

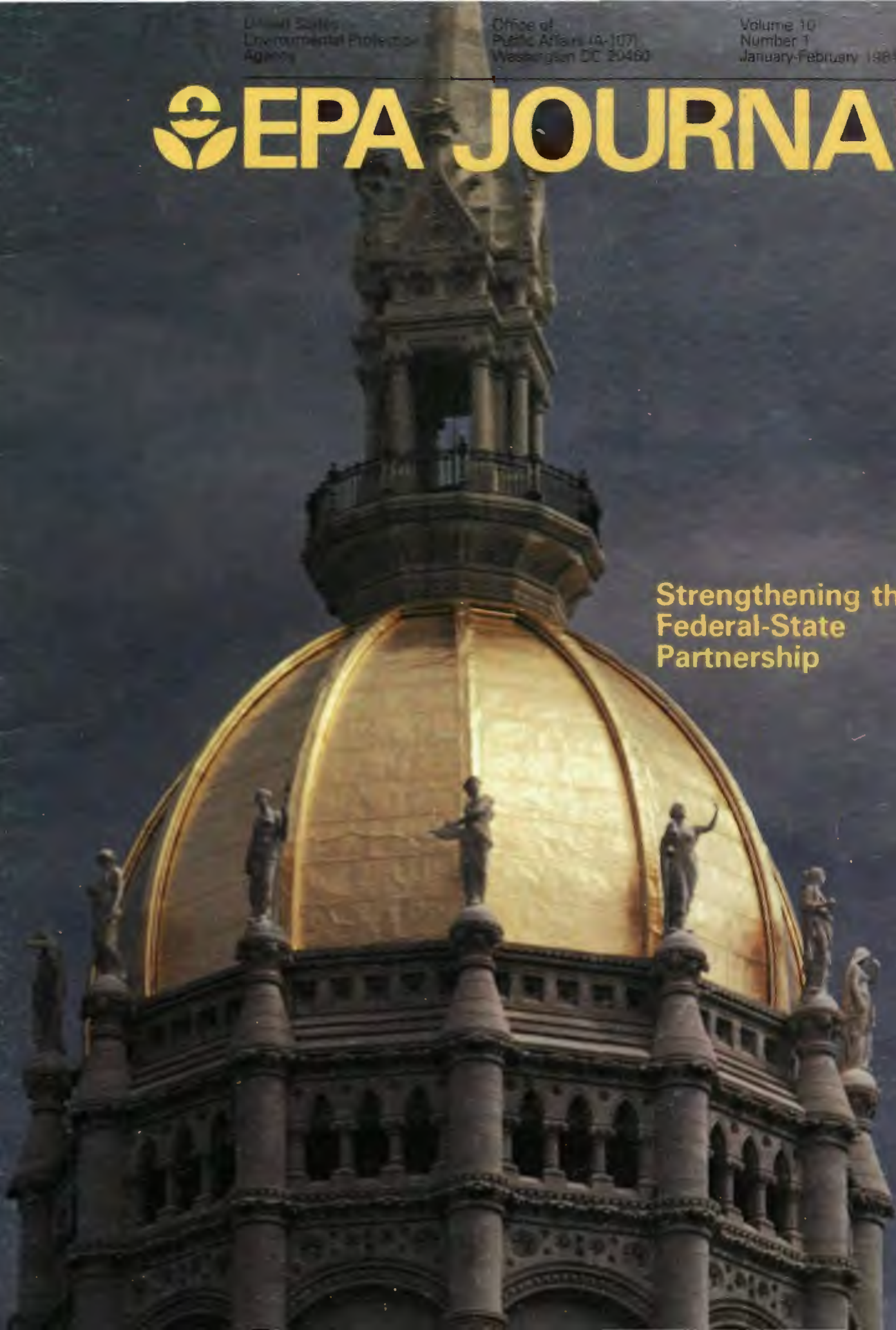
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EPA JOURNAL

**Strengthening the
Federal-State
Partnership**



Preserving Earth's Resources

(Excerpt from President Reagan's State of the Union message to Congress Jan. 25, 1984)

And as we develop the frontier of space, let us remember our responsibility to preserve our older resources here on Earth. Preservation of our environment is not a liberal or conservative challenge, it's common sense.

Though this is a time of budget constraints, I have requested for EPA [the Environmental Protection Agency] one of the largest percentage budget increases of any agency.

We will begin the long, necessary effort to clean up a productive, recreational area and a special national resource—the Chesapeake Bay.

To reduce the threat posed by abandoned hazardous waste dumps, EPA will spend \$410 million, and I will request a supplemental increase of \$50 million. And because the Superfund law expires in 1985, I have asked EPA Administrator Bill Ruckelshaus to develop a proposal for its extension so there will be additional time to complete this important task.

On the question of acid rain, which concerns people in many areas of the U.S. and Canada, I am proposing a research program that doubles our current funding.

And we will take additional action to restore our lakes and develop new technology to reduce pollution that causes acid rain.

We have greatly improved the conditions of our natural resources. We'll ask the Congress for \$157 million beginning in 1985 to acquire new park and conservation lands. The Department of the Interior will encourage careful, selective exploration and production of our vital

resources in an exclusive economic zone within the 200-mile limit off our coasts but with strict adherence to environmental laws and with fuller state and public participation.



President Ronald Reagan delivering State of the Union message with Vice President George Bush and House Speaker Thomas O'Neill seated on the podium behind him.

EPA JOURNAL

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Front Cover: Dome of State Capitol Building in Hartford, Conn. The Connecticut Capitol has been registered with the Department of the Interior as a national historic landmark because of "outstanding expression of the eclecticism of its high Victorian Gothic style." The allegorical figures surrounding the gold-leaved dome represent agriculture, commerce, education and other influences that shaped the state. Photo by Everett C. Johnson of Photri.

