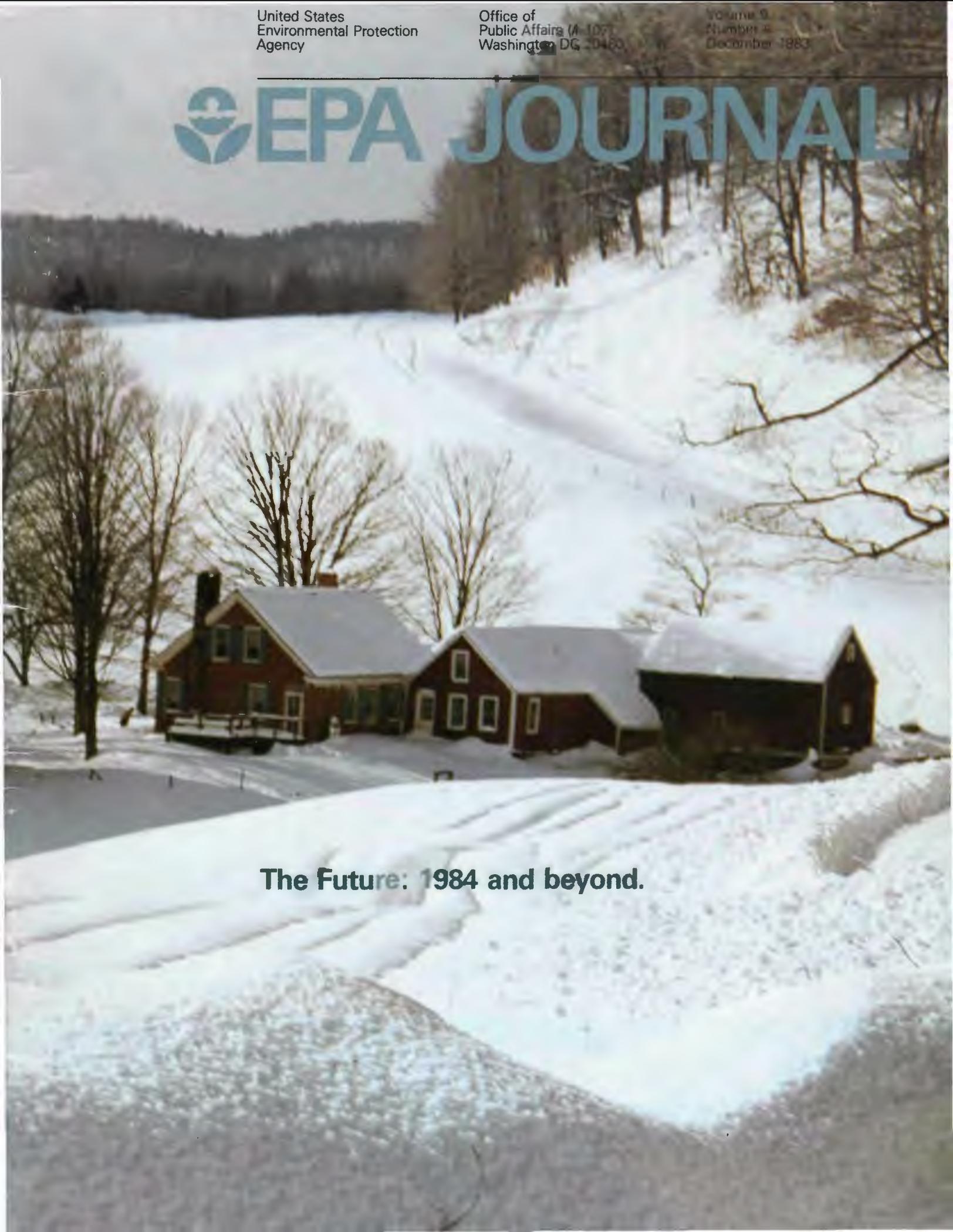


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# EPA JOURNAL



**The Future: 1984 and beyond.**



**Chesapeake Bay Program:** Jacques Cousteau, noted French oceanographer, and EPA Administrator William D. Ruckelshaus discuss marine pollution problems, including the proposed Chesapeake Bay cleanup program, at a meeting at EPA headquarters. Ruckelshaus has announced that an agreement has been signed creating an executive council to carry out cleanup of the Bay. The council will include representatives of Virginia, Maryland, Pennsylvania, the District of Columbia and EPA. An article on the role of EPA and the States in carrying out this agreement will appear in the next issue of *EPA Journal*.

## 1984 and Beyond

In the 1970's the American public was educated about the environment as a national concern and we learned to control many of the conventional pollutants. This month, *EPA Journal* considers what will be the focus of environmental issues in the future.

The *Journal* asked a diverse group of national leaders what they see as the major environmental concerns emerging in the remainder of the decade. EPA's regional administrators discuss their environmental priorities for 1984.

Symbolic of the tough environmental issues of this decade is the stubborn fire in a mountain of old tires in Winchester, Va. The discarded tire problem in Winchester and nationally is reviewed by Susan Tejada, *EPA Journal* contributing editor.

Helping illuminate another major environmental concern present and future, EPA Administrator William D. Ruckelshaus discusses the challenge of controlling toxic pollutants. Deputy Administrator Alvin L.

Alm reports on EPA's steps to deal with these substances and General Counsel A. James Barnes analyzes one of the key toxics issues—victim compensation.

The Administrator also comments on the cleanup of the Great Lakes, a great environmental asset shared by the U.S. and Canada, and gives a brief status report on another international concern, acid rain.

Other progress is noted by the Environmental Industry Awards granted to recipients, including a gold mine and a brewery.

Nature's own progress from season to season is described in an essay looking forward to the New Year.

The appointment of more new key officials at EPA headquarters and regionally is reported and recent developments in EPA activities are described in a regular feature—Update.

Meanwhile, EPA took time to celebrate a milestone—its 13th birthday—an occasion noted by the Agency's first and current Administrator. □

# EPA JOURNAL

**William D. Ruckelshaus**, Administrator  
**Josephine S. Cooper**, Assistant Administrator for External Affairs  
**Jean Statler**, Director, Office of Public Affairs

**Charles D. Pierce**, Editor  
**John M. Heritage**, Managing Editor  
**Susan Tejada**, Contributing Editor

## Articles

EPA is charged by Congress to protect the Nation's land, air and water systems. Under a mandate of national environmental laws, the Agency strives to formulate and implement actions which lead to a compatible balance between human activities and the ability of natural systems to support and nurture life.

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### EPA Journal Resumes Publishing 10 Times a Year

EPA Journal, now a quarterly, will resume publishing 10 times a year in 1984. The additional issues will help compensate for the recent discontinuance by the Agency of EPA Update, an external biweekly publication. The present Journal subscription rate of \$7.50 a year will continue until the U.S. Government Printing Office determines the appropriate charge for printing 10 issues a year. Current subscribers will continue to receive the magazine at no extra charge until their subscriptions expire. The Journal was started in 1975 and printed 10 times a year until September, 1981, when the number of issues was reduced to six and then to four in 1982.

*Front Cover: Sunlight glistens on an icy road leading past a Vermont farm wrapped in a mantle of snow. Photri photo by Everett Johnson.*

*Photo Credits: Steve Delaney, B. A. King, Everett Johnson of Photri, AP.*

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## EPA JOURNAL Subscriptions

The annual rate for subscribers in the U.S. for the EPA Journal is \$7.50. The charge to subscribers in foreign countries is \$9.40 a year. The price of a single copy of the Journal is \$2.50 in this country and \$3.15 if sent to a foreign country. Prices include mailing costs. Subscriptions to EPA Journal as well as to other Federal Government magazines are handled only by the U.S. Government Printing Office. Anyone wishing to subscribe to the Journal should fill in the form at right and enclose a check or money order payable to the Superintendent of Documents. The request should be mailed to: Superintendent of Documents, GPO, Washington, D.C. 20402.

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# National Leaders Speak on Environmental Future



**Russell E. Train**  
*President*  
*World Wildlife Fund—U.S.*  
*Former EPA Administrator*



**Owen Bieber**  
*President*  
*United Auto Workers*

*What should we expect as the major, national environmental problems for the remainder of the 1980's and what can we do to prepare for them?*

*EPA Journal asked a diverse group of leaders around the country their views on this question. They included elected officials, environmentalists, business groups, labor, and public interest organizations. Here are their answers:*

It is my belief that the most crucial long-term environmental problem we face is how to balance the world's natural resource needs with its human needs. The policies we pursue in the coming decade toward managing these needs will have unprecedented implications on the quality of life for generations to come.

Nowhere is sound resource management more urgently needed than in the non-industrialized, or Third World nations. In my judgement, the central focus of both development and conservation efforts in these countries must center upon encouraging at the local level the kinds of industry and enterprise that enable people to support themselves and reap ongoing economic benefits from the use of their natural resources. Until the people of these nations find sustainable ways of using these resources, they will have no choice but to continue to damage and deplete them.

The non-industrialized world has tended to regard development and the safeguarding of natural resources as mutually exclusive. That perception, however, is changing. Increasingly, leaders of developing nations are recognizing that sustainable growth and economic development can only occur on an ecologically sound base. They are coming to understand that the kind of development they need is that which allows people to make their living without destroying or impairing their cropland, pasture, forests and water supplies which are necessary both to meeting human needs and to supporting the diversity of other life on the planet.

In short, conservation and development efforts in the Third World can only succeed to the extent that they combine to offer the poor a genuine alternative to the continued consumption of their natural capital.

The development of a harmonious rela-

While broad public awareness of the toxic waste disposal problem assures that remedial steps will be taken, the dangers posed by workplace chemicals are far less widely understood. The rapid proliferation of potentially harmful chemicals and the resulting difficulty of tracing ill effects back to their workplace source define this problem as a hidden time bomb in public health terms. The solution, in our view, is rigorous application of stringent "right to know" standards whereby all potentially hazardous substances are clearly labeled and workers are continually updated on the nature of the substances they are working with, the proper handling of such substances and the identification of symptoms which might indicate a harmful exposure level.

As the decade unfolds, we will be racing the clock in the face of impending disaster unless we get a handle on accumulating workplace toxins. Industry, and in particular the chemical industry, will very likely argue that government regulation in this area will impede American productivity and cost us jobs vis-a-vis our worldwide competitors. I think the experience of some of the European countries will show to the contrary that prudent regulation is fully consonant with a competitive situation.

tionship between human populations and their natural resource base will be a decisive factor in bringing about the political, economic, and social stability in the Third World necessary to ensure a more harmonious future for all of mankind.



**Dorothy S. Ridings**  
President  
*League of Women Voters*



**Russell W. Peterson**  
President  
*National Audubon Society*



**Dr. Jay D. Hair**  
Executive Vice President  
*National Wildlife Federation*

In the last 10 years, the nation has worked intensively to improve water quality. Although much has been accomplished in controlling water pollution from industrial and municipal sources, clearly much remains to be done. One major unresolved problem is the growing threat posed by toxic contamination of drinking water supplies—particularly groundwater resources.

Another problem is controlling the substantial water pollution problems linked to non-point or diffuse sources, such as runoff from farmland and construction sites.

But in the next decade, in addition to tackling these unresolved water pollution control issues, the nation must grapple with some fundamental water management questions. How should water resources be allocated among competing uses? What uses should be given priority? Who should pay? And at what price?

League members across the country are increasingly concerned about the ramifications of inter-basin transfer of water; the depletion of precious groundwater supplies; and, finally, the steps that can be taken now to ensure that adequate supplies of clean water are available to meet our future needs. One thing is certain—in the next decade we must make sure that water conservation becomes a part of the nation's environmental ethic, just as energy conservation did in the last decade.

Although nuclear war and human population growth stand out as the greatest threats to the environment, the way we procure, transport and use energy must rate in third place.

Consider the ramifications of past and present energy practices. The mining of coal and uranium, and the drilling for oil, continue to degrade and disfigure the land. Sulfur dioxide, nitrogen oxides and particulates released from electric power plants—and carbon monoxide, nitrogen oxides and hydrocarbons from auto exhausts—pollute the air and cause acid rain. The burning of fossil fuels releases CO<sub>2</sub> which may seriously alter the world's climate. Deforestation for wood fuel causes soil erosion and depletes watersheds. Oil spills befoul the coasts. Nuclear plants stockpile huge quantities of long-lived radioactive waste, adding to the earth's burden of life-threatening materials and facilitating the spread of nuclear weapons.

A most promising development of the past few years is the more efficient use of energy stimulated by the increased price of oil. Doubling auto mileage per gallon of gasoline, for example, permits cutting the production and burning of gasoline in half, thus reducing the impact on the environment. Continuing increases in the efficiency with which energy is used should permit substantial growth in the world's production of goods and services with less energy consumption in the year 2000 than today. And of course the sun offers the potential to eventually satisfy *all* our energy needs. While we prepare for an energy future based on greater efficiency and the substitution of renewable solar energy—in its many forms—for conventional fossil fuels, our government must in the interim insist that industry use the best technology for burning fossil fuels so as to *minimize environmental damage*.

From an environmental point of view, nothing will be more important in the next decade than cleaning up the toxic nightmare we have created and properly disposing of the hazardous wastes we generate daily to prevent a recurring nightmare in the future.

For example, more than a ton of hazardous waste for *every* person in this country is added to our environment *every* year. The sheer magnitude of the problem cannot be ignored. Of the 16,000 inactive hazardous waste sites identified by EPA, 5,000 will require some degree of cleanup. Of the 539 most dangerous sites identified so far, 75 percent have groundwater contamination problems. In 954 cities studied by EPA this year, 29 percent have contaminated drinking water supplies—most likely due to the leaching of toxic wastes.

We must come to grips with the toxics dilemma not just during this decade, but with an eye on long-term natural resource trends.

Because this country needs both a healthy environment and economic growth, we must make the maintenance of that sound environment compatible with the cost of doing business. We must create economic incentives for industry not only to clean up its wastes, but to find new ways for proper future disposal as well.

Bernard Baruch once observed that "the highest and best form of efficiency is the spontaneous cooperation of a free people." The cooperation of all parties concerned with our toxics problems will hopefully lead to a solution that produces the clean environment all Americans want.



**Mike Lindberg**  
*City Commissioner of  
 Portland, Ore., and Chairman of the  
 Energy, Environment and  
 Natural Resources Committee,  
 National League of Cities*



**Dr. Jack D. Early**  
*President  
 National Agricultural  
 Chemicals Association*



**Ted Wilson**  
*Mayor of Salt Lake City, Utah  
 and Chairman of the  
 Energy and Environment Committee,  
 U.S. Conference of Mayors*

**A**lthough considerable progress has been made in the environmental area, due in large part to federal legislation, significant environmental problems will need to be addressed over the next decade. Two in particular come to mind.

One problem concerns the difficulty of making environmental decisions in the face of scientific and technological uncertainty. Over the past year, Congress has grappled with the decision to develop a national acid rain control program, despite questionable data linking SO<sub>2</sub> and NO<sub>x</sub> emissions from a particular source to a particular "receptor" area. Yet, unless a control program is enacted, irreversible environmental damage may be done. Similarly, data which would support the creation of a federal compensation program for victims of hazardous substances is seriously deficient. However, there are hundreds, perhaps thousands, of persons who have been damaged by such substances and who have not been adequately remedied by the judicial process. Further, Congress has tried to develop various means of disposing of hazardous wastes, yet it is known that all of the landfill disposal methods are technologically unsound and will eventually fail, and the technological adequacy of other disposal methods is highly uncertain. Given these seemingly overwhelming uncertainties, how can our national decision-makers make informed decisions? Clearly, there are no easy answers to this problem. At a minimum, there must be continued federal emphasis on environmental research and development efforts.

The second problem concerns the difficulty of relating one environmental program to another. Over the past year, it has become evident that federal environmental decisions in one area have repercussions for a second or third area. Proposed federal policy to lessen the use of land disposal methods of hazardous wastes may cause an increase in incineration, which in turn may cause an increase in incinerator-related air pollution. Federal requirements to clean wastewater to secondary treatment

**F**or the agricultural chemicals industry, as well as for industry in general, the potential of groundwater contamination will continue to be an issue. I am confident that our scientists can develop solutions for preventing or correcting groundwater contamination, although those solutions could be technically difficult to achieve.

Dealing with the *issue* of groundwater contamination is more difficult. Issues evolve out of public perceptions which may or may not be directly related to the facts. Success in dealing with this and other issues depends upon several factors.

First, good, solid science must support both formal actions and public discussion by the Environmental Protection Agency.

Second, both EPA and industry must work to establish public confidence in the quality of the science supporting their activities.

Finally, the public itself must come to understand that the mere presence of a chemical in groundwater at a relatively low level is not necessarily a risk to public health or the environment. Also, it must be recognized that all groundwater is not of drinking quality due to both natural and man-induced causes. This situation necessitates normal groundwater management programs balancing use and quality criteria.

