPA before they can be manufactured in or imported into the U S.

In addition to keeping its own chemical inventory, EPA also by rule requires the chemical industry to report on and keep records on the manufacture, processing, use, and disposal of chemical substances, by-products generated by manufacture, the number of people exposed in the workplace, and other relevant information, including all *significant adverse reactions* to health and the environment alleged to have been caused by a chemical Industry also must report to EPA any information that indicates that a chemical substance or mixture presents a risk to health or the environment These reporting requirements enable EPA to monitor the actual environmental and health effects of a substance, and to take further action if necessary

Another of EPA's concerns is to ensure consistency in evaluating chemical hazards, both within and outside the Agency. The *Good Laboratory Practices* standards assure that test data submitted to EPA conform with requirements for administration of testing labs, the control and management of laboratory test animals, the documentation of tests, and the handling of test data. In addition, EPA works closely with the 24-nation Organization for Economic Cooperation and Development to develop uniform chemical testing guidelines

Some toxic substances require special attention because they are so widespread in the environment or because they pose serious health threats even at extremely low levels of contamination. Particularly troublesome substances include polychlorinated biphenyls (PCBs), asbestos, and dioxin. PCBs, for example, were widely used for about 50 years because of their heat resistant properties. So persistent is this substance that everyone in this country likely has trace levels of it in their bodies now Further production of PCBs was banned specifically by TSCA because they were found to cause adverse reproductive effects, skin lesions, developmental effects, and tumors.

Another substance of concern is asbestos, which when inhaled by human beings causes lung cancer and mesothelioma, a cancer of the membranes lining the chest and abdomen These effects may take many years to show up, depending on the degree and length of exposure. Asbestos frequently was used in buildings as a fire retardant, and in many cases has started to crumble and be released into the air. Because many school buildings used asbestos, hazards to children are a particular concern. EPA's school asbestos rule, issued in May of 1982, requires all elementary and secondary school administrators to have their buildings inspected for *friable* asbestos, notify parents and employees of any asbestos detected, and maintain records certifying compliance with the rule. (Friable materials are those that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure)



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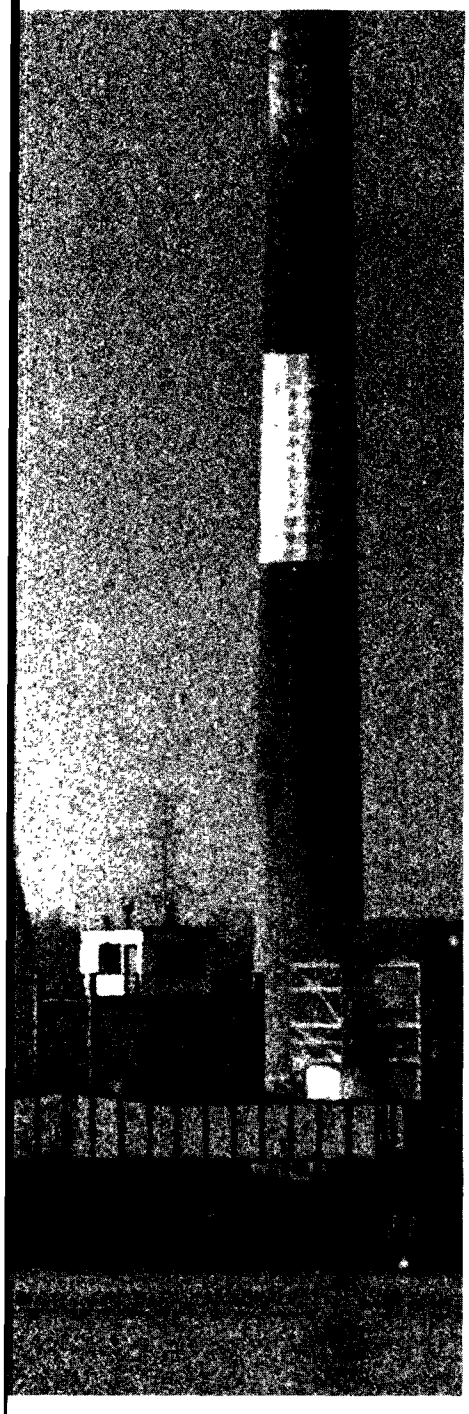