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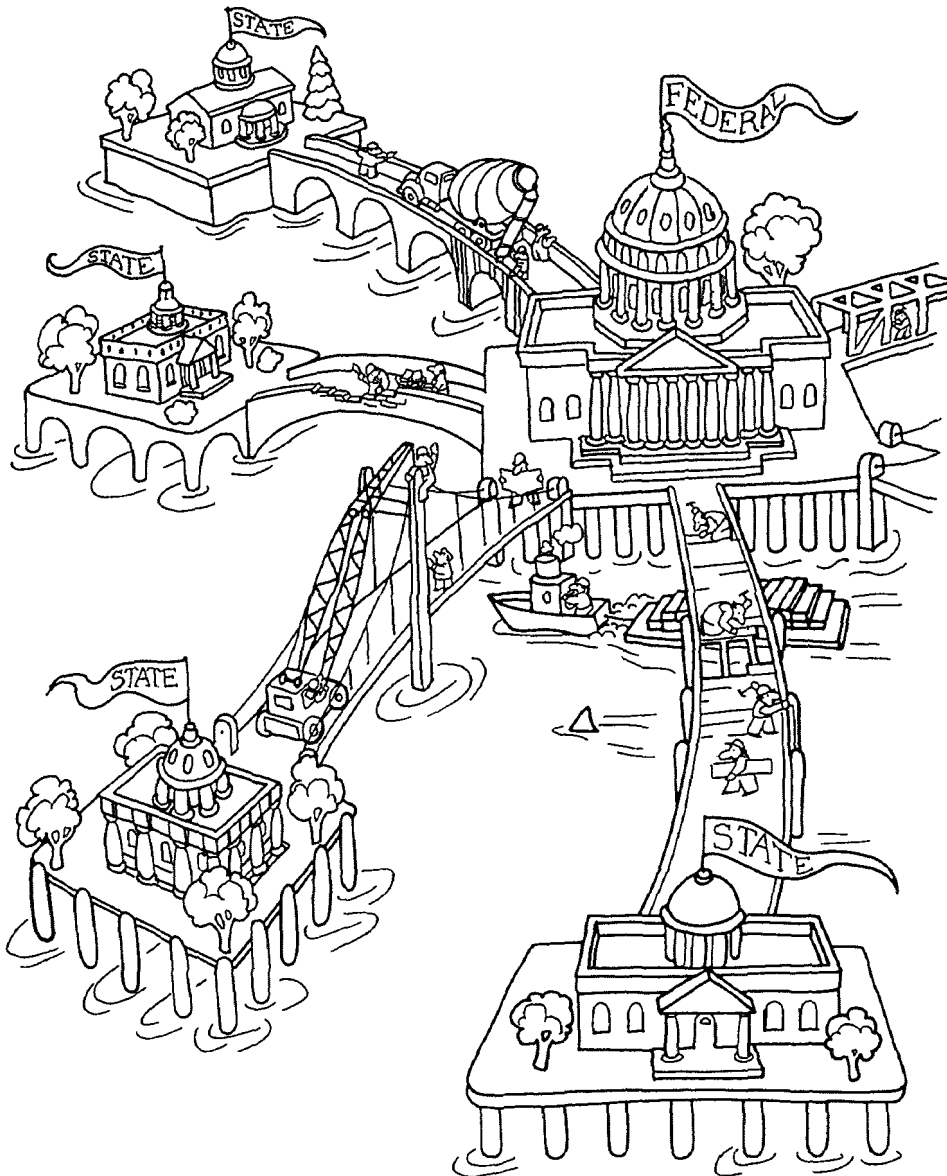
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EPA Forges New Relationship with States



Recent steps taken by EPA represent a significant turning point in the way we view federal and state roles. The emerging relationship with states is a true working partnership, in which each level of government is responsible for performing the functions it does best.

When the major environmental laws were passed in the 1970s, the Congress observed that states had uneven and, in some cases inadequate, capability to undertake aggressive, effective environmental protection programs. Legislators felt, too, that some states might be motivated more by economic rivalry than by the environmental ethic, and that the resulting competition would threaten the national cleanup that most considered essential. Consequently, these laws assigned to the federal government, in the institution of EPA, most of the key functions involved in the design and delivery of environmental services. Where states were involved, they were assigned carefully circumscribed functions.

With such statutory backing, and with public expectation reinforcing the need for a strong, central environmental authority, it is not surprising that we at the federal level soon concluded that EPA, rather than the states, was the critical vehicle for preserving the integrity of the Nation's air, water, and land resources.

We are in the Eighties now, and EPA has begun to recognize the re-emergence of states as central players in the environmental movement. For one thing, the Congress has now stipulated that the lion's share of the administration of environmental statutes will be carried on by states. Right now, more than half of the responsibilities eligible to be delegated by EPA are being managed successfully by states. For another, state staffs and authorities have grown enormously in both dimension and sophistication since 1970. We know, for example, that for every person employed by EPA, many times more are employed by the states and localities in the administration of environmental programs; and these people are, by all accounts, highly motivated and well-trained.

These changes have led to a growing recognition by EPA that states must play a much larger and distinct role. Workers at the federal, state, and local level are all part of a complex and interdependent national network for environmental protection. Despite this, no one had done the essential conceptual work of refining roles to ensure that states and EPA work

By Alvin L. Alm
Deputy Administrator, EPA

effectively together as the dynamic process of decentralization takes place.

That is why, as one of his first actions upon taking over, Bill Ruckelshaus commissioned a task force to examine the appropriate division of roles and functions between EPA and the states in the Eighties. More than one-third of the group's membership was drawn from state environmental managers.

The work of this task force is one of the most significant developments in federal/state relations in a long time. It provides us with a new vision of how EPA and states must work. It assigns to each party roles and responsibilities appropriate to its unique placement and strengths. In effect, states will become the day-to-day operating arm of environmental management; EPA will set national policy and standards, while providing to states the research and technical support essential to the undertaking.

Most of our environmental statutes provide for delegation to states of the lead role for day-to-day program operations, including enforcement. To discharge their responsibility, states will now write the permits, perform the inspections and take necessary action to ensure that individual pollution sources comply with applicable national standards. States must now also report accurately on environmental progress, meet commitments on use of federal funds, and make consistently sound environmental decisions that justify public confidence.

EPA, on the other hand, remains accountable to the Congress and the President for national environmental progress. It will always retain those functions related to program direction, coordination, and consistency that are better performed at the national level. EPA must continue to set the environmental standards that are the framework on which state programs are built. EPA must apply its critical mass of central resources to conduct research, to develop tools for use in the field, and to provide technical services where needed to avoid wasteful, duplicative investment by the states. EPA must provide the residual enforcement clout to make sure compliance is achieved in the most environmentally significant areas, often playing the role of the "gorilla in the closet" to foster stronger state enforcement efforts. And, to fulfill its accountability for national environmental progress, EPA must conduct

constructive oversight of state programs.

Strong state programs result in environmental improvement and make EPA successful. A technically proficient EPA, with public support and credibility, helps the states in an operational sense and gives the public confidence in all environmental control programs. Clearly, one of EPA's major goals must be to bring about conditions in which states can be most successful in their daily management of national environmental programs. To do so, we at EPA must change our way of operating in many respects.

First, we must be explicit and concrete as to the performance we expect, and hold states accountable for actual progress. While doing this we must respect their independence as to the specifics of programs, and not "nit-pick" individual decisions.

Second, we must expand our hands-on technical assistance and oversight activities. We cannot merely give states some sort of report card, then leave them to muddle through. We must help find ways to solve problems when deficiencies occur, particularly when these problems follow patterns that are detectable across a number of states.

Third, we need to recognize that the relationship between state and federal roles changes as programs mature. New programs, such as RCRA, will at first involve a much higher degree of direct federal participation. As time passes, states can assume responsibility for more and more of the direct program operations, with the goal of eventually taking full charge of the program. Again, what is needed is a much better focused system of oversight and technical assistance to speed this maturation process. As a working premise, EPA should leave the bulk of program operations—including permits, inspections, and enforcement—to the states. Our role in direct operations should be secondary, to back states up if and when they need help.

We are already moving to implement this new approach in a number of ways. The Administrator will soon issue two new policies to direct all staff in EPA as to their responsibilities under the new approach. The first of the policies will cover delegation of EPA program authority to states. The fundamental thrust of the policy is to promote the swift, responsible transfer of program authority to states that want it, and to work with states to dismantle unnecessary barriers

to delegation. The other policy will cover oversight, and will incorporate a comprehensive, constructive approach to providing assistance and evaluating progress.

In addition, we plan to consult frequently with an advisory committee composed of state environmental officials to provide early, influential state participation in EPA policy development affecting states.