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standards causes toxic sludge creation and disposal problems. Over the next decade, EPA may need to take a more holistic approach to environmental problems which may necessitate a restructuring of the agency's internal organization. Similarly, the organization of the various Congressional committees concerned with environmental issues may need revision.

**W**hen it comes to environmental matters, where you stand depends a great deal on where you sit. As the Mayor of a major American city for the last eight years, and Chairman of the U.S. Conference of Mayors' Energy and Environment Committee since 1981, I believe the greatest challenge we face as a nation in the next decade in the environmental area is to develop and sustain a national environmental consensus, not only on the problems we face in restoring the quality of our land, air and water—but on the solutions as well.

Looking back over recent history, it's clear that the greatest environmental achievement of the 1970's was the broad-based education of the American people on the existence of significant threats to our environment. That understanding is now a permanent part of the national political culture we all share. But we sorely lack environmental consensus on the solutions we will have to implement to achieve the results we desire.

This consensus must be built on several fronts simultaneously. There must be consensus between the Administration and Congress; there must be consensus among regions; and there must be consensus within our own communities.

Mayors have neither the luxury nor the time to view environmental matters as separate problems or occasional concerns. We know too well that they are part of an overall system which at once threatens the health and quality of life for all Americans. Consensus and action at all government levels must be our top priority for the next decade so that a clean environment can be not a battle we are fighting, but one which we have won.



**Henry A. Waxman**  
*U.S. Congressman (D.-Calif.)  
 Chairman, Subcommittee on  
 Health and the Environment,  
 House Committee on  
 Energy and Commerce*



**Robert Stafford**  
*U.S. Senator (R-Vt.), and  
 Chairman, Senate Environment and  
 Public Works Committee*



**Christopher S. Bond**  
*Governor of Missouri and  
 Chairman of the Committee on  
 Energy and Environment,  
 National Governors' Association*

Perhaps the most crucial issue of the 1980's will be whether we continue to resolve uncertainty in favor of protecting public health or we adopt crude mathematical formulas such as cost/benefit analysis and risk assessment as tools for making decisions. Today, the protection of public health is the keystone of our environmental laws including the Clean Air Act and the Safe Drinking Water Act, the environmental statutes under my subcommittee's jurisdiction. For over a decade, we have sought to protect particularly sensitive citizens such as children, the aged, and pregnant women from polluted air and water. We have yet to eliminate unhealthy air in our cities, to regulate effectively cancer-causing air pollutants, or to begin to deal with the threats to our ecology—and possibly our health—posed by acid rain. Nor have we ensured the safety of our nation's drinking water supplies.

We can continue the progress already made or we can rationalize away the hazards that still exist by the misguided use of risk assessment and cost/benefit analysis. Even though industry and many within the current Administration want greater and greater reliance on these mathematical tools, I don't think the American people will stand for abandoning many of our citizens who are most sensitive to pollution. For in the final analysis, when we get through all the maze of numbers and scientific hypotheses, we are talking about people's lives and the judgment of who will live and who will die.

Our modern life has become dependent to an astonishing degree on chemicals that are synthesized or isolated from natural products.

But it has only been in recent years that we have been made acutely aware of the fact that many of these chemicals—perhaps thousands of them—are poisonous.

A series of frightening events has awakened us to the fact that not only are we making poisonous substances, but that we are releasing them into our environment in staggering amounts.

We still don't know very much about all this, but we do know that our nation has another environmental health crisis on its hands.

The care and handling of toxic chemicals has become the issue that will dominate our environmental agenda for the remainder of the twentieth century.

At the turn of this decade, the American Chemical Society had listed more than four million distinct chemical compounds that had been reported in the literature in the previous 15 years—and that list was growing at the rate of 6,000 each week.

The Environmental Protection Agency has told us that there may be as many as 70,000 chemicals in commercial production in the United States. Perhaps as many as 10,000 of that total are dangerous.

The list is growing daily. And hardly a week goes by without another report of a newly discovered hazard in the marketplace or in the workplace, in air or in water, or in some other part of the environment.

We should not restrict our inquiry into the universe of problems caused by the release of toxics into our environment to only those situations that have made headlines, because the problem is all about—in every part of our nation.

What we must do is to explore every aspect of how and why these poisons are entering our environment and how much injury they are causing. We must decide how to help those who have been injured, and also how to stop such injury in the future.

We are beginning an inquiry that may lead

In my view, the challenges we face in managing hazardous and toxic substances are the most difficult we have encountered in the history of environmental protection. Specifically, hazardous air pollutants, groundwater contamination, and toxic water pollution present us with very difficult problems and choices, for a number of reasons. Perhaps foremost, there is a very limited body of scientific knowledge concerning which substances are hazardous, and at what doses. Without a sense of what may be the safe level, if any, for a hazardous substance, regulation will be based on guesswork. Second, we have not developed adequate, affordable technologies to reduce or eliminate many hazardous substances from our air or water. The alternative of shutting down plants is not an acceptable solution. Third, we have not made sufficient effort to integrate into our industrial processes means to reduce the total generation of toxic wastes.

While the problems we face are tough, they are not insurmountable. With a greater emphasis on research into the health effects of suspected hazardous or toxic materials, on the development of more effective control technologies, and on the restructuring of our industrial processes, we can do a better job of cleaning up past mistakes as well as ensuring that we don't create new problems in the future.

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us to dramatic changes in the way we conduct our lives. Such changes may be required if we are to avoid unacceptable risks to ourselves and to our environment.



**Alexander B. Trowbridge**

*President*

*National Association of Manufacturers*

For two decades, the American political agenda has included a prominent place for environmental discussion. During the eighties, that agenda will focus in large part on solutions to the disposal of hazardous wastes, a problem we have only recently come to understand.

Hazardous waste management will continue to play a major part in America's environmental debate for two reasons. The first is the legacy of years of casual disposal of hazardous wastes. The second is the large volume of this inevitable byproduct of a technologically-advanced society. It will take a major effort to store and dispose of wastes in an ecologically sound manner, but it can be done.

One possible solution is incineration—the burning of hazardous wastes, either on land or at sea. Though the emissions of such a process would still be toxic, the amount of waste could be reduced considerably. The technology now available makes this process very expensive. But technology advances rapidly, and if we will commit ourselves to researching and developing the process, we may end up with a good solution to a difficult problem.

Producers and consumers alike share the responsibility for shaping waste policies that are cost-efficient as well as consistent with public health objectives. The federal government should encourage the states to designate disposal sites—without facility requirements that are so stringent that they preclude an actual site location. Adequate, safe disposal facilities are the primary goal of everyone concerned.

Today's hazardous waste management programs should be highly selective, concentrating on those areas and sites where the most wastes are being generated. Additionally, not all sites are equally toxic, though current regulations often treat them as though they were. Those that pose the greatest health threat naturally should be the first to be cleaned up.

The ultimate solution to the problem of hazardous wastes still lies in the future—hopefully, the near future. Whatever that solution turns out to be, it will require the serious efforts and cooperation of industry, government and the public.



**John Quarles**

*Attorney and*

*Former EPA Deputy Administrator*

To me the next big problem that EPA will confront over the coming decade is obvious. It is to deal more effectively with all the old problems already stacked high on its platter.

The expression "overworked, underpaid, and unappreciated" comes closer to the truth, when applied to EPA, with each passing year. This Agency is one where budget cuts conflicted with wise national policy. As EPA's jurisdictions have been expanded, its responsibilities have multiplied. Its manpower needs have grown.

Even more serious than the manpower gap is the need to reassess EPA's role in addressing the universe of vexing environmental issues. Public expectations are now almost hopelessly unrealistic. The prevailing assumption is that Congress and EPA, through federal regulation, can control the unlimited diversity of sources and individual practices which in the aggregate create environmental problems. It cannot be done.

Whether one is talking about users of municipal sewage treatment plants, or small generators of hazardous waste, or dry cleaning establishments and other diffuse sources of air emissions, or ranchers, farmers and other non-point sources of surface water runoff, the sheer numbers of affected persons place limits on what the federal government can do. So it is with many other environmental problems.

Often EPA has aggravated the inherent difficulty of its task by reaching out for more jurisdiction and by establishing intricate regulatory requirements. The inherent complexity of the problems is thus compounded by the complexity of EPA's response.

To the extent that EPA may operate efficiently off the top of the pile—concentrating on the most serious needs and simply allowing others to slide—the excesses of regulatory over-reach may be innocuous. But it does not seem to work that way. Instead, one detects a rising preoccupation with the

paperwork, a greater sense of spinning wheels. Harried by pressures from without and within, the program managers may be distracted from those efforts that would be truly productive. In comparing regulatory controls against environmental results, it indeed may be true that less is more.

With public pressures intense, especially in the extremely complex fields of toxic substances and hazardous wastes, it is hard to see any easy ways to achieve actual simplification in EPA's vast undertakings. But the first need is just to see the problem clearly. To see and to resolve it is the biggest challenge EPA faces today.

# A New Year in Nature



Glossy Ibis

The curtain is lifting now on a magnificent free show—the arrival of the new year in nature. It offers splendor, savagery, peace, and a whiff of eternity.

While paper calendars mean nothing in the natural world, January is a good time to begin listening again to the ageless rhythms of the forest, fields and streams.

The outdoor season begins softly like the opening of a symphony with muted violin strings. Then gradually the tempo picks up with the approach of spring. As the pulse quickens we hear the mounting frenzy of sawing violin bows, the boom of kettle drums, the groaning of bass fiddles and blaring of trumpets.

Gradually the music flows into the flowering of summer, then glides into quieter reflective passages for fall and subsides with flute calls announcing the death of another year.

One of the charms of the outdoor world is that it is completely unpredictable. On one January day you can explore the countryside after a snow storm and hear only the wind blustering through some hemlock trees and the cracking of ice from a nearby lake or river.

Yet the next day the hush of a snow-covered land can be suddenly broken by the frantic crashing of a deer racing down a glazed hillside. Behind it echoes the baying of hounds gaining on their quarry.

The deer lurches by, its sharp hooves breaking through the snow crust with every step. The pursuing dogs running swiftly on their padded feet on top of the snow appear over the brow of the hill just as the deer reaches the plowed road and races away with a burst of speed on the firmer surface.

Soon the dogs will see only the blood-stained tracks left by the deer's legs scraped raw by the jagged snow crust.

While these pursuit dramas are rarely seen, fields and woods offer many gentler sights—a white-breasted nuthatch walking down a tree trunk head first, a red bellied woodpecker undulating through the air from one tree to another; or a flying squirrel peeking through a crevice in its tree-trunk home at a stranger wandering by.

Although nature offers its rewards everywhere to anyone who will take the time to look, the Washington, D. C. area is exceptionally rich in natural beauty and variety of life.

Located approximately three hours away from both 4,000-foot mountains and ocean beaches, this region provides an exceptional number of habitats for birds and mammals.

A particularly keen observer of the Washington natural scene was Louis J. Halle, a former State Department official who found the first evidence of approaching spring in the faint dawn singing of a cardinal in January.

Halle, author of the noted *Spring in Washington* published in 1945, lamented that "the government has no department that takes cognizance of life itself; it posts no watchers out of doors to sniff the wind and inform those within of eternity."

One of the loveliest developments in Washington each spring is the flowering of forsythia in great overflowing golden clusters which brighten many lawns and parks. Outside the city, wood ducks nest high in sycamore trees up and down the Potomac River and from pond and lakes the little frogs called spring peepers are clamoring for mates, as they have for thousands of years.

The arrival of summer will find many animals in the area searching feverishly for food to support their new young. Among these will be the resurgent beavers.

These animals are sometimes viewed with mixed emotions because they can gnaw through prized trees on private land and kill others by flooding woodlots behind their newly constructed dams.

While these elusive creatures are rarely

seen during daylight they can occasionally be seen by moonlight if you follow the sound of their splashing or their chewing on a tree trunk.

One of the more exotic creatures active in the region during the summer is the glossy ibis, a wading bird with iridescent copper plumage. Flocks of ibis, once sacred to the ancient Egyptians, can often be seen at the Chincoteague Island wildlife refuge with their long curved beaks racing up and down like sewing machine needles as they feed in a frenzy on small insects, fish and frogs in the marshes.

As fall approaches, ruby-throated hummingbirds in the area begin to train for their long migration flights which will take many of them over the Gulf of Mexico. They engage in mock aerial duels while visiting flowers or artificial feeders to drink nectar or sugar water.

As one bird hovers on furiously beating wings beneath a feeder, another hummingbird will dive bomb it from above and force the first bird away. The deposed bird will then retaliate by zipping around a tree to ambush its rival just as it gets ready to sip from the feeder. Sometimes five or more hummingbirds will engage in this aerial warfare, darting back and forth in a dazzling display.

Even with these warm-up exercises, many hummingbirds, as well as other small birds, fail to complete the perilous journey across the Gulf of Mexico. Buffeted by storms, the exhausted creatures drown in the choppy water, although some find temporary refuge on passing ships.

Walk the countryside in winter and note the constellations blazing in the brilliant star-studded skies—Orion, the hunter; the Great Bear, Cassiopeia, the Queen; and Cygnus, the Swan, flying across the heavens.

This is also the time when the hooting of owls has a special meaning. It's courting season and the owls will soon be mating and nesting, despite snow and cold. Their young will be ready to leave the nest by the end of winter.

While we talk of the end of one season and the beginning of another, we know that all time is seamless.

For those interested in spending more time with nature, there are several excellent regional books in addition to Halle's *Spring in Washington*. These include Claudia Wilde's *Finding Birds in the National Capital Area*, a Smithsonian publication; *Natural Washington*, a nature lover's guide to Washington, by Bill and Phyllis Thomas; and, for those interested in the major mountain range near Washington, Maurice Brooks' *The Appalachians*, a landmark in natural history writing.

Armed with these books, you will be ready to explore the outdoors world and heed Milton's counsel: "Tomorrow to fresh woods and pastures new."—C. D. P.

# 1984 in EPA's Regions

Michael R. Deland  
Region 1

Jacqueline E. Schafer  
Region 2

*For a look ahead in EPA's 10 regional offices, the EPA Journal asked the Regional Administrators to comment on their environmental priorities in 1984. Their views follow:*

New England prides itself on its vital and valuable coastline. Our coastal waters are major resources for boaters, swimmers, clambers, fishers, and nature lovers.

One of my top Regional priorities in 1984 will be to accelerate water pollution cleanup efforts in coastal areas, particularly Boston Harbor.

The recreational potential of Boston Harbor is great, but use of this resource is curtailed by poorly functioning primary treatment plants at Deer and Nut Islands in the Harbor. These facilities handle some 500 million gallons of wastewater every day. The plants are antiquated and overloaded.

I intend to work closely with a special commission appointed by Massachusetts Governor Michael Dukakis which is developing a long-range master plan for the Harbor, as well as with our Congressional delegation, local officials and concerned citizens.

We are pressing ahead with the development of a draft environmental impact statement designed to develop treatment alternatives. Improvements to Nut Island are underway and a facilities upgrading plan for Deer Island will be prepared.

We will not resolve all of the problems in Boston Harbor in 1984. It will take time—probably more than a decade—and it will be expensive—well in excess of a billion dollars. But, we will be putting in motion in 1984 many initiatives that will pay dividends in the years ahead.

In addition to Boston Harbor, there are other troubling coastal problems I will be addressing. We will seek a solution to the major PCB problem in New Bedford Harbor and an end to the dumping of sludge into the ocean by the South Essex Sewerage District, north of Boston. Toward the end of 1983, we initiated a major enforcement action against the District requiring an immediate end to the dumping of sludge.

Other 1984 alternatives will be the development of regional strategies dealing with the problem of failing underground gasoline storage tanks and the air toxics problem, both high priorities with our New England states.

In Region 2, which includes New York, New Jersey, Puerto Rico, and the Virgin Islands, the problems of hazardous and toxic chemicals have mushroomed into our top environmental priorities. We are addressing them through our Superfund and Resource Conservation and Recovery Act programs in close conjunction with the states.

Region 2 has nearly one quarter of the 546 Superfund sites on the National Priority List; there are 85 in New Jersey alone, 29 in New York, and 8 in Puerto Rico. New Jersey ranks first among all the states, and in FY 1984, we expect New York to nominate several more sites for the list.