Radiation

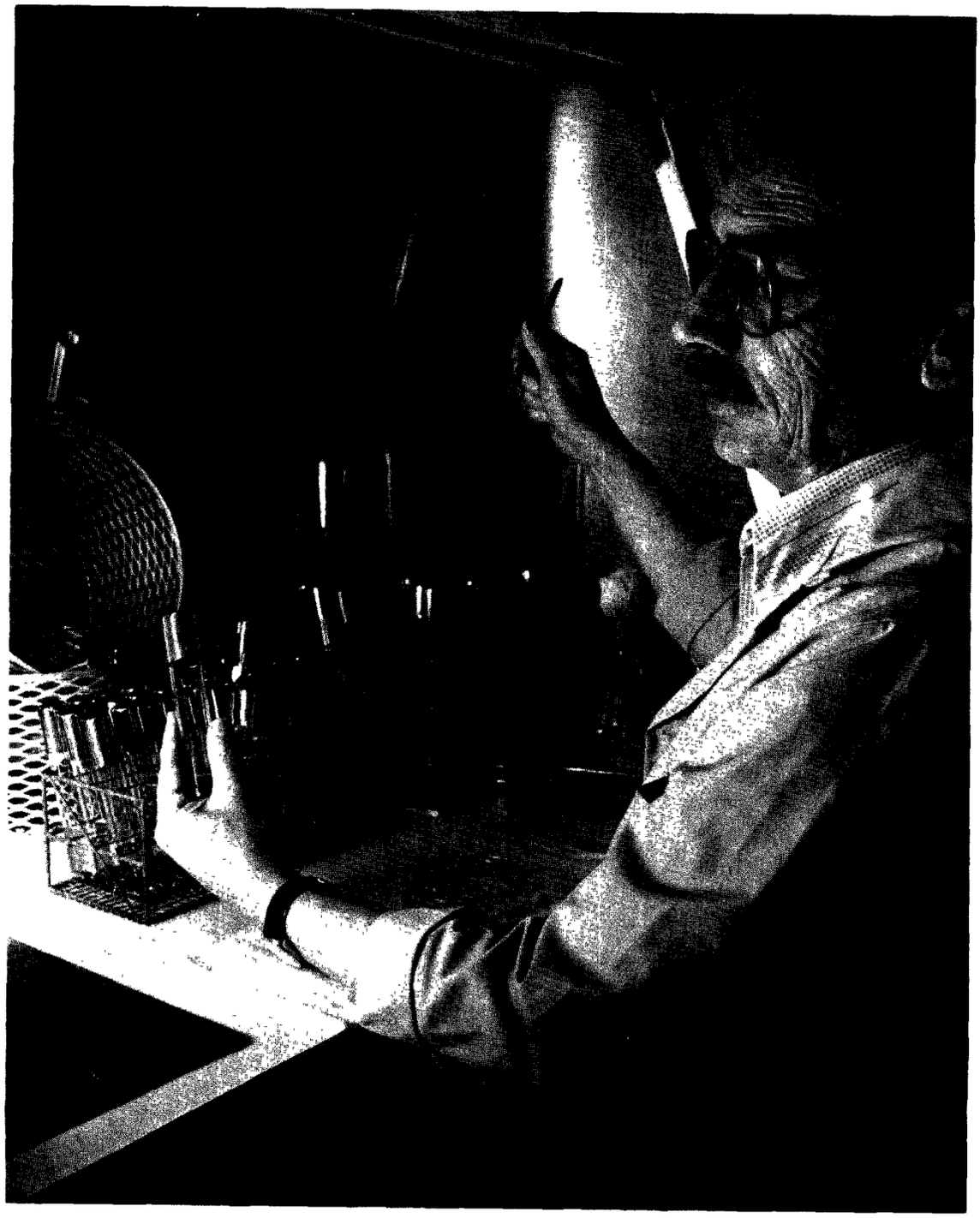
Ionizing radiation can be a serious environmental contaminant. Sources of this form of radiation include uranium mining and milling, nuclear power wastes, and radioactive materials used in medicine. The health effects of non-ionizing radiation—such as microwaves and radiation from high voltage power lines—are not as well understood, but they, too, may be hazardous.