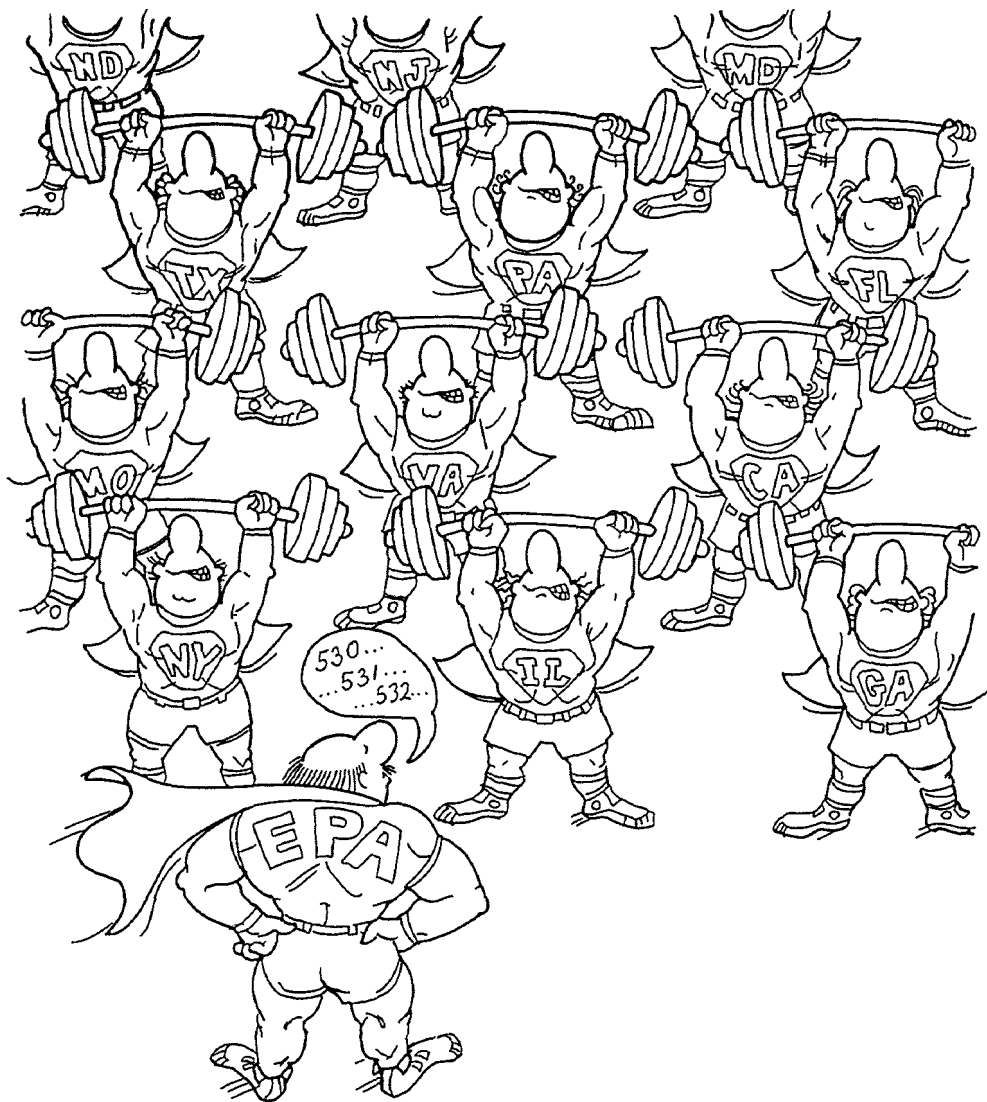
One more element of our implementation will be to undertake one or more pilot projects to demonstrate the effectiveness of carefully targeted technical assistance to states. We think these pilot projects will advance the process of change by serving as models for the rest of the Agency in learning new ways of thinking and behaving.

The price of increased state autonomy is increased state accountability. Future success will increasingly depend upon our ability to measure and communicate the results of the work we share with states. In the past, reporting requirements have been a bone of contention. Now EPA and states need to sit down together and negotiate reporting that meets their needs as well as ours. We must be able to respond thoroughly and persuasively to the need of Congress and the public for continuous assurance that our environmental goals are being aggressively pursued and ultimately met.

In a larger sense, though, oversight goes beyond negotiating objectives and measuring performance. It also includes frequent communication, assistance targeted to state needs, and strong back-up enforcement activity when necessary. Oversight should be woven through all of our daily relations with states. If we achieve our aim of developing the means of success—technical support, research, and information management—we will work together with them in different, less intimidating ways than we have before.

Old patterns of behavior die hard, and we are under no illusion that the Administrator need only issue a policy for people immediately to change their way of doing business. In order to be successful, we need first to view the federal-state relationship in a dramatically different way. Then we need committed and sustained follow-up to translate these general principles into action. By defining that relationship and committing ourselves to action, we have the beginning of a productive, long-term partnership. □

Helping the States Carry a Bigger Load



In the interim between the two terms William Ruckelshaus has served as Administrator of EPA, there have been some enormous changes. Conspicuous among them is the degree to which states now carry out the day-to-day work of environmental protection. In 1970, EPA wrote the regulations, set the standards, issued the permits, and did most of the monitoring, inspection and enforcement work involved in ensuring compliance with national environmental rules. As of 1984, however, states have advanced dramatically in staffing and sophistication, now playing a major role in the Nation's apparatus for environmental protection.

The Administrator recognized the need for EPA to adapt to this new reality and asked his Deputy, Alvin L. Alm, to define and bring about the needed change. Alm's approach was to form a task force to examine appropriate roles for states and EPA to play in a new partnership that reflects the essential interdependence of both. To lend credibility and practicality to the task force, Alm insisted that state program managers be prominently involved in its membership. I was glad to serve as official Chair of the Task Force, although Mr. Alm participated in virtually all of our proceedings.

The Task Force on State/Federal Roles is one of the most refreshing experiences I have yet had in government. All of the members, whether from EPA or states, faced the question of the appropriate assignment of complementary functions with extraordinary openness and candor. Even when the truth hurt, as it sometimes did when we considered how much EPA must change to support the growing network of state environmental services, Task Force members faced the facts and made sensible recommendations.

We asked our staff from EPA's Program Evaluation Division to report on several key factors affecting the state/EPA partnership. First, we asked what EPA does now. Where do we place our priorities in practice? The staff divided EPA's work into more than twenty functions, organized under seven major categories:

By Lewis S. W. Crampton

Director
EPA Office of Management
Systems and Evaluation

direct program administration, technical support, state program approval and oversight, research, standard setting, management support and national information collection. The staff then surveyed EPA personnel to find out what work is actually done within these categories, and how our work tends to concentrate within them. The findings showed that EPA still invests quite a bit in work now commonly done by states, and that the Agency appears to underinvest in the kinds of technical support states need to perform with consistent excellence as elements of a national system for environmental service.

The staff next interviewed a variety of observers outside EPA—from industry, environmental and public interest groups, states and localities—to get a reading on how the Agency's work is perceived. In particular, we wanted to know in which areas these observers considered EPA's contribution essential, as well as those in which states are considered better positioned to be successful. These observations were frank, cogent and remarkably consistent. They had a strong influence on our conclusions as to the proper role for each partner.

The staff next undertook complementary studies of how EPA performs oversight of state programs now, and of how other successful, decentralized organizations carry it out. The first study found substantial variation in oversight as practiced by EPA's programs. Some of the evidence demonstrates how difficult it can be for a federal agency to trust the judgment of states in individual actions, even when those states have signed delegation agreements committing them to maintain national laws and regulations. The second study took Task Force staff to such varied enterprises as Marriott and Quality Inns, the Federal Highway Administration and the National Bank of Washington. This review showed that large, decentralized organizations cannot be successful unless their field units are successful, and that the function of headquarters is to provide the technical and administrative support that

allows achievement in the field. For EPA, this translates to increasing our investment in research and technical support for states.