Our goal this year is to get out and clean up as many sites as we can. We want to move as many sites as possible from the remedial investigation and study phases, into the design and engineering phase, to final cleanup. We also intend to initiate investigations and studies at as many new priority sites as possible. Here are a few highlights:

- The number one site on the National Priorities List is Lipari landfill in Gloucester County, New Jersey. We are nearly finished installing a cutoff wall and cap; after that, we will develop a final site closure plan.
- At Love Canal in Niagara Falls, New York State continues to operate a leachate collection system and to oversee the completion of an expanded cap over the canal and its drainage area. The State is studying the need, if any, to include additional cost effective and environmentally sound remedies to contain leachate from the canal.
- In Atlantic City, N.J., chemicals from Price's Pit landfill are migrating toward the City's public water supply well field. The State is about to start drilling wells in a new location so that some capacity will be on line in time for the 1984 tourist season. EPA is looking at what future steps are necessary to control the plume of contamination that has already entered the area's groundwater. To date, EPA and the State have obligated approximately \$8.2 million.
- We expect to decide on the best remedies to deal with contamination in area creeks and storm sewers before the end of 1983 and get them into construction next fall. Nearly \$8 million has been obligated from the Superfund to date.

## Thomas P. Eichler

Region 3

The majority of the problems facing the Mid-Atlantic Region are similar to those faced by the nation as a whole. Consequently, the Regional Office is placing emphasis on helping the Agency to deal with those priorities established by Administrator Ruckelshaus in the Management Accountability System. However, Region 3 has some unique problems which demand unique solutions. To insure these solutions are found, I have also established eight Regional priorities for my staff.

As might be expected, dealing with hazardous waste is a major priority. Region 3 is near the top in terms of the number of dumpsites which must be addressed under Superfund and the number of active hazardous waste facilities regulated under the Resource Conservation and Recovery Act. Since the credibility of the entire Agency hinges on how we deal with hazardous waste, my staff and I are doing everything we can to move forward with this very complex new program.

Enforcement is another important program for the Agency. In Region 3, we will concentrate our efforts on making enforcement a tool to increase compliance and provide actual environmental improvement. Key focal areas are hazardous waste, federal facilities and Chesapeake Bay water quality.

Region 3 recently completed a seven-year, \$27-million water quality management study of the Chesapeake Bay. A major priority in the coming year will be to assist the states in implementing the recommendations made in the study to protect and improve the water quality and natural resources of the Chesapeake.

Issues of ocean dumping and ocean incineration of waste off the mid-Atlantic coast are of great concern to our municipalities and resort areas. We are working to ensure that Agency policies in these areas are integrated with concerns about near-shore and land-based facilities.

Most of Region 3's states have or are assuming delegation of the major national environmental programs. We will work with these states to provide more helpful overviews and to improve our technical assistance, particularly our laboratory support, so that we can provide ourselves, the states, and the public with a quick and accurate assessment of local or regional environmental conditions whenever needed.

Finally, we are using a variety of management tools to help Regional managers grade their performance on actual environmental results. Since environmental improvement is really the bottom line for the EPA, this goal, in all programs, will be our major priority.

## Charles R. Jeter

Region 4

While Superfund activities currently continue as part of a nationwide priority, Region 4's diverse environmental concerns require focusing our energies and efforts in many of the same areas of environmental protection as in the past.

Because of the large number of Federal facilities located in this Region, one of our top priorities will be to work with those Federal agencies to improve compliance with environmental regulations.

Emphasis on water programs will also be evident in the Region. In the area of groundwater protection, we are reviewing our administrative procedures and ensuring coordination among all program areas to protect this valuable resource. One such effort involves the Biscayne Aquifer, which is the sole source of drinking water for the three million residents of southeastern Florida.

There are eight Superfund sites located in the aquifer recharge area which may be contributing to contamination. We are currently conducting a three-phase study to determine the remedial actions needed for Superfund site cleanup and for any other actions required for the continuing protection of the aquifer. Wastewater treatment continues to be one of our greatest environmental concerns in this Region. We will use funds to assist with municipal compliance in particular. Wetlands protection takes on increasing importance in the Southeast as pressures for development continue.

With our high levels of delegation we will work to ensure good quality state programs. We pay close attention to our pesticides program because of the heavy use of chemicals such as EDB and Temik for agricultural activities in this area. Superfund cleanups will continue. Emphasis will be placed on emergency response capabilities and the need for adequately trained personnel.

## Valdas Adamkus

Region 5

Because the six states in the Midwest have traditionally drawn their economic and physical strength from heavy industry, the tension between protecting the environment and encouraging economic development is particularly acute.

Among my highest priorities for 1984 is the investigation and cleanup of uncontrolled hazardous waste sites. One-quarter of the sites on the National Priorities List are located in this Region. At 16 of these sites, remedial investigation and feasibility studies were begun in FY '83, and 24 new sites are slated for action this year. During FY '83, immediate removal actions were conducted at 29 sites, 13 of which were on the National Priorities List. We project that 20 enforcement actions will be taken in 1984.

We have already negotiated tough settlements with firms associated with some of the most significant sites, such as Chem-Dyne, Enviro-Chem, and Seymour Recycling. We expect to participate in negotiations on 20 to 30 sites in 1984. As we start work at sites, an ambitious community relations program will continue to address concerns of local residents.

We will also be inspecting most hazardous waste disposal sites to make sure they are complying with Federal regulations for safe disposal. We will continue strict enforcement of groundwater protection regulations. We have been making significant progress in turning the Resource Conservation and Recovery Act programs over to the states and will continue to work toward this goal in 1984.

We will continue actively to enforce asbestos and PCB regulations and to place special emphasis on our role in the implementation of the national dioxin strategy, including the conduct of intensive field studies. As U.S. Chairman of the Great Lakes Water Quality Board, I am concerned particularly about the effect that many toxicants have on the lakes. We will be looking for new ways to approach toxicant problems in various environmental media throughout the Region.

The ongoing search for a workable solution to acid rain is one of my primary concerns. Our efforts have been aimed at ensuring that both the environmental quality of the sensitive wilderness of northern Minnesota and the economic viability of the mining towns of the Ohio River Valley have been protected. We are looking for environmentally sound and economically feasible solutions to this most difficult problem.

## Dick Whittington

Region 6

The five states of Region 6 . . . Arkansas, Louisiana, New Mexico, Oklahoma and Texas . . . lie at the very heart of the "Sunbelt."

Growth of population and industrial activity throughout the Region have been tremendous, increasing the pressures on the environment in virtually every area.

Keeping up with growth in the Region will be of the highest priority in 1984 and the years beyond.

More than 25 million people now live in the Region, and population is expected to increase by 50 percent by the year 2000. Already, three of the ten largest cities in the country are in this Region, and San Antonio and Austin are among the fastest growing cities nationwide.

While manufacturing growth has been slowing in many parts of the United States, manufacturing in Region 6 is on the upswing. The largest growth industry is chemical and allied products, although other industries such as non-electrical machinery, fabricated metals, electrical machinery, primary metals and electronics are also strong. As the economy recovers, industrial output will be even greater, further increasing environmental pressures.

The EPA Region 6 staff has made, and continues to make, great efforts to attain and maintain environmental quality in the area under its jurisdiction. We have made considerable progress in many areas, but we still have our work cut out to maintain quality and to make improvements in areas where meaningful environmental gains are possible.

A large part of our challenge is that our attractive position in the heart of the Sunbelt makes us vulnerable to the environmental problems that are so often associated with growth and development.

We must strive to use our resources where they will be most effective to protect the environment and human health.

## Morris Kay

Region 7

Region 7 is faced with a number of complex and intriguing environmental challenges. It is our goal to meet these challenges by operating in an open, fair, even-handed manner. We are taking strong enforcement action to assure environmental compliance as we evaluate each specific problem and determine the most effective, safe, and intelligent solution.

Local, national and international media attention has focused on dioxin contamination in this Region. However, it is our belief that all environmental problems in our Region are important and should be addressed. We work to resolve each environmental problem with the same serious and dedicated approach.

The priorities in Region 7 are to achieve environmental results by reaching out with innovative action where applicable to solve each and every environmental problem that we face in our day-to-day activity. We believe this approach will ensure a safe and healthy environment.

We are firm and fair in applying the strength of the Agency in order to improve environmental compliance, and we achieve positive results by working closely with State and local environmental officials as well as concerned citizens. Perhaps most importantly, we are sensitive to the concerns of those individuals who have experienced a dramatic change in their lives because of environmental issues.

We will continue to pursue this dynamic effort to produce sound environmental solutions.

## John G. Welles

Region 8

Region 8's most important environmental priority for 1984 is a people priority. Guided by Mr. Ruckelshaus' operating principles and national goals, we have begun an exciting rebuilding in the Regional office.

We have established simple Regional goals to complement the Administrator's and to refocus our attention after a period of turmoil. They are:

- We care! We expect excellence.
- We strive for compliance and firm, fair enforcement.
- We protect the environment.

We have added goals aimed at improving our professionalism, our internal and external communications, and our sense of service to EPA's constituents.

The goals, backed up by detailed objectives and action items, were drafted during intensive work sessions by key Regional managers and offered to employees for their comments and participation in November.

In coming months, we visualize a workforce with a renewed belief in itself working aggressively on the full range of environmental challenges facing us. Management development has also been targeted for particular attention.

We especially want to show significant progress in 1984 in dealing with acid deposition, mining wastes, and groundwater, problems that are present in other Regions but especially important here.

We have relatively few sources of sulfur and nitrogen oxides but many of our water bodies are especially sensitive to acidification. Mining is an economic mainstay in the Region but its wastes pose substantial environmental threats in some cases. In this arid part of the country, groundwater is immensely important for people, livestock and natural purposes, and is threatened by many of our mining, energy and waste handling activities.

Some of these problems have been with us for years, of course, and new ones are emerging. But also emerging is a new, or at least revitalized, "Can Do" spirit in the Regional office. We will meet the challenges of 1984.

## Judith E. Ayres

### Region 9

In 1984, Region 9 will be moving beyond traditional, single-purpose approaches to environmental management.

Over the next year, the Region's federal, state and local officials will be working together to develop an integrated process for identifying environmental problems and for arriving at improved ways to correct them. The state's regional air and water boards, and city and county governments, will be active participants with EPA in tailoring programs to fit local needs and involve the individual communities in decision-making.

For example, EPA's new, multi-purpose pilot project in California's Silicon Valley is designed to change traditional approaches to pollution control programs by looking simultaneously at existing environmental regulations and pollution linkages between air, land and water. Our goal is to assemble a picture of the environment as a whole and develop a consensus for decision-making and action.

This approach will be the keystone for other projects expected to go forward in 1984. Among them are:

- the siting of new hazardous waste facilities in California to correct the acute problem of site closure;
- the contemplated development of the Outer Continental Shelf, with its potential for gas and oil exploration and recovery in the coastal waters of California, recognizing problems of air quality as well as wetlands protection;
- pretreatment of industrial waste;
- preservation of high quality waters, attainment of purer air and better management of toxic wastes in Region 9 states, particularly in California, which holds approximately 80% of the Region's population;
- continuation of our efforts to resolve the border sanitation problems at Tijuana-San Diego and Mexicali-Calexico in California, and Nogales-Nogales in Arizona.

We are optimistic that this new direction will improve our environmental oversight in all environmental media and enhance Region 9's stewardship in 1984.

## Ernesta B. Barnes

### Region 10

Protecting the quality of groundwater—EPA's top priority in Region 10—is a job that is becoming both easier and more difficult in the Pacific Northwest because the people of the Northwest have made groundwater protection their top priority too.

The job is easier because, with popular support behind EPA and State agencies implementing environmental law, there is less resistance to governmental action to clean up polluted groundwater or to take the steps to head off the contamination. When EPA or a state or local agency sees a problem, the response is immediate. There is no inertia. People are demanding and, what's more, receiving prompt attention whenever they perceive a threat to their groundwater.

The people of the Northwest fully understand the link between the improper or unwise disposal of hazardous wastes and contaminated groundwater. They've seen municipal drinking water wells closed in Tacoma, Wash., and private wells closed in Spokane, and they've read reports of EPA having uncovered toxic materials and hazardous wastes in the soil and water table at dozens of locations throughout Idaho, Oregon, and Washington.

The public's concern is high and so are its expectations. Those expectations may be unrealistically high, and that's what makes our job more difficult.

Potential risks to groundwater are, all too often, seen as real dangers. Suspicions are regarded as fact. Problems with a hazardous waste disposal facility are thought to be unsolvable.

EPA in Region 10 is committed to keeping potential risks from becoming real. We are committed to checking out suspicions to see if they have foundation in fact. And, where we see problems with hazardous materials or toxic substances, we are committed to overcoming those problems by demanding proper management from the operator of a disposal facility.

Our challenge in Region 10—as it is throughout the Agency—is to make the best “environmental buy” for the EPA buck. If we act early by spending thousands of dollars to prevent groundwater contaminations, we can avoid spending millions later on. We must assess risks and, where those risks are real, manage them so that our resources can be devoted to all the tasks needed to protect the environment and human health.

# **EPA Toxics Responsibilities under Eight Laws:**

- Clean Air Act, Sect. 112: Lists and controls hazardous air pollutants.
- Toxic Substances Control Act, Sect. 6: Regulates the manufacture, use and disposal of toxic pollutants.
- Clean Water Act, Sect. 307a: Sets criteria for the cleanup of toxic water pollutants.
- Safe Drinking Water Act, Sect. 1412b: Sets maximum contaminant levels for drinking water pollutants.
- FIFRA (pesticide law), Sect. 6: Sets standards to control toxics in pesticide use.
- CERCLA (Superfund), Sect. 102, 104: Controls toxics in spills; cleans up toxics found in waste disposal sites.
- Resource Conservation and Recovery Act, Sect. 3001: Sets criteria for defining toxic wastes.
- Marine Sanctuaries Act, Sect. 102: Controls ocean dumping of wastes.

# Dealing with Toxic Substances: Present and Future

*(The following two articles are excerpted from remarks by EPA Deputy Administrator Alvin L. Alm and General Counsel A. James Barnes to a mid-November conference on toxics. The conference was sponsored by Inside E.P.A. and The Center for Energy and Environmental Management.)*

## The National Attack on Toxics in the Environment

Alvin L. Alm  
EPA Deputy Administrator

A while ago the *New Yorker* ran a cartoon that eventually appeared someplace in nearly every office at EPA. It showed a post office lobby with three mail chutes: one marked "local," one marked "out of town," and one marked "toxic wastes." I want to speak about what's going on behind that last mail chute, about the various ways that EPA is dealing with the control of toxic substances in the environment.

For a number of reasons, this has been a difficult business. For one thing, in the past decade EPA has been given eight separate statutes to administer, all of which touch on the control of toxics to a greater or lesser extent. Each of these has its champions, who have been active in pressing their priorities upon the Agency. For another, the scientific base on which regulatory actions must be based barely existed in the recent past, and is still incomplete in many respects. On top of that, we have had to create toxic control programs amidst a series of crises which, by diverting resources and attention, has made the development of consistent and effective policies extraordinarily difficult. For these reasons, it is fair to call the control of toxic and hazardous substances the most complex regulatory mission ever devised.

It has therefore taken some time to sort out, but I now believe that we are beginning to marshal all our authorities in a concentrated and coordinated attack on toxic wastes. One may ask why a coordinated approach is so important, and why we single out a class of pollutants as "toxic" or "hazardous." Clearly, all pollutants are in some sense toxic and hazardous? Yes, but we already do a reasonable job of controlling those pollutants—the so-called conventional pollutants—that typically damage health or the environment through acute effects at relatively high concentrations: things like

smog, like oxygen depletion from sewage, like gross industrial pollution.

When we use the term "toxics," in contrast, we mean substances that may have chronic, and perhaps irreversible, effects on human health or the environment at relatively low concentrations. We're concerned about cancer, about birth defects, and chronic kidney ailments. We are also concerned about long-term damage to wildlife or aquatic ecosystems through the concentration of poisons in the food chain.

The statutes, in fact, give us some guidance on what sort of substances we are to control, either generically or specifically. For example, the Clean Air Act mandates the control of any substance that "causes or contributes to mortality or irreversible or serious reversible disease." The Resource Conservation and Recovery Act (or RCRA) and the Superfund legislation tell us to act when there is "imminent danger to public health." Congress may also go beyond a generic description to "define" a list of chemicals as toxic. Examples of this are the list of water toxics in Section 307 of the Clean Water Act and the inclusion of a mandate to control PCBs in the Toxic Substances Control Act (or TSCA).

The law thus tells us to limit the amount of substances discharged to the environment, but it does not tell us what substances to limit first, how much, and, of course, it doesn't tell us where to put the stuff. These are not small matters. The number of potentially toxic chemicals is so large that we will never be able to fully investigate more than a small fraction of them; we therefore must choose our objects of interest very carefully. Although control measures are what capture the public's attention, efficient screening and priority-setting are indispensable to a successful toxics control program. Also, many

of these substances can appear in all the environmental media—air, surface water, and groundwater—and can move between them. They can through either natural processes or, what is more disturbing, as a result of pollution control itself.

**W**e generally have the authority necessary to control significant risk wherever it appears. What we need is a coordinated approach to insure that these risks stay controlled, now and in the future. Our policy to accomplish this has three broad conceptual elements.