A number of federal agencies, including EPA, are responsible for protecting the public from unnecessary exposure. EPA received its authority in this area under the Atomic Energy Act of 1954, the Public Health Service Act of 1962, the Safe Drinking Water Act of 1974, the Clean Air Act Amendments of 1977, the Uranium Mill Tailings Radiation Control Act of 1978, the Marine Protection and Sanctuaries Act, the Clean Water Act, the Nuclear Waste Policy Act of 1982, and the Comprehensive Environmental Response, Compensation, and Liability Act. The Agency's major responsibilities are to set radiation guidelines, to assess new technology, and to monitor radiation in the environment.

To protect the public from environmental exposure to excess radiation, EPA has set standards which limit releases from nuclear power plants, from mill tailings at active and inactive uranium processing sites, and from radionuclides in drinking water. In cooperation with the Food and Drug Administration, the Agency has developed guidance for other federal agencies on the use of x-rays in medicine. EPA has proposed standards for limiting airborne emissions of radionuclides and for the disposal of high-level radioactive wastes, and is currently developing standards for the disposal of low-level wastes. EPA also is developing guidance for protective action in nuclear accidents, for cleanup of contaminated areas, for occupational exposure, and for exposure to radiation from non-ionizing sources.

Another EPA responsibility is to participate in planning for radiological emergencies. The Agency is prepared to provide field monitoring assistance to other federal agencies, as well as state and local governments, in the event of an emergency at a nuclear facility.

Finally, EPA monitors radiation in the environment through a network of 264 stations that sample drinking water, air, precipitation, and milk The data from this monitoring are used to identify trends in environmental radiation levels, to establish ambient levels of radioactivity, and to assess actions needed to protect the public.



Research and Development

Protecting people from environmental hazard is a complex task, made all the harder because many actions must be taken on the basis of incomplete scientific information. To maintain public trust in EPA's decisions, it is essential that the Agency's decision makers objectively interpret and work with the best available scientific data.

EPA's research office provides this data and interpretation, for the most part in six major research areas: engineering and technology; environmental processes and effects; monitoring systems and quality assurance; health effects; health and environmental assessment; and exploratory research.

Research in *environmental engineering and technology* assesses pollution from industrial and municipal sources, and analyzes alternative control technologies Examples of research include innovative techniques for removing and disposing of pollutants, and developing cost-effective methods of providing safe drinking water.

Environmental processes and effects research seeks to develop the data necessary for predicting and managing the movement of pollutants through the environment and for determining their effects on ecosystems and nonhuman organisms. Research within this area also develops mathematical models relating pollution emissions to air quality.

Through its research in *monitoring systems and quality assurance,* EPA develops methods to measure and monitor pollutants, as well as ensure that these measurements are accurate and follow standardized procedures

Health effects research provides the data needed to accurately estimate human mortality and illness caused by pollutants. Research facilities include one of the nation's few facilities capable of testing human exposure, and research areas include developing data on dose-responses and methods of using such data to estimate human health effects.

A major factor in EPA's regulatory decisions is the Agency's determination of the hazard posed by various pollutants. EPA's *health and enviromental assessment* research includes an effort to provide an integrated, scientific foundation for evaluating the health and environmental effects stemming from exposure to a substance and for determining the risks of such exposure

EPA also needs to anticipate environmental problems and issues The *exploratory research* program assesses potential environmental trends and funds research to meet needs for basic scientific knowledge. EPA has 14 research laboratories and several field stations to carry out its in-house research, and this capability is extended through grants, cooperative agreements, and research contracts with universities and other private institutions. The Agency's largest research centers are in Research Triangle Park, North Carolina, and Cincinnati, Ohio. In addition, EPA has special arrangements with eight academic institutions and consortiums. Each university or consortium specializes in an area of particular concern to the Agency, and carries out long-term research programs (Appendix II lists all EPA laboratories and field stations and the eight academic centers.)