In addition to these management-oriented reports, the Task Force reviewed a survey of public administration literature on federal/state relations, and a projection of trends in population, manufacturing and other factors likely to lead to the environmental challenges of the future. We wanted to be sure that any new division of labor we forged now would stand up over time.

Our Task Force met frequently throughout the summer to review these findings, to debate their implications and to begin to set some directions for the future of state/EPA relations. In some ways the group was a model for the partnership we need to build, because the interests and concerns of all around the table were clearly articulated, with the final recommendations designed to respect the needs of all. Here's where we came out.

First, state/federal relations must change in response to the clear fact of broad program delegation. States have progressed so far in the past thirteen years that they are now the primary operational arm of a national network for environmental protection. States should concentrate on direct administration of environmental programs, including permitting and compliance activities. EPA should focus on national standards and research, technical support and oversight for state programs, and accountability to the President and the Congress for national environmental progress. Of course, EPA must stand ready to step in to support states in essential areas like enforcement if persistent problems keep the state from carrying out its full responsibility.

Next, EPA must model its oversight of state programs on that of other progressive, decentralized organizations. Oversight is not merely evaluation; its essence is constructive cooperation to find workable solutions to problems. We must realize that if state programs do not work

well, EPA cannot fulfill its mission; oversight means doing what is needed to make sure they work.

Building a long-term EPA/state partnership requires greater mutual trust and better mechanisms to involve states in major policy decisions. Once we acknowledge that states have the lead role for day-to-day program administration, we must also allow that the views of states have a direct, practical significance for EPA's policy decisions affecting field operations. This does not mean that EPA should never set a policy that goes against states' preferences; our responsibility is to interpret and carry out the law, regardless of who may disagree. It does mean that as a practical matter it is pointless for EPA to set program policy that states simply cannot carry out. Sounding out states on major policy issues has always been smart. From now on, it will be essential.

In December, members of the State/Federal Roles Task Force met with the Administrator to present him these findings. He accepted them with enthusiasm and instructed EPA staff to undertake a number of follow-up steps. Among them are the issuance of companion policies governing delegation of program authority to states as well as oversight of those programs. He also commissioned several initiatives to reshape EPA's communications and technical support to states.

There is a quiet revolution taking shape here. A principal focus of our Constitution is to set the appropriate roles of the states and the federal government. Since 1789, this issue has continued to tug at the workability of our system of government. Of course, we can never be fully free from the conflicts inherent in the competing interests of federal and state government. Still, the product of this Task Force, practical and realistic as it is, forged as it was by a coalition of state and EPA officials and endorsed by EPA's Administrator, seems likely to provide a framework in which we can all work together, both now and in the future. □

State Officials Explain What They Can Do

How can EPA and the states work together effectively to implement national environmental legislation? EPA Journal asked six key officials in state environmental protection this question. These leaders served on EPA's task force on state/federal roles and are members of the National Governors' Association Subcommittee on the Environment. Here are their views:

Robert A. Arnott,
Assistant Director
Colorado Department of Health

Congress in the passage of environmental legislation has emphasized implementation at the state or local level. While this has for the most part been achieved, there nevertheless have been difficulties in the expeditious delegation of programs and in the determination of state and federal roles.

The recently completed activities of the State/Federal Roles Task Force, one of the task forces created under the direction of Deputy Administrator Al Alm, are perhaps the most positive steps in recent years to delineate roles and set future program responsibilities. This effort was successful because of the attitudes of the various participants, their knowledge of the historic difficulties with delegation, their common concern for achieving results and the excellent staff work provided by Lew Crampton's office (EPA Office of Management Systems and Evaluation).

The real challenge, however, still lies ahead. A conceptual road map for the effective implementation of environmental legislation was developed as a product by this task force. The principal role in program implementation and enforcement of federal environmental programs should be undertaken by state and local government agencies. The role of EPA should be one of research; setting of national standards, national goals and directions; and providing technical and fiscal support. The main focus should be on national *goals*, rather than

national *activities* to reach these goals.

The great degree of consensus achieved by this task force in delineating roles must now be brought together in a successful implementation package. It will be extremely difficult, and require a methodical process to achieve. At several points in the past selected activities of EPA have been studied and new roles recommended. Implementation of these previous efforts has been elusive. The best way in which to implement successfully the present recommendations would be through a "bottom-up" approach and with the development of pilot-scale projects at the Regional level. Thus, to successfully implement the task force recommendations a number of pilot projects in several of the Regions involving the active participation of states and appropriate local governments is necessary. It is by utilizing those successful pilot studies in the development of overall program policy that the implementation of federal environmental statutes can be most effectively achieved. One fact is most obvious—success will require considerable change in the role of the EPA. The agency's headquarters staff should be concerned with the development of broad policy approaches and minimum Regional oversight. At the present time, this is not in my view the "modus operandi" as Headquarters has not adequately achieved delegation and adequate implementation of the programs at the state level with effective and minimal EPA Regional oversight.

The challenge ahead of us is one of implementing redefined roles, the development of pilot oversight policy activities, the successful delegation of oversight activities from EPA Headquarters to the Regions and program implementation at the state and local levels. This is a challenge in which I hope to actively participate. It can be successful if all will leave history where it belongs—in the past!

Robert A. Arnott



Richard J. Carlson



William M. Eichbaum



Richard J. Carlson,
Director
Illinois Environmental Protection Agency

The Nation's environmental laws are for the most part designed to be implemented by state agencies with EPA creating the framework for each program, setting standards, conducting research and providing oversight to ensure that national goals are met. Since the early 1970s, responsibilities under the Clean Air Act, Clean Water Act, RCRA and the Safe Drinking Water Act have been successively delegated to individual states to the point where states are now clearly the prime implementers of national environmental policy. States, through permitting, inspection, monitoring and enforcement activities, are crucial to achieving environmental results.

Recognition of this simple fact is the key to understanding how we can improve the effectiveness of national environmental legislation. Without successful state programs there can be no real progress in improving environmental quality.

To increase the effectiveness of state programs there must be a shift in attitudes at the federal level. In the conduct of its oversight function EPA must recognize that its success in protecting the environment depends upon well-managed state programs. EPA must provide useful support to the states, taking into account the wide variation in state government organization, political culture and environmental problems. The achievement of national goals does not require that each state administer identical programs, only that results be uniform across the country. Under delegated programs, EPA should take advantage of existing strengths at the state level while assisting states in upgrading areas where they are weak.

Congress, too, must also realize that state attitudes and experiences are critical in developing new programs and refining old ones. As front line managers, states have an excellent notion of what works and what doesn't. The Nation long ago committed itself to the achievement of environmental quality. The goal is clear. The challenge now rests with improved program administration. In this effort the states have much to contribute.

Effective environmental programs depend upon the establishment of a true partnership between EPA and its state managers in which there is a recognition of interdependence and shared goals, with an underlying sense of trust. To me this was the most significant conclusion of the recently concluded State/Federal Roles Task Force. The Task Force report contains principles that should form the basis for a new and improved state-federal relationship. Implementation of the report should not only result in better state-federal relations but improved environmental quality for all citizens of the Republic.

William M. Eichbaum
Assistant Secretary for
Environmental Programs
Maryland Department of Health and
Mental Hygiene

The delivery of environmental protection is a partnership between EPA and the states. Most of us recognize that the intent of the various federal laws to protect the environment and public health cannot be fulfilled without strong EPA and state programs. Nevertheless, this is an appropriate time to reflect upon the traditional roles of EPA and the states and to perhaps refocus or redirect the division of responsibility toward a more viable partnership.