First, we must cope with the toxic legacy of the past. The Superfund program is designed to clean up the most obvious example of this, hazardous waste dumps. This mammoth endeavor has become the second most expensive program at EPA.

Second, we must restrict the present release of hazardous chemicals into the environment by completing or expanding our efforts under such programs as TSCA, the pesticides control legislation (FIFRA), effluent guidelines, and Section 112 of the Clean Air Act.

Finally, we must protect the future by preventing the use of potentially dangerous substances, as we do under certain sections of TSCA and FIFRA, and by preventing unsafe disposal of hazardous wastes through the RCRA program. Insuring the future also means paying special attention to uniquely sensitive resources—groundwater for one—and the potential for irreversible damage to ecosystems.

I would like to turn now to how we are carrying this policy out, first in the media programs and then as it applies to problems cutting across the traditional air, water, and groundwater categories.

In the air program, as you may know, we have for historical reasons divided harmful airborne substances into criteria and hazardous pollutants. Of course, criteria pollutants *are* health hazards. Ozone and other smog precursors, SO<sub>2</sub> and particulates, are all associated with respiratory disease. Lead has neurological and blood chemistry effects and carbon monoxide at low levels aggravates heart disease. But we know enough about the effects of such substances at typical atmospheric concentrations to set criteria that will protect sensitive populations from harm. This is not the case with the substances we call hazardous air pollutants. We don't *know* what they do to people at ordinary levels of exposure. This makes the scientific basis for controlling a hazardous air pollutant much more difficult to assemble, and the Agency has been criticized for slowness in setting national emissions standards for these substances.

Despite this, many hazardous air pollutants are at least partially controlled through the programs that control criteria pollutants, because two of the criteria pollutants—particulate matter and volatile organic compounds—actually contain many substances

identified as hazardous air pollutants. We estimate that for 25 substances on the familiar list of 37 hazardous air pollutants, we obtain levels of removal from the existing program that range from 20 to 80 percent.

It is important therefore to insure that ambient standards for these criteria pollutants are being achieved throughout the country. States that have not attained ambient standards will be required to submit revised plans to show how standards will be met. We are also looking harder at places where the state implementation plans have not been put into effect, and we have increased air enforcement staffing by ten percent to do that more effectively.

Beyond this, we are developing a targeted hazardous air pollutant strategy that will concentrate our resources on the most significant health risks. This strategy is based on two elements. First, the use of risk assessment would identify the most significant risks and thereby establish a rational system of priorities for this program. Second, a variety of regulatory tools besides national emissions standards should be considered to deal more effectively with the many different types of situations in which unreasonable risk may occur. For example, it may be more appropriate to establish performance standards to control asbestos, land use rules to reduce risk from radionuclides at uranium mine sites, or ambient standards for arsenic. We have already presented the case for such additional flexibility to the Congress.

In the meantime, we will proceed quickly to make decisions on a number of long-standing proposed actions, those on benzene, arsenic, and coke oven emissions. In addition, we will accelerate the regulatory actions now in process by concentrating our resources on those that promise significant public health benefits. To support this commitment to address the air toxics problem comprehensively, we have increased the budget of this program by 22 percent over the 1983 level.

**T**urning now to water, we can see substantial progress in using the major tool we possess to control the release of toxics from industrial point sources, the effluent guidelines program. EPA is obliged by consent decree to issue guidelines establishing Best Available Technology for 21 major industries. Eighteen guidelines have been promulgated already, and we expect this huge effort to be essentially complete in the very near future. When these guidelines are put fully into effect, we will have reduced the amount of toxics reaching the waterways by 660 million tons per year, which represents more than 90 percent of the tonnage that would otherwise have been discharged.

We have also accelerated the issuance of permits that establish limits for the discharge of toxic materials. Until recently there was a troubling backlog in permitting because of the delay in developing the guidelines. We have now given higher priority to industrial

source permitting, stepped up training and technical support to permit writers, and mobilized contract support to regional offices and states. We also increased permitting resources by 30 percent between Fiscal Year '83 and '84. As a result, we expect to issue virtually all major industrial permits within EPA's permitting authority by the end of fiscal '85. We expect similarly high levels of permitting performance by the delegated states.

Significantly, we are also attempting, for the first time, to link our toxics removal regulations directly to the value we are trying to achieve, which is improved water quality. Where state standards contain criteria for specific toxic pollutants, such as heavy metals and various pesticides, we will enforce those criteria in the next round of permits. But even where toxic criteria have not been set, we plan to use biological toxicity testing of actual industrial effluents to set limits that meet the goal found in all state standards: to "avoid toxic pollutants in toxic amounts." This new approach, which we call "biomonitoring," is now being reviewed in draft form; we believe it to be a fundamental step forward in water quality regulation.

We are also moving more quickly to protect groundwater, which is starting to look like the major toxics control problem of the 1980's. Recognizing the magnitude of this problem, the Agency is starting to develop a comprehensive groundwater strategy. It will focus primarily on insuring that our own programs work smoothly together and that the roles of Federal and state governments are clearly defined. Through our operating programs, responsibility for dealing with specific groundwater problems is at the regional level, but we are also considering the establishment of a central office for groundwater strategy, under the direction of a senior official, to strengthen management in this area and to deal rapidly with emerging new threats to groundwater.

One of these, for example, arises from the leakage of underground storage tanks, a phenomenon known, predictably, as LUST. We believe, in fact, that LUST may prove to be a serious groundwater problem. More than 100,000 underground tanks have been identified in Michigan, New York, and the San Francisco Bay area alone. It is estimated that 16,000 of the 83,000 active tanks in New York State are leaking. We are currently developing a survey to understand the magnitude of this problem. We are also evaluating how our statutory authorities could be harnessed to regulate these sources.

At present, of course, the major programs EPA uses to protect groundwater are RCRA and Superfund. Superfund is expanding and accelerating. We have identified 16,000 sites; of these, we have completed site inspection on 2,000, evaluated 900, and placed 546 on a proposed National Priorities List. We expect that there will eventually be about

1,400 sites eligible and scheduled for Superfund action on that list. Superfund enforcement staffing will increase by one-third, to over 300 positions. Our budget for the Superfund program overall is up \$100 million to a total of \$410 million.

To prevent a repetition of the practices that make Superfund necessary, we are also accelerating hazardous waste management under the Resources Conservation and Recovery Act. We have increased our RCRA enforcement staff by 134 percent to 175 positions. We are vigorously pursuing the permitting of disposal facilities and the enforcement of Class I monitoring regulations relating to groundwater.

As we improve our performance in controlling toxics within the media programs, we are also concentrating resources to attack an important set of toxic substances across media lines. The existing chemicals program under the Toxic Substances Control Act is starting to move. We have published proposals aimed at controlling the carcinogens MDA and MBOCA and have asked for public comments on whether formaldehyde should be similarly controlled. There is now, for the first time, an effective existing chemical screening program; we are now making screening decisions on 50 chemicals a year. In addition, we have just decided to develop comprehensive management plans for several

significant chemicals, designed to link all EPA authorities so as to efficiently minimize risk from these contaminants. Finally, the Agency is about ready to issue a dioxin strategy which sets both a blueprint for identifying the problem and taking actions to reduce human exposure.

In addition to this new work, we are evaluating our current asbestos control program to see how effective it has been in reducing public health risk, and are conducting a survey of asbestos in public buildings to assess the level of health danger that represents. We will be evaluating more extensive regulation of this dangerous substance over the next year. Meanwhile, we have added \$500,000 to the asbestos inspection program and will add a like amount in Fiscal '85. Inspections for compliance have jumped from over 200 in FY '83 to a projected 800 in FY '84.

Beyond the management and improvement of existing programs, we need to find some general ways of improving our approach, as an Agency, to the problems posed by toxic chemicals in the environment. To this end, we have established a Task Force on Toxics Integration, which is scheduled to complete its work soon. We expect to receive recommendations on: how we can get the risk assessments we need and how we can im-

prove them; how we can develop a consistent policy for the management of risk within the structure of present statutes; how we can respond more effectively to the highly visible crises that grow up around particular chemicals; and how the Federal government as a whole can do a more efficient and consistent job of controlling dangerous substances.

To sum up, we are serious about our commitment to clean up the environmental errors of the past, to restrict the production and release of dangerous substances now, and to safeguard against degradation in the future. Our present budget and our stated priorities stand as warrants of that intent. All told, our programs devoted to toxics control account for nearly \$690 million, or 45 percent of EPA's operating budget. The Administrator's top four priorities are all concerned with the control of toxics. In all, this constitutes a dramatic shift in how EPA performs. We can no longer look only at the ends of pipes and stacks. We must better understand why a myriad of toxic substances can affect us across an extremely wide range of severity—through the air, through the food chain, and through the surface or ground waters. Armed with that information, we will make the hard choices that comprise real environmental management. □

## Toxic Victim Compensation

A. James Barnes  
*EPA General Counsel*

The first assignment that I received from Administrator Ruckelshaus on my return to the Agency in May was to coordinate EPA's activities on toxic victim compensation and to represent the Agency in discussions within the Administration. It was readily apparent that compensation of those exposed to toxic substances is a difficult issue which involves serious social justice/social equity considerations—and that how we resolve the issue can have far-reaching consequences for our society. In my remarks I will first briefly characterize the issue and then indicate how the Administration is approaching it. Finally, I will identify some of the major problems and areas of inquiry that we are pursuing.

One of the most striking features on returning to EPA is the deep and widespread public concern—as well as the extensive Agency efforts—concerning toxic or hazardous substances. Thirteen years ago when the Agency began, the symbols of environmental concern were oil-soaked seagulls, smog in L.A., and a river in Cleveland that occasionally caught fire. Today, they have

been replaced by Love Canal and Times Beach—symbols of the public concern about toxic and hazardous substances. They illustrate the deep public apprehension about exposure to toxics. Some is fear of the unknown—such as dioxins—while other substances such as asbestos are feared because they are so pervasive in our industrial/consumer society.

We have moved fairly aggressively to deal with the problems posed by toxic or hazardous substances. Several major pieces of legislation have been enacted including RCRA (Resource Conservation and Recovery Act) which seeks to improve our transportation, treatment, storage and disposal of hazardous waste, CERCLA (Superfund) which deals with past disposal problems that pose significant risks, and TSCA (Toxic Substances Control Act) which addresses the safety of new chemical substances before they are introduced into the environment. Now the related question of what we are doing about persons who may have been injured by exposure to hazardous materials has been raised onto the public agenda.

No one who is familiar with the anguish of someone who has a brain-damaged child, who has had a miscarriage, or who has cancer can be oblivious to the very real human concerns involved. Where the person happens to have had some exposure to toxic materials—be it at work or in the environment—it is not unexpected that some may draw a connection between the exposure and the injury or disease—irrespective of whether science would support such a link. Compensation of these individuals poses a serious social justice/social equity issue and involves the elemental question of which risks of an industrial society are to be borne by individuals, which by persons who are considered responsible for the particular activity, and which by the society as a whole. But to recognize that this represents a serious issue does not foreordain the answer of a new federally directed compensation scheme or a new federal right to litigate.

There are, as you know, a variety of proposals now before Congress dealing with a range of toxic compensation issues including asbestos, radiation, Agent Orange and toxic victim compensation in general. Behind most of these proposals is the belief that the present compensation schemes—primarily state tort law—are not adequate. Certainly there are a number of difficulties with the way the tort system currently works.

These include:

- the long latency period associated with some diseases and time that it may take to discover that an individual has a particular disease or injury may extend beyond the statute of limitations that has been established as an outside limit during which a cause of action must be brought;
- there may be difficulties in establishing which person or persons are responsible for causing a particular injury and the related question of whether the persons who are liable are financially responsible;
- in many cases it may be difficult to establish the requisite causal relationship between the alleged exposure and the injury or disease that ultimately resulted;
- the tort system commonly entails substantial transaction costs (in terms of dollars and time) that may reduce the recovery available to the potential victim or indeed make it uneconomical to seek a remedy to begin with. Overall, the difficulties with the tort system can be characterized as *uncertainty* and *unfairness* in providing unequal results in otherwise similar circumstances.

A concomitant problem with the current tort system, of course, is uncertainty for industry and insurers as to their potential liability for actions that have taken place largely in the past. The spectre of major companies seeking the protection of the bankruptcy law and fights between, and among, insured and various insurers are only

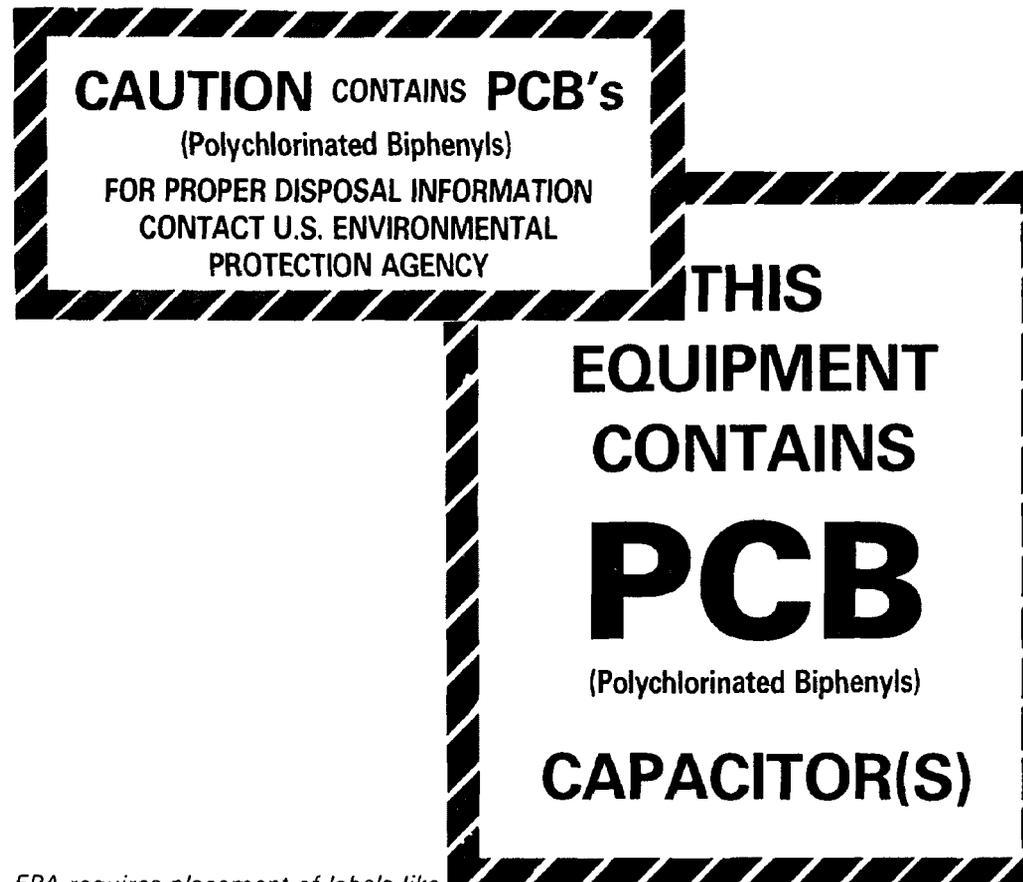
some evidence of the unease that the situation poses.

With legislative consideration of some of the victim compensation proposals likely, the President recently established a Cabinet Council Working Group to follow the issue and to develop the Administration's position. The Working Group is composed of senior officials under the leadership of Mike Horowitz, the General Counsel of the Office of Management and Budget, and Assistant Attorney General Paul McGrath. Several points concerning the structures and approach of the Working Group should be noted. First it is a broad-based effort effectively to utilize the resources of the Executive Branch; some twelve agencies are participating. Various agencies have different contributions and perspectives. Some of the agencies, such as the departments of Labor and Health and Human Services, have experience with existing compensation schemes; some such as EPA and the Office of Science and Technology Policy have experience with the scientific questions involved; other agencies such as OMB, Council of Economic

Advisors and Treasury can contribute the economic analysis required; and the Department of Justice can provide legal analysis.

Second, the Working Group is looking to develop an overall policy in the toxic victim compensation area. There are a number of generic issues that are involved regardless of whether we are talking about Agent Orange, asbestos or toxic victim compensation generally. However, an approach used in dealing with one problem may well become a precedent for some of the related areas—and might make it difficult to justify different results. For example, EPA's decision to buy out property in the Times Beach, Missouri area because of the dioxin problem can affect the discussions about compensation for those exposed to Agent Orange. Moreover, we believe that these topics are closely related politically and that it is important to consider the degree to which we will allocate relatively scarce societal resources to the politically strong or the momentarily notorious.