EPA also relies on its Science Advisory Board for technical advice and review This Board is a panel of eminent non-EPA scientists established by Congress to advise the Agency on scientific issues and review the quality of EPA scientific research

Enforcement of Environmental Laws

EPA's mission is to protect human health and the environment. That's the goal of its hundreds of complicated regulations In most cases, the regulated community complies with these requirements But when regulated entities fail to comply voluntarily, EPA can take a number of actions. Enforcement activities may take the form of education, technical assistance, negotiated compliance schedules, and ultimately, judicial enforcement, which involves civil or criminal proceedings in federal court against violators.

Judicial enforcement is only one of EPA's tools for inducing compliance, but it is a very important one Not the least of its virtues is its deterrence value By seeking and winning large financial and criminal penalties against significant violaters, the Agency can perhaps remove any incentives to non-compliance EPA will seek penalties at least as large as the profit a company may have realized by violating the law. A major objective is to ensure that violators are not inclined to consider fines simply as a risk of doing business. More and more, the courts have shown they are willing to punish willful polluters with criminal convictions, substantial fines and prison sentences.

To support these enforcement efforts, EPA maintains a National Enforcement Investigations Center in Denver, Colorado. The Center's combination of laboratory, investigative, and engineering skills is often instrumental in developing the solid evidence that enables EPA to win its cases in court

Another key component in the Agency's enforcement effort is the work of its newly-formed criminal investigation unit. Because of their specialized training in criminal law enforcement techniques, these investigators have been successful in cracking down on illegal discharges into waterways, "midnight dumping" of toxic substances, and the deliberate destruction or falsification of vital environmental reports.

Enforcing environmental laws and regulations often calls for close cooperation among EPA, its regional offices, the U S Justice Department, and myriad state and local agencies All have an important role in achieving significant improvements in environmental quality

Appendix I: EPA Regional Offices

EPA Region 1
JFK Federal Building
Boston, MA 02203
(617)223-7210
Connecticut, Massachusetts,
Maine, New Hampshire,
Rhode Island, Vermont

EPA Region 2
26 Federal Plaza
New York, NY 10278
(212) 264-2525
New Jersey, New York,
Puerto Rico, Virgin Islands

Field Component
Caribbean Field Office
P O Box 792
San Juan, PR 00902
(809) 725-7825

EPA Region 3
6th and Walnut Streets
Philadelphia, PA 19106
(215) 597-9800
Delaware, Maryland,
Pennsylvania, Virginia,
West Virginia, District of Columbia

EPA Region 4
345 Courtland Street NE
Atlanta, GA 30365
(404) 881-4727
Alabama, Florida, Georgia,
Kentucky, Mississippi,
North Carolina, South
Carolina,Tennessee

EPA Region 5
230 South Dearborn Street
Chicago, IL 60604
(312) 353-2000
Illinois, Indiana,
Michigan, Minnesota,
Ohio, Wisconsin

Field Component
Eastern District Office
25089 Center Ridge Road
Westlake, OH 44145
(216) 835-5200

EPA Region 6
1201 Elm Street
Dallas, TX 75270
(214) 767-2600
Arkansas, Louisiana,
New Mexico, Oklahoma,
Texas

EPA Region 7
324 East 11th Street
Kansas City, MO 64106
(816) 374-5493
Iowa, Kansas, Missouri,
Nebraska

EPA Region 8
1860 Lincoln Street
Denver, CO 80295
(303) 837-3895
Colorado, Montana,
North Dakota, South
Dakota, Utah, Wyoming

EPA Region 9
215 Freemont Street
San Francisco, CA 94105
(415) 974-8153
Arizona, California, Hawaii,
Nevada, American Samoa, Guam,
Trust Territories of the Pacific

Field Component
Pacific Islands Office
P O Box 50003
300 Ala Moana Boulevard
Room 1302
Honolulu, HI 96850

EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101
(206) 442-5810
Alaska, Idaho, Oregon,
Washington

Field Components
Alaska Operations Office
Room E556, Federal Building
701 C Street
Anchorage, AK 99513
(907) 271-5083