EPA is the agency that must ultimately report to Congress and the Nation on the progress of environmental clean-up; and thus, it falls to EPA to provide national leadership in creating an atmosphere that supports environmental protection as a positive and achievable goal. By working closely with the states, EPA can and must build mutual confidence as it sets national policies and makes the decisions necessary to carry out environmental laws. The states should uphold their end of the partnership by constructively participating in this process.

For well over a decade, the states have been acquiring the staff and expertise to administer their environmental programs. They are especially well equipped to manage environmental program operations—administration, monitoring and enforcement—and they are close to the environmental issues at hand. The states have already become the implementing arm of these federal programs. EPA's role should focus on oversight and support of the state programs. Where federal law provides for it, EPA should proceed as quickly as possible to streamline and expedite the delegation of administering federal programs to the states. In addition, both EPA and the states should develop criteria for federal oversight responsibilities, federal intervention in state actions and the federal role in enforcing laws and regulations.

As its role in daily environmental operations decreases, EPA should increase its responsibility to provide the states with technical support and training, carry out scientific and health related research, set standards, coordinate solutions to regional and interstate problems and collect and disseminate comparative information at the national level.

It is important for the states to regularly count on some predictable level of federal funds for the management of their environmental programs. New programs may require higher levels of funding at first which taper off to a base level as the states' expertise and ability to absorb program costs increases.

While these general principles need further development and definition, nevertheless, they can form the basis for strengthening the existing partnership between the states and EPA to implement the goals of federal environmental laws. In this effort, it is important to recognize that success of the partnership depends upon participation in a positive manner which manifests to the people of the country that a truly national program of environmental protection is being implemented.

J. Leonard Ledbetter*Director**Georgia Environmental
Protection Division*

Congress recognized during the development of national environmental legislation that a partnership between the federal government and the states would enhance the possibility of early and effective implementation of the programs. Since the early 1970s the partnership has been evolving and the priority that Administrator Ruckelshaus and his management team is placing on further strengthening the partnership is needed and timely. His decision to clarify the respective roles of the states and EPA early in this process has resulted in the identification of some functions better suited for the states and others for EPA. The improvement of the partnership or "team approach" will result in more trust and effective management in the future as each partner focuses on the priority functions assigned.

EPA and the states can best work together by recognizing that the average citizen is more concerned about proper protection and management of the environment than which level of government performs a specific role. The public does expect and demand cost-effective environmental programs with a high degree of credibility. The American public does not find a "barely tolerable environment" acceptable. At the present a major concern shared by most people relates to their interest in "the government" providing the necessary precautions to minimize the exposure of the population to environmental pollutants. Only through the maximum utilization of all available state and federal resources, especially personnel, will measures be most effectively implemented to attain the level of protection expected.

The current urgency for the provision of credible answers related to the public's concern about chemicals and other pollutants in the air they breathe, the water they drink,

and the food they eat requires more than ever before that EPA expedite research efforts to respond. The states can address these concerns through expeditious enforcement and compliance efforts once problems are identified. In addition, the states are working on toxic air pollutants through the State and Territorial Air Pollution Program Administrators (STAPPA) organization. The subject of toxicity in water is being coordinated by the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) through a project known as Toxicity Elimination and Management Strategy (TEAMS). The National Governors' Association (NGA) has been active in the development and encouragement of an integrated toxics program to address all elements of environmental pollution caused by toxic compounds. These efforts in conjunction with EPA's risk assessment program will enable the public to understand the work by all levels of government to be responsive to their environmental concerns.

In a highly mobilized society, it is imperative that the degree of protection and level of credibility be reasonably similar throughout the Nation. EPA can best assure such similarity through the authority assigned to the agency by Congress. Current plans at EPA to develop and implement a "delegation policy" in tandem with an "oversight policy" should demonstrate EPA's intention to develop a meaningful delegation-accountability system. Acceptance and support of this system by the states, as well as EPA's middle management and staff, will be essential to assure the desired level of success.

EPA and the states will be more effective and successful with implementation of their respective roles if Congress continues to provide the legislation, as well as legislative oversight, together with a realistic level of funding consistent with the partnership concept. Many states now fund a major portion of the budget for environmental programs; however, in order to assure the "best and most effective" program, it is essential that Congress continue to provide a substantial level of funding (at least the FY '82 level) to offset costs incurred by the states in administering federal environmental legislation.

Donald W. Moos*Director**Washington State Department of Ecology*

The key to an effective state/EPA relationship in implementing national environmental legislation is developing a solid track record of joint accomplishment and mutual respect. EPA must resist the temptation to view itself as the "overseer" of national environmental programs, particularly the assumption of continuing management responsibility for state programs which have been approved by EPA. EPA is more like a senior partner which is in a position to assist and guide the activities of its other partners—the states. The state environmental agencies operate under authority conferred by the state legislatures and are fully responsible for the management of state programs, including those state programs which EPA approves as meeting national requirements for delegation. EPA must be ready, willing, and able to support state program implementation through standard-setting, research, financial assistance, and constructive oversight activities. A constructive approach to oversight can be demonstrated through EPA's commitment to providing the technical assistance, including management assistance, which will assist the states in resolving the real world problems which they encounter while implementing environmental programs.

For their part, the states must continue to demonstrate commitment to achieving the objectives spelled out in national and state environmental laws and to administering delegated programs in a manner consistent with state/EPA delegation agreements. The states must be willing to identify needs for improvement in state programs and be open to requesting and using EPA assistance to solve implementation problems in creative and effective ways.

J. Leonard Ledbetter



Donald W. Moos



Anthony D. Cortese



Such willingness and commitment by EPA and the states to offer and use meaningful assistance to solve implementation problems is the quickest way we can improve our record of joint accomplishment and mutual respect. A shared attitude of respect and good faith, which results in real achievements, can eventually permeate the negotiated agreements, reporting systems, and other communications which comprise the state/EPA relationship and can ensure success in reaching our joint objectives.

Anthony D. Cortese

*Commissioner
Massachusetts Department of
Environmental Quality Engineering*

During the past 15 years the Nation has launched an unprecedented set of national programs aimed at protecting health and improving environmental quality. Congress envisioned a strong federal-state partnership in implementing these programs. For example, EPA has primary responsibility for implementing the Toxic Substances Control, the Federal Insecticide, Fungicide and Rodenticide, and the Comprehensive Environmental Response and Liability acts. However, Congress gave states the primary responsibility for implementing the Clean Air, Clean Water, Safe Drinking Water and Resource Conservation and Recovery acts within a broad national framework established and overseen by EPA. Unfortunately, the full partnership envisioned by Congress has not been realized for many legal, institutional, economic, technical and political reasons. I believe that we can have more effective implementation of national legislation by redefining the roles of the federal government and states in implementing these laws and taking steps to improve the federal/state partnership.

In broad terms, EPA should conduct research on environmental problems, establish national standards where appro-

priate, provide technical and financial assistance to states, and oversee the states to insure a degree of national consistency. States should have the primary responsibility for planning and implementing programs to achieve environmental goals and standards. EPA should take strong implementation and enforcement actions only on interstate pollution problems or when states are unwilling or incapable of carrying out the job.

Mutual trust between EPA and the states is the essential ingredient for effective implementation of national environmental programs. Lack of trust in the past decade has led to inefficiency, duplication of effort, needless paperwork, frustration on the part of the public and industry, ineffective, costly and burdensome regulations, and slowed progress in achieving environmental goals.