A third important element in the Administration's approach is that we are determined



*EPA requires placement of labels like these on electrical transformers and other equipment containing significant amounts of PCBs, industrial chemicals which can cause serious health and environmental problems. While Congress has prohibited the manufacture of these chemicals, substantial amounts of this material are still present in older electrical and other industrial equipment.*

to see public policy made in this area in a responsible way because of its importance, its complexity, and the significant cost ramifications involved, as well as the long-term implications for our tort system and various support programs. The Administration will insist on a careful, thorough, thoughtful analysis and a full airing of the issues and the considerations of these proposals before action is taken. For its part, the Administration currently has an intensive fact gathering and analytical effort under way which is the most extensive that I have seen at the Cabinet Council level.

What are the major issues and areas of inquiry that we are focusing on as we seek to establish an Administration position on these issues? First, we are trying to define the nature and the scope of the problem that is to be addressed. Who are the "victims" that we are concerned about compensating? In allocating resources do we want to distinguish between individuals with cancer where the cause is unknown and those where the cancer can be linked—albeit tenuously in some cases—to exposure to a certain substance? What about similar injuries? For example should the brain-damaged child living near a hazardous waste site be treated differently than one whose damage was caused in an accident with an uninsured motorist? To what degree should the proposed schemes be retroactive and to what degree prospective only? All of these questions involve underlying issues of fundamental fairness in our society. Closely related is the question of whether we should expand access and redefine causation to stretch our tort system in new and unaccustomed ways, or whether we should turn to an administrative scheme that is less of a "lottery" and more predictable and universal in scope of coverage.

Second, we are reviewing existing compensation schemes. Here we are looking to the extent to which victims are compensated by existing public and private mechanisms—such as the tort system, insurance and generic health and income maintenance programs like Social Security and Medicare. In the course of this exercise we are carefully reviewing the CERCLA 301(e) Study Report that was completed in 1982. We are also looking at the federal government's experience with other administrative compensation schemes such as the black lung program, as well as state experience with workmen's compensation.

Third, we are looking carefully at the contribution science is now in a position to make. In particular, from EPA's perspective, we are examining the role that some of the legislation proposes the Agency should play. Certainly there is considerable frustration with the current tort system and the difficulties of establishing a legally sufficient causal nexus in many cases. This frustration may lead to the temptation to presume a causal nexus where it is difficult to show causation. At EPA we frequently operate on the edge of science in setting standards as to levels of exposure. There is a real question as to whether the law can force science to produce a degree of precision certainty beyond that achievable with our present knowledge and resources. In some of the proposed legislation EPA would be asked to produce criteria documents and to make case-by-case determinations as to whether there is a causal nexus between alleged exposure to hazardous waste at a particular site and a disease or injury to a person. An initial look at these proposals raises serious questions; first, as to whether EPA would be able to do what the legislation asks, and second, whether utilizing our limited scientific resources and capacity to try to establish these relationships or to disprove them is really wise use of our resources—or alternatively whether it suggests simply another high transaction cost that would involve the proposed compensation determinations.

Another matter of concern to EPA is the potential conflict of interest that might be created for it. EPA is currently required to identify substances for the purpose of regulating them and to set standards for safe exposure in the society; some of the legislation would require EPA listing of substances as prerequisite to liability and some legislation would require it to also act as a judge to make determinations as to whether exposure at a given level resulted in a particular injury or disease to a person. Another conflict could be produced between EPA's obligations under CERCLA (Superfund) to act to remove imminent hazards to public health by cleaning hazardous waste sites and the responsibilities that it might have to make compensation determinations. These two responsibilities could be inherently in conflict because cleaning up a site would likely involve rapid action to remove wastes from the site whereas concern about making compensation decisions would suggest leaving the material in place so that extensive testing and analysis could be carried out.

A fourth area of inquiry has to do with the economics of the various toxic compensation proposals and their long-term fiscal implications for society, government and industry. Here we are looking at what kinds of losses are to be compensated, who pays, how, what mechanism is to be used, what transaction costs are to be contemplated, how solid are the cost projections, how is the

program integrated with other compensation programs? We believe we need to be cognizant of the experience with the black lung program and with the kinds of cost estimates that are already before us concerning the asbestos litigation as well as the proposed legislation.

All of these questions, and others we are pursuing, involve initial definition of the "problem" we face, followed by analysis of the various proposed schemes, as well as analysis of other alternatives that might address any identified problems, including changes in workmen's compensation, adjustments in state tort laws, and adjustments to other income maintenance or health protection schemes. We all have a major stake in the intelligent analysis and resolution of the various issues that are involved in this process. Doubtless there will be differences of opinion within the Administration and in Congress—just as there are likely to be differences within society. But we are determined that on this issue, as on others that involve fundamental questions of social equity, that we are careful and thoughtful in the way we analyze the problem; and hopeful that with that kind of approach we arrive at a policy that is wise and consistent with the philosophical underpinnings of our society. □

# Progress on the Great Lakes

*Ice breaker ship circles vessel caught in ice in Lake Superior near Sault Ste. Marie to help free it. This photo is one of a series by B. A. King in the special exhibit "Great Lakes, America," which EPA helped sponsor.*

EPA Administrator William D. Ruckelshaus in a recent talk to the International Joint Commission, an agency set up to control border pollution problems, reviewed the progress made in cleaning up the Great Lakes in the past 10 years.

Ruckelshaus noted that the limits on phosphorous discharges into the Great Lakes agreed to by Canada and the U.S. in 1972 are now being met by both countries, an important step in preventing eutrophication, particularly in Lake Erie.

"In 1972," Ruckelshaus said, "the U.S. contribution to the phosphorous load in these lakes was almost 19,000 tons annually. Today, it's less than 3,000 tons. That's an 85 percent reduction."

This reduction was made possible partly because Federal and State governments in the U.S. invested about \$6 billion in the last 12 years to build or to improve existing treatment at 798 facilities in the Great Lakes region. He added that this program is continuing and during the fiscal year ended last September, EPA awarded \$350 million more in construction money in this region to improve 55 more municipal treatment works.

In addition to the construction of municipal treatment works, the Administrator noted "we have also taken, sometimes alone, sometimes together, a number of regulatory actions which also aided in the cleanup:

"We imposed a national ban on the manufacture and use of DDT in 1972; Canada followed suit shortly thereafter.

"We have a national ban on the manufacture and we strictly limit the uses of PCB's. Canada has done the same.

"Most uses of the chemical toxaphene have been cancelled in the United States. Canada also controls toxaphene very rigorously."

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*(Copies of the full text of Ruckelshaus' speech to the IJC and the Great Lakes Governors meeting in Indianapolis, Ind., on Nov. 17, 1983, can be obtained by writing to EPA Journal.)*

Ruckelshaus also noted that "levels of DDT, PCB's and mercury in Lake Michigan in recent years are down by about 70 percent to 95 percent.

"We are still concerned about toxic discharges but even there we've made a lot of progress.

"When you've got an identifiable pipe or outlet or a specific place where a discharge to water occurs, in EPA parlance that's a 'point source.' We were required by the Clean Water Act to devise and put into place effluent guidelines—standards for the content of discharges from point sources—in various categories of industry, everything from aluminum fabricating to nonferrous metals to electroplating facilities. So far, out of 28 industrial categories we have put out final standards for 18 categories, proposed rules for seven categories and we are still working on the three remaining classes.

"This means almost all of the industrial dischargers on the Great Lakes are covered by very stringent guidelines which are specifically designed to keep the toxics out and protect the overall quality of the receiving waters. That's the point source.

"The nonpoint sources are much more difficult to control simply because they do not represent a pipe or an outlet or a special spot. Typically, nonpoint sources develop when nitrogen chemical fertilizer or phosphorus for instance is spread over a farm. The nitrates or phosphates accumulate in the rain water and wash out into nearby streams in dozens, or even hundreds of places.

"Last month in Halifax, Nova Scotia, I joined Secretary of State Schultz, Minister of External Affairs Alan MacEachen and Minister Caccia in signing an annex to our earlier agreements which emphasizes the reduction of phosphorous from nonpoint sources. We intend to get at these discharges through what we hope will be low cost programs such as modification of agricultural practices and technical assistance to States and local governments. We think that this phase of our joint effort will work as well as our cooperative efforts in the past.

"I don't want to give you the impression that everything is peaches and cream. It's not. There are still many serious problems which confound us and stretch us to the limits of our knowledge.

"We have a particularly difficult problem in the chronic chemical contamination around

the Niagara River, on our side of the border. We have found similar problems elsewhere in lands adjacent to the lakes. We have decided therefore to study the areas surrounding the connecting channels of the Great Lakes. This inquiry will cost some \$500,000 this year. We hope to complete the study by 1986. We are counting on our Canadian colleagues from Environment Canada and the Provinces to join us in this significant project.

"Some Canadians have worried out loud about the level of research funding for the Great Lakes program. To them I am happy to report today that EPA's FY 1984 appropriation includes \$2.5 million to maintain the Great Lakes research program at our Grosse Ile, Michigan facility. This is the same level of funding as in previous years. Grosse Ile will still provide technical assistance to the IJC in administering programs under the Great Lakes Water Quality Agreement. It goes without saying that we welcome the participation by Canadian authorities in research planning related to the Great Lakes.

"We have a great deal of work to do still, of course, but much has been accomplished to date. We should allow ourselves to enjoy some modest sense of accomplishment for what we have done so far. Rivers like the Detroit and St. Clair are no longer sinks into which Canadian and American steel, chemical and auto industries dump their wastes. Walleye pike and trout have returned to many rivers and oil-soaked ducks are becoming a thing of the past." □



## Ruckelshaus Talks About Acid Rain

*In his talk on the Great Lakes, Administrator Ruckelshaus also briefly discussed the acid rain problem. Following are excerpts from his remarks on this subject:*

"I have decided to talk for a few moments only about acid rain. It is a serious problem between our two nations, certainly as difficult as any in living memory.

"When I came back home to EPA six months ago, in fact at my swearing-in ceremony, President Reagan gave me an assignment of coming to grips with the acid rain problem. I assure you that it is an assignment I do not take lightly. It is not an easy task as everyone must surely know by this time. What is at stake potentially is billions of dollars and a clash of sectional interests in our country which recalls some of the toughest and thorniest sectional rivalries in our nation's past. A practical policy has so far eluded us, but we are working very intently on it and we are determined to reach a consensus and fashion a policy to deal with acid rain as promptly and as effectively as we can.

"I know that there are many on both sides

of the border who say that this problem will never be solved. I don't think that's true. A way must be found to deal with this problem, to resolve the admittedly numerous scientific uncertainties and reach an agreement that is satisfactory to both sides. Getting there will not be easy. We'll need patience, skill, and hard work, and some luck would not hurt either.

"Frankly, I have always been suspicious of the gloom and doom school of environmental analysis. I remember, for instance, in 1971 when some 'experts' told us that Lake Erie was dead, incapable of recovery. Fortunately, neither Canada nor the United States accepted that counsel of despair. Instead, we did something about it. If you come right down to it, the message of the gloom and doom crowd is basically this: 'Why bother? No matter what you do, disaster is waiting to engulf you, individually and collectively.' That's something that I refuse to accept.

"That kind of approach to public policy is doubly destructive. It condemns as useless any action we have to take to restore the situation and worse still, it paralyzes needed

efforts to improve the situation.

"The 'experts' who thought the Great Lakes couldn't be saved from dying were, to put it charitably, dead wrong. We ought to learn something from the exercise. If someone tells you that the problem of acid rain or hazardous waste is insoluble, I urge you to remember the lesson of Lake Erie. It was pronounced dead a dozen years ago. Today it is alive and well.

"It seems to me that together we have the power to solve problems like acid rain. I don't mean 'power' in the sense of coercion or forcing someone to do our will. I mean 'power' in the sense of our capacity to act, our capacity to marshal our assets, use our ingenuity, brains, and sweat to fashion reasonable and effective solutions. That's another good thing that we have taken for granted: the ability we have in our two countries to control our own future.

"I am confident that historians will give the present acid rain controversy the status of another great success in recounting the long and happy story of Canadian-American friendship." □

# Tire Fire Lights Up A National Problem

by Susan Tejada

At 12:48 a.m. on October 31, 1983, a fire was reported in Winchester, Virginia. The next day, the State of Virginia requested Superfund assistance from EPA, and the agency dispatched to the site Tom Massey, senior on-scene coordinator for the EPA region encompassing Virginia.

EPA is not normally in the business of fighting fires but, as Massey discovered when he arrived in Winchester on November 1, this was no ordinary fire. Some people in the Frederick County town were already referring to the volcano-like blaze as Mt. Saint Frederick.

Paul Rhinehart, an elderly Winchester resident, had operated a tire disposal operation for many years, collecting about 50 cents apiece for hauling discarded tires from Maryland, Virginia, West Virginia, and Washington, D.C. Efforts of the Frederick County government to slow down accumulation of the tires were unsuccessful, and Rhinehart's tire collection eventually grew to mammoth proportions.

Landfill dumping of tires is prohibited in Frederick County, so Rhinehart tried to develop a method to burn the tires in a furnace and use the resulting oil for heating. By October 31, when the tower of tires was reportedly torched and dreams of a systematic energy conversion process went up in smoke, Rhinehart had amassed somewhere between 5 and 7 million tires. The huge pile was about 80 feet high in places, as tall as an eight-story building. It spread out over more than four acres, covering an area about as big as three and a half football fields. The number of tires was so mind-boggling, *The Washington Post* reported, that there were more tires in Rhinehart's pile than bushels of apples harvested in 1979 in Frederick County, Virginia's leading apple-producing area.

When Massey arrived at the scene of the blaze on November 1, he found that a towering plume of smoke was spreading as far as 50 miles away, creating a visible air pollution problem. Combustion reactions within the tire pile were also generating a stream of pyrolytic oil (syn-

thetic crude oil). It was flowing from the bottom of the pile at rates of up to 50 gallons a minute and creating the potential for serious water pollution of nearby feeder creeks to the Potomac River.

Dr. Joe Laforanara also arrived on scene November 1. Laforanara is Chief of the Analytical Support Section of EPA's Environmental Response Team, a group of 12 hazardous waste specialists based in Cincinnati, Ohio, and Edison, New Jersey who provide scientific expertise to EPA regional response officials. The oil flow, Laforanara said, "looked like a small river, it was coming out of that pile so fast." Preliminary investigations showed the runoff contained about 1,000 different organic compounds.

Laforanara likened the potential effect to that of an oil spill. "The oil would have floated on the surface of the creek, from bank to bank, covering everything," he explained. "When it reached the river, it would have been brought into the water column at the rapids. At calmer points, some of it would have come back up to the surface and floated on top. All the water intakes on the Potomac would have had to be closed. Believe me," said Laforanara, who has had experience in fighting oil spills, "it's cheaper to catch it at the outset than to clean up 60 miles of shoreline."

Fortunately, the local volunteer fire department had already begun to "catch it at the outset." In fact, before 24 hours had passed, the firefighters had constructed a water collection system and two crude filter fences, fashioned out of hay, to contain the flow of oil. And the Virginia Office of Emergency and Energy Services had already set up a command post.