Alaska Operations Office
3200 Hospital Drive
Juneau, AK 99801
(907) 586-7619

Idaho Operations Office
422 West Washington Street
Boise, ID 83702
(208) 334-1450

Oregon Operations Office
522 S W 5th Avenue
Yeon Building, 2nd Floor
Portland, OR 97204
(503) 221-3250

Washington Operations Office
c/o Washington Department of
Ecology
Mailstop PV 11
Olympia, WA 98504
(206) 753-9437

Appendix II: EPA Resea[illegible] nters of Excellence

EPA Region 1

New England Regional Lab
60 Westview Street
Lexington, MA 02173
(617) 861-6700

Environmental Research Lab
South Ferry Road
Narragansett, RI 02882
(401) 789-1071

Centers of Excellence
University of Rhode Island

EPA Region 2

Oil and Hazardous Spills Lab
Woodbridge Avenue
Raritan Depot, Bldg. 10
Edison, NJ 08837
(201) 321-6635

Centers of Excellence
Cornell University

EPA Region 3

Central Regional Lab
839 Bestgate Road
Annapolis, MD 21401
(301) 224-2740

Analytical Chemistry Lab
Bldg 402 - ARC East
Beltsville, MD 20705
(301) 344-2187

Environmental Photographic Interpretation Center
Vint Hill Farms Station
P O Box 1587, Bldg. 166
Warrenton, VA 22186
(703) 347-6224

Centers of Excellence
University of Pittsburgh

EPA Region 4

Environmental Monitoring Systems Lab
Research Triangle Park, NC 27711
(919) 541-2106

Environmental Sciences Research Lab
Research Triangle Park, NC 27711
(919) 541-2191

Health Effects Research Lab
Research Triangle Park, NC 27711
(919) 541-2281

Industrial Environmental Research Lab
Research Triangle Park, NC 27711
(919) 541-2821

Eastern Environmental Radiation Facilities
1890 Federal Drive
P O Box 3009
Montgomery, AL 36193
(205) 272-3402

Environmental Research Lab
Sabine Island
Gulf Breeze, FL 32561
(904) 932-5311

Environmental Research Lab
College Station Road
Athens, GA 30613
(404) 546-3134

Environmental Chemistry Lab
Bldg. 1105
NSTL, MS 39529
(601) 688-3212

Centers of Excellence
Louisiana State University

EPA Region 5

Center for Environmental Research Information
Cincinnati, OH 45268
(513) 684-7391

Environmental Monitoring and Support Lab
Cincinnati, OH 45268
(513) 684-7301

Industrial Environmental Research Lab
Cincinnati, OH 45268
(513) 684-7418

Municipal Environmental Research Lab
Cincinnati, OH 45268
(513) 684-7951

Central Regional Lab
536 South Clark Street
Chicago, IL 60605
(312) 353-8370

Large Lakes Research Station
9311 Groh Road
Grosse Ile, MI 48138
(313) 675-5000

Environmental Research Lab
621 Congdon Blvd
Duluth, MN 55804
(218) 727-6692

Monticello Ecological Research Station
Box 500
Monticello, MN 55362
(612) 295-5145

Centers of Excellence
Illinois Institute of Technology/ University of Notre Dame

University of Illinois at Urbana

EPA Region 6

Robert S Kerr Environmental Research Lab
P.O. Box 1198
Ada, OK 74820
(405) 332-8800

Centers of Excellence
University of Oklahoma/ Oklahoma State University/ Rice University

EPA Region 7

Central Regional Lab
25 Funston Road
Kansas City, KS 66115
(913) 236-3720

EPA Region 8

National Enforcement Investigations Center
Bldg. 53, Box 25227
Denver, CO 80225
(303) 236-5100

EPA Region 9

Environmental Monitoring Systems Lab
P.O Box 15027
Las Vegas, NV 89114
(702) 798-2100

Centers of Excellence
UCLA

Region 10

Environmental Research Lab
200 SW 35th Street
Corvallis, OR 97330
(503) 757-4601

Marine Science Lab
Marine Science Drive
Newport, OR 97365
(503) 867-4041

Manchester Lab
P.O. Box 549
Manchester, WA 98353
(206) 442-0370