Due to a number of factors including federal technical and financial assistance, federal mandates and public pressure, state programs have improved dramatically since the early 1970s. Today there are over 20,000 state and local officials involved in environmental protection efforts compared to approximately 10,000 at EPA. Indeed, only 1,500 people at EPA are available for direct program implementation and enforcement. All states have environmental requirements which prevent the fear of "pollution havens" of the 1960s. Many states are far ahead of the federal government in dealing with air and water, toxics, hazardous waste regulation and cleanup and acid rain. EPA should recognize the differences in capability and willingness of states to implement programs when establishing requirements for states. The least common denominator approach of tailoring uniform requirements for all states, based on the problems of the worst state, should be abandoned. States should be full partners in the development of federal policies and regulations to insure that they will be easily implemented and effective.

EPA should make it easier to delegate programs to states. EPA should review and approve generic program require-

ments, not individual source control actions.

EPA headquarters should delegate to its regional offices the authority to approve generic state programs. Current policy calls for duplicative review by regional offices and several different program offices in Washington, which more often than not have widely differing opinions on policy issues. This causes seemingly endless negotiations between states and EPA, lack of flexibility in determining individual state needs, frustration, time delays and waste of scarce resources.

EPA oversight of state programs should be a post delegation audit type of procedure designed to measure environmental results. The approach should vary depending on the maturity of the programs and the capability of the states. Oversight should be designed to help states improve their programs through technical and financial assistance. Federal resources currently employed in "bean counting" could be used to make the programs more effective. If audits and assistance reveal a pattern of improper program administration, EPA should be empowered to withdraw approval of the program and run it federally.

The combined resources of the states and EPA fall far short of those necessary to clean up and protect our fragile environment. It is imperative that we use these limited resources effectively to attack environmental problems. To do this, EPA should view successful state implementation of programs as an essential ingredient in the success of national environmental legislation. □

The Chesapeake Bay: Saving It Together

A crowd of 700 people attended a conference on how to clean up Chesapeake Bay. The conference was at George Mason University in suburban Washington, D. C.

The Chesapeake Bay is one of the most vivid examples in the country of the need for partnerships in dealing with environmental problems. Its pollution sources range from septic tanks to runoff from city streets. The government jurisdictions with cleanup responsibilities include three states, the District of Columbia and dozens of towns, counties and cities. Millions of people have a stake in the future of the Bay.

"The Chesapeake, more than most bodies of water, is a people's bay," EPA Administrator William D. Ruckelshaus said recently. "Its survival is up to all of us." No one agency or state has the resources or the authority to protect the Bay alone, he emphasized.

Efforts to save the Bay recently resulted in an agreement to set up an Executive Council to carry out a concerted cleanup program. The agreement was signed by representatives of Maryland, Pennsylvania, Virginia, the District of Columbia, the EPA and the Chesapeake Bay Commission. Sponsors of the agreement called it "a milestone which marks the beginning of a greatly expanded regional alliance in Bay-wide management."

Speaking at the conference at which the Bay cleanup agreement was signed, Ruckelshaus said, "Few times in American history have the states, the federal government and citizens groups developed the potential to work together in such a constructive way. This can be a truly unique partnership."

Ruckelshaus pointed out that such a partnership has a national meaning and value. "The Bay is, indeed, a priceless resource. It is the most productive fishery in the Nation—exceeded only by the vast ocean fisheries that surround our two shores," he said. "It is one of the largest and most productive estuarine systems in the world. Its harvests are legendary."

"But the wonder of the Chesapeake does not end here," Ruckelshaus continued. "It is a major shipping center, one of the world's largest recreational realms, and its wetlands and protected creeks are the habitat of an amazingly diverse ecosystem that science is still far from understanding. More than 2,700 plant and animal species have been identified."

"Today," Ruckelshaus added, "the Bay's economic assets are staggering. In 1980, the total dockside value of commercial fish species landed in Maryland and Virginia by resident fishermen was \$106 million. In addition, sport fishermen took an estimated 28 million pounds of gamefish from Chesapeake waters in 1979, a catch valued at over \$250 million in market terms."

But despite its value as a major resource, the Bay is in trouble. Ruckelshaus pointed out that neglect and abuse have strained the Chesapeake's capacity to handle the wastes that are entering it. "We must stop that trend, and begin, all of us, to restore the Bay to former greatness," Ruckelshaus said. "Just as people, whose numbers have increased so rapidly in the watersheds that feed the Bay, have caused much of the identified problems—so those same people must assume responsibility for the Bay's cleansing."

The EPA Administrator pointed out that the nature of the pollution threatening the Bay is a key reason why a partnership effort is needed. He explained that across the Nation specific point sources of pollution are proving easier to control than diffuse non-point sources. In the Chesapeake case too, non-point sources such as soil erosion, chemical run-off from farms and storm drains are the key problem.

"Unfortunately, there is no alternative to the concerted action of hundreds of thousands of people—many of whom live far enough upstream from the Bay that they don't realize the effect of their unintentional actions," Ruckelshaus said. He added that in cleanup efforts, a spirit of cooperative responsibility needs to spread to those living far up the tributaries—the Susquehanna, the Potomac, the Patuxent, the Rappahannock, the York, and the James rivers.

"Ultimately, it is the citizens of these states—the major beneficiaries of a healthy Bay—who must be prepared to assume primary responsibility for protecting their own interests," Ruckelshaus said. "They must accept a major portion of the cost of increased pollution control expenditures, they must control agricultural runoff and various discharges into the rivers and streams that feed the Bay, and they must at every turn

think about the consequences of their own individual actions. Local governments will have to play a more active role in remedial efforts."

Ruckelshaus outlined the federal role in the Chesapeake Bay partnership. The EPA Administrator pointed out that the U.S. public has already invested heavily in the future of the Bay, an investment that is just beginning to pay off. "The major source of that national commitment has been the sewage treatment construction program and without it things would be far worse in the Bay than they are," he said.

In the last 10 years, almost \$2.5 billion in federal grants have been targeted to the Chesapeake watershed, and have produced secondary and advanced treatment facilities that improve the quality of water in the Bay. "We must not forget this money has come from the taxpayers of the Nation. And the states have contributed millions of dollars in return as their fair share of those matching grants," Ruckelshaus said.

In 1984, EPA will allocate \$163 million in construction grants for sewage treatment plants in areas of Virginia, Maryland, Pennsylvania, and the District of Columbia that flow directly into the Bay, and \$15 million to support state water quality programs. In the Baltimore area EPA is developing a toxic integration program which will investigate the magnitude of sources and alternative solutions for control of air, land and water toxics. This is one of three such studies in the Nation and will help cope with the problem of toxic materials, Ruckelshaus said.

Over the last seven years EPA has spent \$27 million to complete the massive Chesapeake Bay study, released a few months ago. It is one of the most comprehensive works of its kind. This fiscal year, EPA is targeting \$4.2 million to the Bay for monitoring, for the development of models capable of determining the impact of various control options, for the continuation of the development of an information base on the Bay and for matching grants to the states.

Ruckelshaus emphasized that the Administration recognizes the vital resource needs of



the states surrounding the Bay and is reviewing the options for meeting those needs.

"The point source problems will continue to be addressed through the sewage treatment grant program. The state program support grants will be continued. We will maintain the information base created in the just completed study," Ruckelshaus said.

"In any event EPA will provide continued support for this historic effort," said the Administrator.

EPA will help coordinate the actions of the states and various federal agencies, the Administrator added. "Only by having a single entity—the Chesapeake Executive Council working through EPA's Annapolis office—can the tasks confronting us be carried out successfully.