## Mobilization Begins

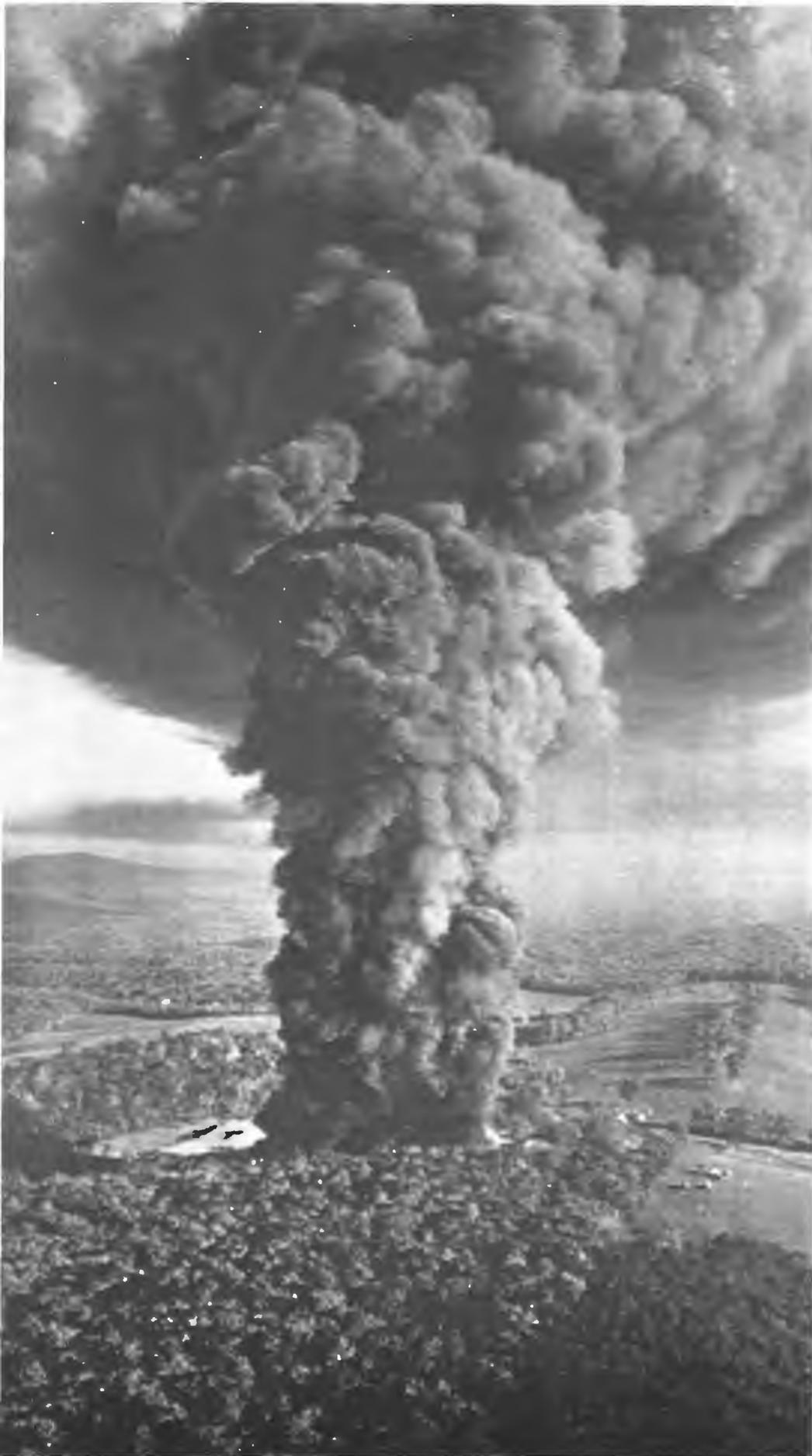
When a Superfund response was authorized on November 2, Massey began one of the largest emergency mobilizations under that law. "The mobilization of resources was phenomenal," says Bob Mason, a scientist under contract to EPA

who, along with many others during the first two weeks, worked 20-hour days on site doing air monitoring and technical calculations. "Experts," says Mason, "arrived almost immediately from the tire industry, from the American Petroleum Institute, and from trade associations. And most of them offered their advice and services free."

County government officials, "working as long and hard as anyone," according to Mason, handled community relations. State government representatives, on scene from the beginning, handled the press and will continue to handle site safety and water surveys. The local Sheriff's Department, in cooperation with the Air National Guard, provided round-the-clock site security, essential at this unfenced site where curious onlookers could otherwise have come in direct contact with toxic substances.

All 22 members of the U.S. Coast Guard's Atlantic Strike Team assisted with photo and cost documentation and site safety. The Centers for Disease Control issued a health advisory on air pollution and provided information on potential health effects. The National Institute for Occupational Safety and Health advised on worker safety. The Federal Aviation Administration and the U.S. Air Force loaned fire fighting equipment used in air disasters. Pumps developed by the National Aeronautics and Space Administration for use with the space shuttle were used to recirculate contaminated water back onto the fire, where it could be incinerated into harmless steam.

In all, more than two dozen agencies participated in the early stages of the response. The U.S. Geological Survey described geological conditions. Since weather conditions affect the response — wind can change the direction of the smoke and rain can cause containment ponds to overflow — the U.S. Forest Service provided daily information on short and long range weather predictions. Since the blaze could have started a forest fire — the site was surrounded by for-



*Mushroom-shaped cloud of smoke rising from enormous used tire fire near Winchester, Va.*

est and oil flowing through the area would have been easily ignitable — both state and federal forest services advised on construction of firebreaks.

The cost ceiling on this Superfund emergency response climbed from \$250,000 to \$425,000 to \$900,000. The limit of \$1 million for an emergency response was waived, and the ceiling climbed again to \$1,350,000. In mid-November, daily operating costs were running between \$25,000-\$35,000. That money was buying site security, fire control, runoff collection, air and water monitoring, technical support, and construction of a new containment pond with impervious liners, a new siphon dam, and access roads to handle the influx of heavy equipment.

It is expected that some of this money will be recovered because runoff oil is being collected and sold to recycling companies. Still, the question remains: is the expense justified?

EPA feels the expense to date is justified because of the threat to public health and the environment. In addition to pollutants like carbon monoxide and sulfur dioxide normally produced in the burning of fossil fuels, this particular fire, because of the chemical constituents of the tires, also produced arsenic and tellurium. Fortunately, even in samples taken three yards away from the fire, these substances were present in small quantities only. At a distance of 100 yards from the fire, they presented no health threat. The real threat, as Lafor-nara explained, came from the chance that the ignitable oil would flow downhill, setting off forest fires, polluting drinking water, entering surface waters, and killing fish and waterfowl.

To date, because of response actions, none of these threats has materialized. The fire, the pyrolytic oil, and the contaminated water have all been contained. On November 17, EPA's Environmental Response Team began an environmental assessment study to determine what long-term remedial actions might be necessary if groundwater contamination has occurred.

## Other Tires, Other Fires

The Winchester area blaze is 10 times bigger than any previous tire fire, Laforara estimates. But it is not the biggest pile of tires in the country. At a site in Westley, California, about 12 million tires are piled up on a 20-acre site. Nor is the Winchester blaze an isolated incident. According to Tony O'Brien of the National Fire Protection Association (NFPA), since 1971 there have been 176 fires at centers that reclaim rubber from used tires and, in the same period, 49 fires at warehouses that store rubber products, including tires. These fires together have caused seven civilian deaths, 208 injuries to civilians and firefighters, and a total estimated economic loss of \$90.5 million. And these figures may be incomplete. NFPA's statistics are based on incident reports filed with the group by fire departments and insurance companies. Other incidents may go unreported.

Regulations for dumping of scrap tires in landfills, if issued at all, are written by local governments, not by the federal government. According to an article in the *Akron Beacon Journal*, the City of Akron has tried to ease the threat of dump fires by enforcing a city law requiring that tires be stacked in rows no higher than 20 feet and located within 300 feet of a hydrant.

## Mired in Tires

Tire fires are a serious problem because tire disposal is a serious problem. Estimates of the number of tires discarded each year in the United States vary from a low of 135 million to a high of 230 million. According to Ray Oviatt of the Goodyear Tire and Rubber Company, the number has probably dropped somewhat in recent years owing to greater consumer use of long life tires. Still, the number of annual discards today is probably somewhere in the range of 165-175 million.

The great majority of discards, about 73 percent, end up in landfills and dumps, according to a 1979 study done for the U.S. Department of Energy. Another 18 percent are retreaded; 3 percent are burned for fuel; and the remainder are used in rubber reclamation or recycled for uses like artificial reefs, road surfaces, and roofing shingles. These figures probably don't include such other uses as the tire strips that Wayne Newton reportedly nails to the wood posts of the corral on his ranch to protect his thoroughbred horses.

Industry spends an estimated \$80 million a year to get rid of scrap tires. Once the discards are dumped, they remain

virtually indestructible for years. Buried in landfills, they tend to pop to the surface as air collects in their hollow cavities. Water also seeps into these cavities and forms a breeding ground for mosquitoes.

## Looking for a Solution

The amount of recycled rubber used in this country has dropped from an estimated high of 60 percent during World War II, to 20 percent in the early fifties, to only about 3.5 percent in 1980. Unless more tires are recycled, dumps may become blanketed with this rubber refuse. Industry is studying the problem and running experimental projects to find a solution. As long ago as 1969, the Firestone Tire and Rubber Company, working under a cooperative agreement with the U.S. Department of the Interior, tested methods for destructive distillation, or carbonization, of scrap tires. The tests demonstrated that it was technically feasible to dispose of the discards, and potentially to obtain valuable byproducts as a result. However, while the study examined effects of different temperatures of carbonization, it did not address the economic feasibility of the methods.

In 1982, the Rubber Manufacturers Association (RMA) and the National Tire Dealers and Retreaders Association (NTDRA) cosponsored an International Symposium on Scrap Tires. Robert

McRee of Environmental Control Products, Inc., in Charlotte, North Carolina, presented a paper on pollution-free incineration of rubber tires coupled with profitable energy recovery. With one incinerated tire capable of yielding two and a half gallons of oil, McRee called landfilling of rubber tires "a shameful removal of a valuable fuel potential from our total energy chain" and concluded that the equipment components for rubber tire incineration "are now a practical reality."

Cooling rather than heating tires was also discussed as a recycling method. Professor Norman Braton of the University of Wisconsin at Madison described how cryogenics, or cooling, "can be an important *recycling* application for such systems as the automobile/truck tire."

Timothy Baker of Baker Rubber Company in South Bend, Indiana discussed the market hierarchy of recycled tires. Baker categorized six areas of tire recycling: retreads, tire splitting, ground rubber, rubber reclaiming through size reduction, energy recovery through incineration, and fringe uses, including the use of rubber in asphalt. Under Baker's six categories come most possible uses for recycled tire rubber: gaskets, seals, flexible spacers, floor mats, high grade filler, binding material, and crash barriers along highways.

In a recent conversation Frank Ryan of the Rubber Manufacturers Association described a Uniroyal project for burning





*Plume of black smoke drifts north from a fire involving several million used tires stored at a farm site some five miles west of Winchester, Va. This aerial photo was taken just east of Winchester. The smoke drifted at least 30 miles north into western Maryland.*

five percent shredded tires with coal to produce energy. Goodyear's Ray Oviatt also discussed his company's recycling efforts. Goodyear, says Oviatt, has developed systems for making floating breakwaters and artificial reefs from discarded tires. In pilot projects in Florida and Texas, tires were bundled, weighted with concrete, and dumped into the sea at selected sites. Becoming encrusted with marine growth, they attracted aquatic life and promoted game fishing. Goodyear also tried lashing old tires together to form floating breakwaters and shore protection devices. The largest, says Oviatt, was a 6,000-tire-long breakwater in Lorain, Ohio.

Goodyear also ran two experiments to extract energy from controlled tire burning. At the company's Jackson, Michigan plant, now shut down, tires were burned in a boiler to produce steam that could be used in making new tires. The system worked, but was discontinued because it was not cost effective. In another experiment conducted in cooperation with The Oil Shale Corporation (TOSCO), Goodyear tried pyrolytic heating of tires to recover oil and carbon black, a substance used in the production of new tires. Like the other experiment, this too worked, but was not cost effective; the carbon black wasn't of high enough quality for new tires. "This," says Oviatt, "was a noble experiment that didn't live up to our expectations."

### **Still Struggling with the Scraps**

Efforts have been made to solve the problem of scrap tire disposal, but most of the solutions either don't work, are not economically feasible, or involve such a miniscule number of tires as to make no more than a dent in the overall problem. *NTDRA Dealer News*, a publication of the National Tire Dealers and Retreaders Association, last year ran an informal survey of its members to learn how they handle scrap tire disposal. While *Dealer News* found several instances of progress, it concluded that people "are still struggling with the scrap tire problem, and those who have found solutions are in the minority." In terms of recycling rubber tires, "a viable economic program of a substantial nature is yet to come," said Norm Kramer at the RMA-NTDRA symposium. Kramer, of MAC Corporation's Saturn Shredder Division in Grand Prairie, Texas, declared that current recycling efforts "represent a very small percentage of the total quantity of available tire inventory."

Recycling tires is not cheap. But paying for disposal of discards isn't cheap either. And paying the consequences when a disaster of major proportions such as the Winchester fire occurs isn't cheap or easy.

According to Lee Thomas, EPA's Assistant Administrator for Solid Waste and Emergency Response, the agency is considering three options in Winchester: put-

ting the fire out, letting it burn itself out, or accelerating the blaze. Putting the fire out by conventional fire-fighting techniques would probably take over 100 days, require four sets of equipment, and cost up to \$15 million. Potentially worst of all, says Tom Massey, the aftermath of an extinguished fire would be "a great big dump of half-burned tires, carbon black, all kinds of residue, and continuing leachate." Letting the fire burn out by itself could take as long as 10 months. The result would be leftover steel rims and a pile of ashes. Meanwhile, collection of the runoff oil is proceeding and the continuing burn is being controlled in a way that does not threaten public health. The third option — accelerating the blaze by blowing air into the center of the pile — is being investigated.

Can any good come out of this disaster? Possibly, says Bob Mason. Previous experiments in burning tires to extract oil have all taken place at controlled temperatures. In Winchester, fire temperatures are uncontrolled. If the core temperatures of the tire pile could be monitored, optimum conditions for pyrolysis of tires could be identified, and information on the most effective rate of burn would become available. Perhaps, says Massey, the interest generated in the scientific community by the Winchester blaze will be a springboard to a new technology that could aid in a solution to the problem of scrap tire disposal. □

# Industry Environmental Award Winners

*Homestake gold mine and processing buildings in Lead, South Dakota. The firm won an industry environmental award for pollution cleanup.*



A gold mining company in Lead, S.D., has won a national award for the management of its solid wastes. The firm is Homestake Mining Company.

Homestake's award was for establishment of an ongoing program to dispose of tailings—or ore residues—in an impoundment and to remove solid wastes from process water used at its gold mine. The firm's cleanup system received the 1983 National Environmental Industry Award for Excellence in Solid Waste Management.

The Environmental Industry Awards are sponsored jointly by the President's Council on Environmental Quality (CEQ) and the Environmental Industry Council, whose member companies make or install pollution control systems and equipment.

Five other firms also won awards, which were presented at ceremonies by Alan Hill, chairman of the CEQ.

For years, Homestake recovered most of its gold through a process that included the use of mercury. After extraction, the tailings were discharged into Whitewood Creek.

In 1971, residual mercury was found in the creek and in Oahe Reservoir downstream. Homestake then developed a new extraction process that discontinued the use of mercury.

But other measures had to be taken to dispose of the tailings and remove heavy metals and cyanide traces from process wastewater.

A 230-foot earth and rockfill starter dam was built in the steep mountainous canyons of Grizzly Gulch 2.9 miles from the mine. The tailings now are pumped to the site, where state-of-the-art technology is used to impound them safely. Water used in the process is recycled.

Other measures have been taken to remove heavy metals and cyanide traces

from water discharged into Whitewood Creek. One is a pressure sand filtration treatment system in operation since August 1979.

Construction of another facility to remove heavy metals and cyanide traces from the water is under way. It is expected to be in operation by next August.

Homestake's investment in environmental improvement activities is expected to total about \$35 million.

Other award winners and their categories are:

Steelcase Inc., Grand Rapids, Michigan—air pollution control; Miller Brewing Company, Albany, Georgia—water and wastewater pollution control; Environmental Systems Corporation, Muskegon, Michigan—hazardous waste management; Allied Corporation, Metropolis, Illinois—toxic pollution control; and—in a joint effort in Colorado for excellence in environmental permitting—AMAX Inc., and three government agencies.

Steelcase's citation was for a successful 10-year research and development program to reduce hydrocarbon emissions from its painting operations.

The company operates 17 paint lines—in its more than six million square feet of production area—to spray desk, file, seating, panel, and systems furniture.

A decade ago, according to Gary G. Egleston, Steelcase's Manager for Environmental Administration, the amount of solvent in the company's paint was too high to meet acceptable environmental standards.

Kent County, Michigan, had failed to meet EPA's ozone air quality standard. The excessive solvent emissions at Steelcase were one of the contributing factors.

Steelcase embarked on a research program

aimed at increasing the amount of solids in the paint and decreasing the solvents. The company convinced both paintmakers and application equipment manufacturers to help in the program.

Early experiments were disappointing, since paints with increased solids levels brought decreases in quality and in application speed.

But between 1978 and 1982, Steelcase reduced its volatile organic compound (VOC) emissions a weighted average of 41 percent. The average VOC content of paint fell from 5.5 pounds per gallon to three pounds, and sometimes lower.

The Miller Brewing Company's Southeast Brewery, Albany, Georgia, won an award for a new approach to cleaning hard-to-process brewery wastewater.

Brewery wastes are among those that can be broken down by bacteria and subsequently removed from wastewater by allowing them to settle.

Miller officials say the wastes have always been hard to process because they are difficult for bacteria to consume. The wastes are full of hard-to-digest carbohydrates and are lacking in such nutrients as phosphorus, nitrogen and iron.

Traditionally the treatment theory has been to add enormous numbers of bacteria to the wastewater along with the nutrients to make them consume a lot, but this makes them produce copious amounts of sludge solids. It runs up a big electric bill for the necessary aeration of the water and can result in some discharge of sludge into streams.

Miller technicians decided to experiment with the possibility that fewer bacteria would do a better job, under the right conditions. Over a period of six to nine months, the



*Dam in Grizzly Gulch will impound tailings from Homestake mine*

Allied Corporation's Metropolis, Ill., plant has been given an award for combining two hazardous wastes to create a usable third material.

Allied's Metropolis plant chemically treats uranium to produce uranium hexafluoride for use in nuclear reactors. The plant produces numerous inorganic fluorides as well, including sulfur hexafluoride, a widely used insulator in high-voltage electrical applications.

The Metropolis site also houses Allied's pilot plant for the development of specialty products based on fluorinated carbon, a key material in the manufacture of lithium batteries and other products.

Members of Allied's Chemical Sector process technology group at the Metropolis plant overcame a large-scale waste problem by developing a technology to treat one waste stream produced at the plant with a second hazardous waste.

The result is 8,000 tons of synthetic fluorspar, a raw material suitable for the manufacture of anhydrous hydrofluoric acid at another Allied location.

A \$4.3 million plant to produce the new material from toxic wastes began operations in 1982. It saves Allied \$1 million a year and eliminates the need for storage or disposal of large quantities of hazardous solid waste. It also reclaims approximately 1,000 cubic yards of lime monthly for reuse in the plant's wastewater treatment process.

The Colorado Joint Review Process, a group consisting of a private company and three public agencies, won a national award for cooperating to assure environmental protection during the opening and operation of a new molybdenum mine.

The private company is AMAX Inc. The government agencies are the Gunnison County Board of Commissioners, the Colorado Department of Natural Resources, and the U.S. Department of Agriculture's Forest Service.

The Colorado project involves AMAX's Mount Emmons molybdenum mine in Gunnison County. It was planned after discovery of a primary molybdenum deposit there—one of the world's largest—in 1977.

The group was formed to coordinate action by a host of county, state and federal agencies with environmental protection responsibilities—and to assure input from nearby communities and the public at large—on decisions affecting quality of life in the Mount Emmons area.

The Department of Natural Resources used the Mount Emmons case lessons to draft a manual that will guide actions in other projects to protect the environment. Several states also have expressed interest in the manual. □

company was able to provide conditions which encouraged the proper strain of bacteria to grow. These organisms were put into an aerobic digestion tank and given no food until they were turned loose on the beer waste.

According to Miller executives, because the bacteria consume more, there is less sludge to remove and it is easier to control.

Annual wastewater treatment cost at Albany has been reduced from about \$2.5 million to \$1.3 million.

The Environmental Systems Corporation of Muskegon, Michigan won its award for a massive cleanup project at a chemical company site in Muskegon. The site is owned by Bofors Nobel Inc., a subsidiary of a Swedish company, A. B. Bofors. Bofors bought the former Lakeway Chemicals Company Inc. in 1977.

The Swedish company wanted to move quickly to establish itself in the U.S. specialty and fine chemicals market. But it first had to deal with a huge waste problem the former owners had left behind.

More than 370 million pounds of sludge had been placed in lagoons at the site since

1961. Some of the material had seeped through sandy soils to contaminate groundwater.

When the State of Michigan ordered that the site be cleaned up, Bofors set up Environmental Systems Corporation, a joint venture of Zimpro Inc., and Waste Management, Inc., to do the job. That was in 1981.

Environmental Systems decided to dispose of the wastes on-site rather than have them removed. It used a systems approach involving several technologies—among them bio-carbon treatment, wet air oxidation, waste acid neutralization and detoxification, pyrolytic thermal processing, secure landfill and forced soil-water flushing. This approach permits ESC not only to clean up the site but also to process wastes from continuing manufacturing operations.

While these technologies have been used elsewhere, Environmental Systems integrated them to permit the lowest cost treatment or detoxification method for each of a wide variety of waste streams.

To date, nearly 200 million gallons of polluted groundwater have been pumped and treated, and a million gallons of manufacturing wastes have been detoxified.



Joseph A. Cannon



Bernard D. Goldstein



John A. Moore

## More Appointments at EPA

Four EPA assistant administrators nominated by President Reagan have been confirmed by the U.S. Senate, a new regional administrator for Region 9 in San Francisco has been named by Administrator Ruckelshaus and a high ranking post in the Superfund program has been filled.

The four headquarters EPA officials are Joseph A. Cannon, Assistant Administrator for Air and Radiation; Bernard D. Goldstein, Assistant Administrator for Research and Development; John A. Moore, Assistant Administrator for Pesticides and Toxic Substances; and Milton Russell, Assistant Administrator for Policy Planning and Evaluation. The new Regional Administrator is Judith E. Ayres, and Cora Prifold Beebe will help oversee the Superfund budget.

Cannon has been the Acting Assistant Administrator for Air and Radiation at EPA since July 1983. He previously served as Associate Administrator for the Office of Policy and Resource Management at EPA from September 1981 to July 1983. Prior to that, he served as a special assistant and legal advisor for regulatory reform to the Administrator from May to September 1981. Prior to joining EPA, Cannon practiced law in Washington, D.C.

He received his undergraduate and law degrees from Brigham Young University, where he was an editor of the school's law review. Cannon is married and has four sons.

Dr. Goldstein has been chairman of the Department of Environmental and Community Medicine of the University of Medicine and Dentistry of New Jersey-Rutgers Medical School since 1980.

During the same period, he served as chief of the Division of Environmental and Community Medicine of Middlesex General Hospital and as an associate professor of the Department of Environmental Medicine at the New York University Medical Center.

Goldstein has served as a scientific adviser to EPA since 1978, and he has been chairman of the Agency's Clean Air Scientific Advisory Committee since 1982.

Between 1975 and 1980, Goldstein was an associate professor of the Medicine and Environmental Medicine Departments of New York University's School of Medicine. He was a National Institutes of Health Senior International Fellow at the Department of Biochemistry at Brunel University and at the Department of Community Medicine at St. Thomas' Hospital and Medical School in London, England.

Goldstein received his B.S. from the University of Wisconsin in 1958 and his M.D. from New York University School of Medicine in 1962. He is married and has two children.

Dr. Moore previously served as Deputy Director of the National Toxicology Program (NTP) in the Department of Health and Human Services (DHHS), a position he held since that program began in 1978. During the same time he served as Director of Toxicology Research and Testing in the National Institute of Environmental Health Sciences.



*Milton Russell*



*Judith E. Ayres*



*Cora Prifold Beebe*

He is a board-certified toxicologist and served on a variety of national and international scientific panels on dioxin.

Moore graduated from Michigan State University in 1961 where he also received a Doctorate of Veterinary Medicine (1963). He and his wife will be moving to Washington, D.C. from Raleigh, N.C., where he has been located.

Russell came to EPA from Resources for the Future, a public policy research institution specializing in natural resources and the environment. He served as Director of its Center for Energy Policy Research since 1979. He was with the institution since 1976.

From 1974-1976, Russell served as senior staff economist at the Council of Economic Advisers. He worked as a staff economist for the Federal Power Commission during 1966-1967.

Russell has taught at several universities, including Southern Illinois University at Carbondale where he was chairman of the Economics Department.

He received his doctorate in economics from the University of Oklahoma in 1963, after previously earning his masters in economics there in 1957. He graduated from the Texas College of Arts and Industries, Kingsville, Texas, in 1955. He and his wife reside in Washington, D.C.

Regional Administrator Ayres has operated her own consulting organization in San Francisco since 1978. It has been concerned with environmental program planning,

natural resources economics, environmental mediation, marine policy, and the analysis of environmental legislation and regulations.

From 1971 to 1978, Ms. Ayres held various positions with the Department of Interior. They included serving on the personal staff of former Secretary of the Interior Rogers C.B. Morton in the capacity of speech writer, an assignment with the Joint Federal State Land Use Planning Commission in Anchorage as Communications Director, and head of the Public Affairs Office of the National Park Service in Alaska. Ayres also served in Washington, D.C. as legislative liaison for the National Park Service.

She served on the North Pacific Fisheries Management Council advisory committee from 1976-77, and has lectured at national and international conferences on natural resources management.

She was awarded her bachelor of arts degree in zoology and physiology and an equivalent degree in English from Miami University in Oxford, Ohio, in 1966. In 1967, Ms. Ayres attended Leeds University in Wakefield, England, where she did graduate work in archeology. The following year, she attended the International Christian University in Tokyo, where she pursued graduate studies in Japanese art, politics and religion. In 1980, she earned her Master of Public Administration degree at Harvard University's John F. Kennedy School of Government in Cambridge, Mass.

Ms. Ayres and her husband, John W. Burke III, an attorney, and their daughter live in the San Francisco Bay area.

Beebe has been named as Director of the Office of Policy and Program Management for the Office of Solid Waste and Emergency Response.

A recognized expert in federal fiscal policy, Beebe has served since 1981 as Assistant Secretary of the Treasury for Administration. In that post, she oversaw management of the Department's 11 bureaus, 121,000 employees, and \$4.7 billion operating budget. Prior to joining Treasury, she was principal Deputy Assistant Secretary of Education for Elementary and Secondary Education. From 1973 to 1981, she was Director of the Division of Planning and Budgeting in the U.S. Office of Education, where she managed a budget of \$12 billion.

In addition to her professional career, Beebe has been widely published on a range of subjects and has received numerous professional and service awards. She holds B.A. (1959) and M.A. (1969) degrees from the University of Michigan and has done post-graduate work at the Johns Hopkins University School of Advanced International studies. She is active in various professional and civic organizations. □

## AIR

### EPA Ends Ban

EPA has announced an end to its four-year ban on construction of new and modified stationary pollution sources in most of California as a result of the state's compliance with automotive inspection and maintenance requirements (tailpipe emission tests) of the Clean Air Act.

Under the Act, six areas of California were required to include I/M programs in their 1979 clean air implementation standards. They were the Los Angeles basin, San Francisco Bay area, Sacramento area, San Diego, Ventura, and Fresno Counties. Establishment of I/M programs required state authorization under California law. Without state authorization for the I/M program, the plans could not be approved; and on July 2, 1979, the construction moratorium was automatically imposed.

On September 10, 1982, the Governor of California signed the legislation which authorized the state to implement I/M where specifically requested by responsible air pollution control districts. The districts responsible for five of the six areas have requested implementation, and EPA's action removes the construction moratorium in these areas.

Fresno County is the only remaining California nonattainment area failing to request implementation of the auto inspection program. Under the Clean Air Act, EPA is required to retain the construction moratorium until the county formally requests the program to be adopted. EPA continues to work with Fresno County officials in order to secure the auto inspection program for that area.

## ENFORCEMENT

### Violation Notices

The City of Philadelphia has been accused by EPA of violations of the Federal Clean Air Act. The alleged violations involve tampering with emission control devices on 131 city police vehicles, for which the agency is asking penalties of \$327,500.

The Agency has also issued a notice to the County of Greenville, S.C., for alleged violations of the Act. The agency is asking penalties of \$630,000.

The violation notice in Philadelphia resulted from an investigation conducted by EPA investigators, after the agency received complaints from the Philadelphia Clean Air Council and the Philadelphia Police Mechanics' Union.

EPA investigated the allegations and documented the 131 tampering violations which occurred between August 1982 and July 1983. The violations included 52 catalytic converter removals, 32 carbon canister removals and 47 air pump removals. EPA said tampering had occurred on 60 percent of the city's police vehicles, but it cited only the most serious violations.

The notice in South Carolina alleges that Greenville County used leaded gasoline in vehicles requiring unleaded gasoline. The agency is asking for penalties for 90 specific instances of automotive misfueling.

EPA said the enforcement action was taken as a result of an investigation conducted by agency investigators after receiving information from concerned citizens in Greenville. Actual inspections of vehicles, fueling facilities, and related county records were performed, with the permission of county officials. The county's own maintenance fueling records revealed a regular practice of allowing the cars to use leaded gasoline.

### Cleanup Agreement

EPA recently announced an agreement between the agency and Westinghouse Electric Corporation requiring the company to clean up polychlorinated biphenyl (PCB)-contaminated wastes at Neal's Landfill and Neal's Dump near Bloomington, Ind.

The agreement satisfies only a request for a preliminary injunction requiring immediate cleanup measures at the two sites. The preliminary injunction is part of a larger suit filed on January 4, 1983, requesting cleanup of the sites. Trial for the remaining portion of the suit is scheduled to begin early next year in Indianapolis.

During the mid-1960's, Westinghouse disposed of PCB-contaminated waste products at both sites from its electrical equipment manufacturing facility in Bloomington. The wastes include electrical capacitors filled with PCB fluid, and manufacturing byproducts saturated with PCBs and other organic chemicals, including toluene.

Some of the PCB-contami-

nated equipment has rusted and broken open, releasing PCBs into the nearby environment, posing a threat to populations around both sites. PCBs have been found in surrounding soils at both sites and in streams near Neal's Landfill.

## HAZARDOUS WASTES

### Superfund Progress

Emergency actions at more than 150 hazardous waste sites have been completed in the first 33 months of the Superfund program, according to EPA.

As of September 30, EPA had obligated more than \$47 million to fund 206 removal actions. One hundred fifty-three of the actions had been completed.

The figures refer only to actions taken under EPA's emergency response program, which deals with imminent threats to public health and the environment. Superfund emergency responses have been completed in 36 states. Pennsylvania had the most such responses—13, followed by Ohio with 12; California with 11; Texas with 10; Florida and New York with eight each; and Illinois, Indiana, Michigan, and New Jersey with seven each.

Other EPA efforts provide for longer-term solutions to problems at hazardous waste sites. As of September 30, EPA had also obligated \$124.6 million for long-term cleanup activities at 141 sites.

Administrator Ruckelshaus pointed out that EPA is taking several steps to accelerate cleanup of hazardous waste sites. The Agency has authorized its Regional Administrators to commit up to \$250,000 in funds to initiate removal actions without prior headquarters approval. "Furthermore," Ruckelshaus said, "we are acting sooner to address situations which pose a potential threat to public health and the environment, rather than waiting for a crisis to develop."

## PESTICIDES

### Predator Control

EPA recently announced its final decision on the use of Compound 1080 (sodium fluoroacetate) to control coyotes and other feral or wild dogs.

The decision modifies the 1972 ban on the pesticide for predator control and allows the registration of the chemical toxicant in toxic collars and, subject to stringent restrictions, in single lethal dose baits. The application

for registration of Compound 1080 for large bait stations and smear posts was denied.

The decision, made by Lee Thomas, EPA's Assistant Administrator for Solid Waste and Emergency Response, affirms, with some modifications, the October 22, 1982, initial decision of Administrative Law Judge Spencer T. Nissen. Thomas was designated to rule on Compound 1080 on July 18, 1983, by EPA Administrator William D. Ruckelshaus who excused himself from consideration of the issue. At that time, Mr. Thomas was the Acting Deputy Administrator of EPA.

The final decision will now allow parties to apply to EPA for registration of Compound 1080 for the two uses allowed. In addition to meeting the registration standards, registration of Compound 1080 for predator use must meet a number of additional restrictions established in the final decision order.

### Pesticide Review

EPA has asked for public comment on its analysis of the risks and benefits associated with the seven pesticides used for subterranean termite control.

After examining available data, the agency has concluded in its report that existing evidence is not sufficient to determine that the proper application of termite control pesticides poses unreasonable risks to public health. The pesticides reviewed were chlordane, heptachlor, aldrin, dieldrin, pentachlorophenol, lindane and chlorpyrifos.

In assessing the risks and benefits associated with the seven major registered termite products, the Agency found the benefits to far exceed the risks at this time. At the same time, the agency recognized that in individual cases where the termiticides are improperly applied or misused in treating residential dwellings, the risks from exposure may exceed the benefits. The Agency is, therefore, considering restricting the use of these pesticides to certified applicators who are trained in application techniques which reduce human exposure. The report indicates that the risk assessment on the seven chemicals is incomplete because of the lack of definitive data on the extent and amount of human exposure and on the health effects which may be induced by such exposure to these pesticides.

The Agency has developed an action plan to obtain the necessary toxicology and exposure

data to fully assess the health risks and determine the need for any further regulatory action. The toxicology studies include mutagenicity tests and sub-chronic inhalation studies. The pesticide producers will also be required to provide indoor air monitoring data for various types of dwellings that have been treated with these termiticides.

## RESEARCH

### Innovative Studies

EPA is awarding a total of \$250,000 in research and development contracts to 10 small high-technology firms as part of a federal program which encourages smaller companies to submit innovative research proposals.

The proposals selected were from Chemical Process Corporation of Brookfield, Wis., to study ways to produce a useful product from waste whey; Richard Jablin and Associates of Durham, N.C., to study a method of cooling molten slag without producing polluting emissions; Bend Research of Bend, Ore., to develop an economical way to recover metals from sludges; and PEDCO Environmental of Cincinnati, to investigate the recycling of dust from electric arc furnaces.

Also selected were Bollyky Associates of Norwalk, Conn., to evaluate an ozone-hydrogen peroxide system for disinfecting wastewater; Matrecon of Oakland, Calif., to develop ways to determine how waste liquids with organic compounds travel through clay liners; and Water Engineering and Technology of Fort Collins, Colo., to study erosion from slopes in hazardous waste sites protected by rock mulch.