"As I indicated, EPA will continue to encourage the development of a Chesapeake Bay information base and we will all work together to coordinate the findings of the Bay's major research efforts. Our goal is to develop an understanding of the Bay's ecology unequalled on any other estuary in

the world so that we can improve our environmental management. Only if we coordinate our efforts will we succeed."

The agency will continue to provide technical assistance, Ruckelshaus said. As the states assume more responsibility for enforcing the law, EPA's assistance role has grown, Ruckelshaus added, reaffirming that EPA's expertise will always be available to the Chesapeake states.

The EPA is also coordinating the activities of the federal agencies that have an impact on the Bay, including those of agencies which help control the Bay's pollution and nutrient load.

Finally, Ruckelshaus said, EPA will provide a central focus for the high-level commitment necessary for the tough control decisions to be made. "The Bay itself is the consequence of a complicated set of natural phenomena—riverine and tidal flows, sediment, nutrients, vegetation and the direct acts of man. So too are the complicated interactions of the decision-making authorities. So long as all the parties are willing to devote substantial time and effort to work

out compromises, to equitably share and assume responsibility, and to recognize each other's limitations and constraints—the result of this complex interaction will only lead to progress."

"Only in the spirit of federal-state cooperation will we win our battle against the forces of decline which are attacking the Bay," the Administrator said.

"Just as we reached a point in time in the early 1970s when I knew we were going to succeed in stemming the catastrophic decline of Lake Erie, I am just as confident today that we are going to win the battle of the Chesapeake," he said. "We have the dedication, the work plan and the resources. Now all we need is the time."

He described the recently-signed agreement as an encouraging example "of how states can rise above their own everyday interests and of how the federal government can target a problem and actually do something about it." □

Additional photo on inside back cover

Measuring Water Quality:

An Inventory by the States

Increased levels of wastewater treatment in municipal sewage treatment plants have to a large extent offset the increase in pollutant loads that has occurred in the U. S. because of increasing population, new sewers and population shifts. Industries have substantially reduced the discharge of certain key pollutants since the Clean Water Act was passed in 1972.

However, municipal and industrial discharges—point sources—continue to cause water quality problems such as standards violations. Furthermore, about one fifth of the states cite another pollution problem—nonpoint sources—as the most important cause of water degradation. Nonpoint pollution includes runoff from such sources as agricultural operations and acid mine drainage. Other issues of national concern are pollution resulting from toxic substances, and groundwater contamination and depletion.

These are conclusions from EPA's National Water Quality Inventory, the fifth in a series of such reports to Congress. The Inventory is based on information provided to EPA by the states under the Clean Water Act, supplemented by EPA data.

The results of this latest inventory indicate that "the basic approach to pollution control envisioned in the Clean Water Act is working," the report says. As evidence, it cites the following:

- Discharges of several key industrial and municipal pollutants have been reduced.
- Rates of significant noncompliance with municipal and industrial permit limits are decreasing.
- Controls are being developed and applied to deal with nonpoint sources.
- Some progress is being made in controlling toxic pollutants.
- Overall water quality is generally improving.

Signs of Progress

As an example of water cleanup, the report said rules requiring use of the best practicable treatment of wastes have substantially reduced industrial discharges of six key pollutants. In the five years from 1972 to 1977 BOD (the oxygen-consuming waste load) was cut by 71 percent, suspended solids by 80 percent, oil and grease by 71 percent, dissolved solids by 52 percent, phosphate by 74 percent and heavy metals by 78 percent.

Meanwhile, sewage treatment plants nationwide are removing about 13,600 tons per day of two major pollutants—an increase of 65 percent over 1973 cleanup levels. The pollutants are suspended solids and BOD. The total amount of pollutants entering the Nation's waters from these plants has stayed roughly the same in the last decade, even though the population served increased by 18 million and municipal wastewater flow increased by almost 7 billion gallons per day.

Illustrating the improvement in compliance, EPA data show that the percentage of major municipal treatment plants in significant noncompliance with their discharge permits decreased from 27 percent in October 1981 to 22 percent a little over a year later. Significant noncompliance rates for major industries decreased three percent in the same period, from 18 percent to 15 percent.

The water quality report noted that current limits and industrial permits are removing significant amounts of a number of toxic organic chemicals and heavy metals. It added that well-operated municipal plants meeting secondary treatment requirements "provide incidental removal of priority pollutants such as heavy metals and organics."

However, the report pointed out, "toxic pollutants continue to cause water quality problems in many areas," and are an issue of national concern.

Overall, the report concluded, the Nation's water quality is beginning to show improvement as a result of the cleanup effort. According to estimates submitted by the states for the inventory, a majority of the waters which were assessed met the Clean Water Act's interim goal of fishable and swimmable quality. The report called this "one of the primary measures" of the condition of U.S. waters.



The states provided many examples of water quality improvements that can be attributed directly to cleanup programs. For example, 36 states cited improvements in their waters as a direct result of the construction of wastewater treatment facilities. Twenty states cited improvements in water quality due at least in part to industrial controls. And although the impacts of nonpoint source controls can be hard to quantify, some states report significant successes in nonpoint source abatement.

Problems Still Remain

Water pollution cleanup still faces some big tasks, the report points out. Remaining problems, in addition to nonpoint source pollution, include:

- Municipal and industrial waste dischargers continue to cause violations of existing water quality standards in various areas in nearly all states.
- Groundwater problems—due either to contamination or depletion—are reported

in more than half the states. Commonly reported causes of groundwater problems include waste disposal, landfill leakage and septic tank discharges.

- Thirty states reported water quality problems due to toxic substances which are coming from a variety of sources such as industrial operations, agricultural runoff and solid wastes disposal. Because of the tendency of some toxics to accumulate in fish tissue, fishing bans and fish consumption warnings are in effect in a number of waters such as New York's Lake Ontario and Upper Hudson River and Michigan's Saginaw and Tittabawasee rivers.
- States report that excessive nutrient levels are a widespread problem, especially affecting standing waterbodies such as lakes and potentially impairing water uses such as fish propagation and water-based recreation.
- Thirty-seven states report that their waters are affected by other factors such as dam releases, channelization of streams and natural conditions.

Examples of Improvement

On balance, however, the states reported progress in cleaning up the Nation's waters. These improvements were due to a variety of cleanup programs, including better treatment of municipal and industrial wastes and controls on nonpoint sources of pollution.

Some examples of water quality improvements due to construction and upgrading of municipal waste treatment plants with EPA aid include the following:

- Rhode Island reported significant improvement along the Blackstone River due to completion of sewage treatment plant projects in Massachusetts and Rhode Island.
- Connecticut cited an increase in the recreational use of water and a decreased health risk directly attributed to the construction grants program.

● In Maryland, a trend toward decreasing numbers of acres closed to shellfishing was tied to improvements in or expansion of waste treatment facilities.

● Alabama reported that construction of 66 new sewage treatment plants has resulted in improved water quality and the elimination of potential health hazards in a number of areas across the state.

● The District of Columbia reported reduced levels of certain pollutants in the Potomac River due to improved effluent quality from the Blue Plains sewage treatment plant. Restoration of the Potomac Estuary is beginning and many sport fish have returned to the river.

● Decreases in the number of violations of pollution limits in New Mexico over the past two years were attributed to improvements in sewage treatment plants.

● In the Delaware River Basin water quality is reported to have improved below Philadelphia with the completion of wastewater treatment plant upgrading.

● Biological surveys conducted in Illinois' Drummer Creek have revealed substantial improvement in the creek after upgrading of the Gibson City wastewater treatment plant.