The remaining firms selected were Kenterprise Research of York, Pa., to develop a new process to clean up dioxin; Merix Corp. of Wellesley, Mass., to investigate four novel processes for controlling volatile organic emissions; and Photox International of Houston to investigate a new photochemical process for cleaning up contaminated groundwater.

## TOXICS

### Formaldehyde Review

EPA has announced that it is rescinding its 1982 decision that formaldehyde did not meet the statutory criteria for priority

review under the Toxic Substances Control Act (TSCA).

Accordingly, the Agency is soliciting public comments to assist it in determining whether formaldehyde presents a significant risk to humans.

EPA is under statutory obligation to decide within 180 days whether to initiate regulatory action if it makes a threshold determination under Section 4(f) of the Toxic Substances Control Act that there may be a reasonable basis to conclude that a chemical presents a "significant risk of serious or widespread harm" to humans from cancer, gene mutations, or birth defects.

Formaldehyde is a widely-used chemical. In 1981, 5.86 billion pounds were produced in the U.S., making it the 25th chemical in a ranking by U.S. production volume. Some major uses are: ureaformaldehyde resins used in plywood, particle board, and paper and textile treatments; formaldehyde resins used as adhesives and for foundry molds; tissue preservation; and as a chemical intermediate. Formaldehyde is also present in the air due to natural processes and incomplete combustion.

### Laboratory Standards

Laboratory standards for testing pesticides and toxic substances under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA) have been set by EPA.

These standards, called Good Lab Practices, are designed to assure that test data submitted to the Agency for regulatory purposes are reliable. Good Lab Practices are those yardsticks by which EPA can determine whether laboratory studies are being properly conducted and will yield sound data. EPA's Good Lab Practices are consistent with testing procedures developed by the U.S. Food and Drug Administration.

EPA proposed the standards after learning of allegations that Industrial Biotest Labs, a large laboratory headquartered in Chicago, had provided falsified data to the Agency. Some pesticides were duly registered by EPA based on that data; many of these products subsequently required a lengthy retesting process.

Based on these allegations, on October 21 of this year, a U.S. District Court judge in Chicago found three former IBT officials guilty of mail fraud and making false statements to the government.

## WATER

### Revised Rules

EPA has issued revised rules governing water quality standards that will strengthen the protection of streams, rivers, and lakes.

The standards, established by the states and approved by EPA, set water quality goals for specific bodies of water. They also serve as the regulatory basis for treatment controls and strategies beyond technology-based levels of treatment.

The new rules incorporate new changes in response to numerous public comments. EPA adopted several measures to reassure the public that the Agency is committed to achieving the goals of the Act. They include, for example, regulatory language explicitly affirming EPA's commitment to use standards as a basis of restoring and maintaining the integrity of the nation's waters. EPA also added a "Purpose" section declaring that standards are to protect public health and welfare, and to enhance water quality.

The new rules also clarify that when a state changes the designated uses of its waters, it will have to demonstrate that those uses are not attainable, based on a number of well-defined factors.

There is a much stronger emphasis on state adoption of water quality criteria for toxic pollutants. Under the previous regulation only a few toxic pollutants were included in a limited number of state standards. EPA revised this section to reflect the Agency's commitment to control the discharge of toxic pollutants and in response to public concern over toxic wastes.

The Agency retained the basic provisions of the antidegradation policy dealing with protection of pristine, high quality waters, existing instream uses, and waters constituting outstanding national resources.

EPA also set the "fishable/swimmable" goal of the Clean Water Act as the basis of all standards' decisions and for the first time provides a mandatory policy for upgrading all water bodies to that use classification, where attainable.

EPA also expanded and clarified acceptable procedures for downgrading stream use classifications, specified appropriate state and federal roles, delineated several acceptable forms of water quality criteria, and described the dual function of water quality standards as both goals and regulatory tools.

### Treatment Options

EPA recently announced it is proposing new rules for secondary treatment of wastewater that will make it easier for smaller communities to meet Clean Water Act requirements while assuring that water quality will not be adversely affected.

The rules are in response to 1981 congressional amendments to the Act that consider less expensive methods of biologically treating wastewater, such as trickling filters and waste stabilization ponds, as equivalent to conventional secondary treatment systems.

Approximately 3,000 trickling filters and pond facilities now in operation would be potentially eligible for permit adjustments. About 85 percent of these facilities serve communities with populations of less than 10,000 persons.

Congress in 1981 amended the Clean Water Act to allow the less costly biological systems to be considered as secondary treatment, provided water quality would not be adversely affected by designating these systems as equivalent to secondary treatment.

### Drinking Water

EPA has begun the second phase of revised regulations that will become the permanent drinking water standards for all public water systems.

The Agency has issued an Advance Notice of Proposed Rulemaking (ANPRM) for National Revised Primary Drinking Water Regulations which went into effect shortly after Congress passed the Safe Drinking Water Act in 1974.

The task of developing revised regulations is such a major undertaking that EPA has divided the process into four phases. The first of these dealt with volatile synthetic organic chemicals, and an ANPRM for these substances was issued in 1982. Proposed regulations for these chemicals, which include carbon tetrachloride and trichloroethylene, will be issued next year and final regulations should appear in 1985.

The latest action, the second major step in revision of the regulations, deals with most substances addressed in the 1975 interim regulations—the micro-biological contaminants, inorganic chemicals, and pesticides. □

# Toxic Chemicals and Health

(Excerpts from a speech by EPA Administrator William D. Ruckelshaus to the Chemical Manufacturers Association in New York on Nov. 8, 1983)



"I think you have to accept the industry's lack of credibility on health questions as a fact of life deriving from complex historical and institutional factors. I understand how the many competent and reputable scientists who work in the industry might resent it. Decrying public ignorance of factors involving their health may assuage resentment, but it only fuels negative public perceptions about the chemical industry's social conscience.

"Of course, you must continue to put forward the facts at your disposal; indeed, it is essential that you do so. The chemical industry is our greatest and most reliable source of information on chemical species, on their behavior under all conditions of physical state and mixture, on controlling hazards and recycling wastes. Despite this acknowledged expertise, I would caution you not to dismiss public fears because your calculations show them to be 'irrational.'

"We know, of course, some public fears do not stand up well before statistical tests. For example, a recent poll published in the *Scientific American* asked people from different groups to place in rank order the risk of death from various causes. It was clear from the results that many people have ideas about relative risk that are at variance with any strictly statistical evidence we have.

"The important point for our purposes is that such ideas will cause people to impose different standards of safety on risks of different origins. If, as that poll suggests, college students believe that pesticides and nuclear power plants present greater risks than boating or motorcycle accidents (a supposition, I might add, not strongly supported by actuarial statistics) then they will seek to impose stricter controls on the risks they believe more important. There is nothing inherently wrong with this; public safety is a judgment, not a mathematical calculation. As such, it is properly housed in the political process. We can try to change these judgments over time, with evidence, with research, but we do ourselves a disservice if we pretend that the concerns the political judgments address are not 'real.'

"We may ask, why is rational argument less than convincing in discussions about toxic chemicals? Why aren't the judgments more in line with our calculations? I believe it is because public concern is centered on those dreaded diseases that are plausibly connected with low concentrations of toxic substances, that is, cancer and the genetic and reproductive disorders, and because, at the heart of our risk assessments there is, undeniably, a hollow place. I think people sense that we really don't know how and under what circumstances chemicals cause cancer; they're right, we don't.

"There are over 400,000 deaths from cancer each year. About two percent of children are born with some defect. How much of this toll is associated with exposure to toxic chemicals? Almost none? A lot? There are credentialed scientists supporting extreme points on this spectrum and many in between. This uncertainty imposes upon those with a responsibility to the public, and I trust that includes all of us here, a position of prudent concern.

"I have no doubt some of this concern may prove mistaken in years to come, but in this we are very much in the position of the early European sanitarians, who fought for sewer systems and other basic public health measures in the early nineteenth century. These people did not know about germs, and were roundly mocked by people who believed there was no provable connection between dirt and disease. In fact, some of the justifications the sanitarians put forward to defend their projects appear quaint and ridiculous to us now, as our solemn pronouncements about cancer will no doubt appear to our posterity. But they built the sewers anyway. There is a lesson for us here about action in the face of ignorance.

"Let me explain how EPA is responding to this problem, which we share, of acting in the face of ignorance. First, we accept risk assessment as an important tool; given the very great numbers of possible regulatory objects of interest, it is indispensable for setting priorities. It is also useful as a means of demonstrating to a concerned public that we are working on the most significant risks. But note this: risk assessment can seriously backfire if there is any suspi-

cion that policy interests (other than concern for public health) have intruded into our calculations of risk. At EPA we have tried to disentangle risk assessment, as a process, from the policy considerations that go into making a final decision about regulating a substance, which we call risk management. I realize there is not an obvious bright line between the two; still, I believe that good public policy obliges us to make it as bright as we can.

"This is something that industry has not always done, and the idea that economic interests prevail over health concerns in industry statements about risk has stuck in the public mind. I should add that there are some hopeful signs that this is changing. Much of the industry has embraced the principle that risk assessments must emerge from disinterested establishments. I trust that this trend—whose exemplar is the Chemical Industry Institute of Toxicology—will continue.

"But risk assessment is not a solution to the problem of public fear and public trust. It is my belief that the key to the acceptance of any body of analysis is the public perception of *action*. The public must be convinced that when we have a reasonable belief in an unreasonable risk we will move to reduce it, swiftly and decisively.

"Now we may not agree on whether such actions are worthwhile. We all know how many assumptions go into risk assessments and how radically the assessments change when you vary them. If we often disagree on things that appear eminently possible to pin down, such as control costs, then of course we're going to fight over numbers that inhabit what one of our scientists ruefully calls "a mathematical fairyland." But although we are deeply committed to finding the most cost-effective ways of controlling public health risks, we cannot wait for the last decimal point to be entered. I have no doubt that we will in the future require expenditures that your analysis shows control inconsiderable risks. I think that society has told us to pay that price as a sort of insurance. In a certain sense, the actual, quantifiable risk reduction we obtain thereby is beside the point. We are really buying freedom from

fear, and most Americans are willing to pay a reasonable price to obtain it.

"Moreover, if we do not act decisively under the conditions I have described, the public trust in EPA will erode. Indeed, in some quarters it already has. Our friends in the environmental movement would like us to be strictly bound by statutory mandates so that we would have little freedom to perform the balancing and priority-setting operations implied by the term risk management. I don't think this is a correct approach. In terms of efficient public health protection it is no substitute for Agency flexibility. But this flexibility will be granted us only if we are trusted, and in order to be trusted we must act where the facts warrant. This is an important point for the industry to consider, because I believe the events of the last few years have shown that in the long run a strong and trusted EPA is the best friend the industry has.

"The chemical industry can help itself a great deal in this matter by adopting a similar policy. You can take actions that will capture the public imagination, and make you appear, in the old phrase, part of the solution instead of part of the problem. As to what actions would be suitable, I will quote no less an authority than your past chairman, Bill Simeral: 'To start, we can clean up the dump sites. Abandoned dump sites are the single, most obvious symbol of everything the public believes to be wrong with the chemical industry. Whatever their impact on the environment, rusted drums are poisoning the climate for the chemical industry in Washington and across the nation. As long as we let the problem persist, we don't stand a chance at winning the confidence of the people.'

"I couldn't agree more, and the same goes for us in government. We have to stop playing 'who struck John' around the issue of responsibility for hazardous waste sites. We have to go beyond public relations and the legal niceties. The public is not going to stand still when representatives of a multibillion-dollar industry and governmental officials at all levels dance a minuet around cleaning up a site that has some little town scared half to death.

"As I noted, the management of your organization is aware of the need for

movement on this issue, as are we. As you are probably aware, we have changed our policy regarding cleanup projects in that we now begin the actual site work before nailing down the details about who will ultimately bear the cost. In addition, I have encouraged an informal group made up of representatives of industry, the Agency and the environmental community to develop recommendations about how we can all work together to speed the cleanup. We expect recommendations from them early next year.

"I view this sort of effort as an initial step in the widening of the industry's assumption of responsibility concerning toxic chemicals in the environment. I think you will sooner or later have to confront hazardous waste disposal in a much more comprehensive way than you have in the past. I can't believe that the use of chemicals in general will increase as much as you would like it to if people who use them in commerce do not have a safe place to put potentially hazardous waste. It is in your ultimate interest to insure that your customers can dispose of their wastes safely even if this means, in some cases, taking care of them yourselves. The chemical industry must begin to prepare itself for helping police the whole cycle of use, disposal and recovery for a variety of toxic chemicals.

"Why should you do this? Isn't it sticking your neck out? Isn't your job simply to make and sell chemicals and realize a profit? In answer I would turn to Peter Drucker's argument that profit is a necessary condition of enterprise, but not its ultimate end, which is to insure the survival and growth of the organization. I hope that what I've said today, and what you have heard from others both within and outside the industry, convinces you that the survival and growth of the institutions you represent is in some doubt if you do not act quickly, boldly and convincingly to rid the environment of toxic substances where you can and stem the public apprehension they engender.

"This is your challenge, *our* challenge. I believe rising to meet it is a necessary ingredient in the prosperity of your industry and the wellbeing of our country. We should get on with it." □

# Minority Students Working as EPA Apprentices

Crystal Darvin, a 17-year old high school senior, spent last summer working in EPA's Health Effects Research Laboratory in Cincinnati helping to conduct tests to determine the effects of different chemicals on liver cells in rats.

It wasn't exactly a vacation, but she said the experience will help if she decides on a career in medicine. Darvin, who is enrolled at Anderson High School in Cincinnati, is working part-time in the laboratory now. She is one of 52 students in the Greater Cincinnati area who participated last summer in the ten-week minority apprenticeship program being sponsored each year by the EPA and administered by the University of Cincinnati.

The program goal is to interest more minority persons in science and engineering. Darvin and the other students are gaining direct experience in laboratories at EPA's Andrew W. Breidenbach Environmental Research Center in Cincinnati. EPA engineers, scientists and mathematicians work one-to-one with the students to help them gain the most from their apprenticeships.

Seventeen-year-old George Ellis of Forest Park High School says his apprenticeship has "given me the foundation for planning a college career in chemistry and biology." He spent the summer in EPA's Environmental Monitoring and Support Laboratory summarizing reports on the toxicity of pollutants.

Stephen Hill, a senior at Woodward High School, spent his summer's apprenticeship in the Municipal Environmental Research Lab entering data on water pollution research into a computer. "It shows me what engineers do and helps me a lot with accuracy," Hill said. The 17-year-old student says the work "most definitely helps prepare me for my career." He would like to major in aerospace engineering in college.

Emile Coleman, a research chemist who is one of the supervisors of the students, said many are performing real experiments that help in EPA research and monitoring. "This isn't just a classroom setting," Coleman said.



*Darrin Morris, student at Forest Park High School in Cincinnati, conducts pollution test on drinking water sample. Morris is in EPA minority apprenticeship program.*

One of those performing tests was Kimberly Conliffe, 17, a student at Sycamore High School. She has been working for the past two summers in the Health Effects Research Laboratory identifying organic chemicals in drinking water. Chemicals she identified are tested on laboratory animals for ill effects.

The students get valuable experience plus a stipend of up to \$134 a week, said Clarence Clemons, coordinator of the program. He added that "we hope to continue working with the students through college and, hopefully, get many of them jobs with EPA after graduation." The program began in 1980 and about 135 students have been involved.

In addition to the experience provided by the program, the income is an asset for a young person saving for college, points out Jewell Mimms, 16, a junior at Walnut Hill School. Mimms, who would like to pursue a computer engineering career, spent the summer in the Center's Office of Administration putting data into a computer.

Another student, Zena Henson, 17, says, "I almost feel I have a degree in this field already," after spending two summers in the program classifying organic materials. She is aiming for a career in biochemistry at the Ohio Institute of Technology.

According to Clemons, the program begins each year with brochures being sent to area high schools explaining the apprenticeships. Then school counselors have their best minority students who are interested in the EPA program take a set of tests at the University of Cincinnati. After the tests, the University refers to EPA those who are qualified for the training. Students involved in the program are blacks, Hispanics and Pacific Islanders.

Prospective apprentices, Clemons said, must have completed at least the sophomore year of high school and a year of study in the physical or life sciences.

The summer program starts after completion of the school year. It is operating under annual grants of about \$2,000 per student from EPA's Office of Research and Development. The funds are for salaries, transportation and an enrichment program conducted by the University one day each week throughout the apprenticeship.

Clemons added that the EPA laboratory directors in Cincinnati "are in wholehearted support of the program." □



*Sun, ice and snow light up this wintry scene at Old Woman Bay at Wawa, Ontario, Canada, near Sault Ste. Marie. This photo is one of a series by B. A. King in the special exhibit "Great Lakes, America" which EPA helped sponsor.*

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