● California reported that construction of a new wastewater plant which limits its discharges to periods of high flow has been responsible for a significant restoration of water uses on the Russian River.

Industrial Cleanup

Meanwhile, 20 states cited improvements in water quality attributed at least in part to industrial controls. Here are some examples:

● Vermont stated that the majority of its industrial facilities have achieved a treatment level using the best practicable technology (BPT). A 1979 survey of the state's larger industries failed to uncover any serious toxic discharge problems.

● Connecticut reported that dramatic gains in water quality achieved in the late 1970s due to use of best practicable technology in waste cleanup have been maintained.

● Florida reported that industrial controls have been responsible for significant improvements in Escambia Bay.

● In Mississippi, 20 industrial facilities previously out of compliance with their permits are reported to have achieved compliance within the past two years.

● Lower cyanide levels in the Ohio River mainstem are directly attributed to better industrial treatment on the Monongahela River, a tributary.

● Wisconsin reported that efforts to meet 1977 discharge limits requiring best practicable waste treatment technology in the state's 47 pulp and paper mills have resulted in a 90 percent decrease in BOD and a 75 percent decrease in suspended solids discharged from these mills over the past seven years. These reductions in discharges have resulted in improved water quality in a number of areas. In the Flambeau River, for example, no dissolved oxygen permit violations have been noted since 1978 in an area which once suffered severe dissolved oxygen problems due to paper mill discharges.

In many states, industrial facilities are reported to have a higher rate of permit compliance than municipal facilities. New York reports that the compliance rate for industrial facilities in that state is 81 percent, while only 48 percent of municipal facilities are consistently in compliance. In Wisconsin, more than 90 percent of industrial discharges are reported to be meeting the requirements for use of best practicable technology, while 60 percent of municipal dischargers were meeting assigned treatment levels as of mid-1982. In Nebraska, 40 percent of municipal wastewater treatment plants were reported to fully comply with permit requirements, while 60 percent of industrial facilities were in compliance in 1981. Oregon reported that fewer industrial than municipal facilities are having trouble meeting permit limits.

Five states reported that improvements in the quality of their water are due to a combination of both municipal and industrial treatment plant upgrading and construction.

In Texas, improved municipal and industrial programs were reported to have led to better water quality despite population growth and rising levels of economic activity in the state. Pennsylvania cited improved municipal and industrial sewage treatment as the major reason for a net improvement of 136 stream miles in 1981. Georgia reported on strides made in improved water quality downstream from major metropolitan areas due to industrial and municipal controls instituted since 1970, although problems still exist in these areas. In Mississippi, significant water quality improvements were attributed to the combined effect of construction of new municipal and industrial wastewater treatment facilities, and improved operation and maintenance of existing facilities. New York reported that its water quality has improved measurably due to municipal and industrial point source controls. In the Upper Hudson River, for example, eleven problem discharges have been eliminated in recent years due to municipal and industrial plant construction and upgrading.

Facing Another Problem

As point sources of pollution such as discharges out of industrial pipes come under control, many states are giving increased emphasis to nonpoint sources of pollution such as runoff from farms. Nonpoint source controls have not been in place as long as have point source controls and their effects are harder to measure. But several successes were reported by the states and are cited in the National Water Quality Inventory. For example:

● Connecticut reported that its nonpoint source program has provided local governments with help in dealing with agricultural waste management, erosion, aquifer protection and other nonpoint source-related issues.

- In North Carolina, better cooperation on limiting sediment runoff from construction operations was reported as more people become aware of the problem and understand ways to limit the transport of sediment. Education programs are also helping reduce agricultural runoff.
- Indiana reported that its agricultural conservation program has been "extremely successful," with 4000 farms now participating in best management practices.
- In Kansas, soil conservation practices, now used on a voluntary basis on many farms throughout the state, were reported to be effective in reducing soil erosion and are expected to result in more complete attainment of goals.
- Nebraska reported that three cost-sharing programs have greatly contributed to the reduction of stream sedimentation in the state.
- North Dakota reported that its nonpoint source program has been very successful in selected areas, especially in developing watershed controls and educational demonstration projects.
- Oregon reported that a sediment control project has demonstrated that cost sharing, loans and technical assistance to farmers can be successful ways of ensuring the implementation of best management practices.

Nonpoint source pollution, however, is reported throughout the country. Pennsylvania, West Virginia, Tennessee, Kentucky and the Ohio River area are reported to be severely affected by acid mine drainage and coal mine runoff. Indiana reported that fish kills due to agricultural operations such as the use of agrichemicals account for an increasing percentage of total fish kill incidents; and in Illinois, agricultural operations are said to be responsible for half of the reported fish kills. In Pennsylvania, where acid mine drainage in combination with other sources is responsible for standards

violations in nearly 75 percent of those 2,744 stream miles which do not meet standards, some progress in mine drainage abatement has reportedly been made in the past few years but is expected to slow due to limited resources. Another problem mentioned by the states is the sparseness of information on the extent, causes and effects of nonpoint source pollution. In the case of Texas, this has prevented the setting of site-specific controls in most areas of the state.

Nutrients from nonpoint sources of pollution are harming many of the Nation's lakes. Eutrophication is the "aging" of waterbodies (primarily lakes and other standing waterbodies) caused by nutrient enrichment. High nutrient levels can stimulate the growth of unsightly algae and weeds which, in turn, affect fish populations and recreational water uses. Although eutrophication occurs naturally in lakes over time, man's activities have in many instances accelerated the process. For example, urban runoff and drainage from cultivated farmlands are sources of nutrients and sediments; municipal and industrial discharges are also often rich in nutrients such as phosphorus and nitrogen.

Many states are in the process of classifying their lakes according to trophic status (degree of eutrophication) and establishing priorities for cleanup.

Future Directions

While progress has clearly been made in implementing the Clean Water Act, it is also clear that certain water quality problems remain to be solved. The report discusses in some detail EPA's future national program directions, which are summarized as follows:

- EPA will continue its emphasis on controls which specify certain levels of cleanup technology. Effluent guidelines to control the industrial discharge of toxic pollutants will be issued. EPA, with the states, will move rapidly to clear the backlog of permits which must be reissued to implement these regulations.
- The emphasis on meeting standards set for the overall quality of water in a river or stream will be increased. This approach can then be applied effectively where needed to control point sources of pollution in those areas that will not meet the fishable/swimmable water quality goal with technology-based controls alone. In addition, EPA will be placing increased emphasis on encouraging state and local implementation of nonpoint source controls where needed to achieve or maintain high levels of water quality.

EPA officials announced that work is nearing completion on a joint project with state water pollution control administrators to improve and streamline future state water quality reports. The project, entitled "States' Evaluation of Progress Under the Clean Water Program (STEP)," is expected to result in a special joint state/EPA report to Congress in early spring, 1984, covering changes in water quality during 1972-1982. □

Dealing with EDB, a Dangerous Pesticide

(EPA Administrator William D. Ruckelshaus announced on Feb. 3 the immediate suspension of EDB for use as a grain fumigant and recommended residue levels for grain and grain-related products to protect the Nation's food supply from EDB contamination)

EPA is exploring the possibility of two further steps to deal with the problem of raw and processed agricultural products contaminated with the pesticide ethylene dibromide (EDB).

First, the agency is considering issuing an order for an emergency suspension of EDB's use as a fumigant for stored grain and on grain milling machinery.

Second, EPA is considering setting guidelines for residues of EDB in grains and food products for the states to follow. These will serve as interim guides until EPA can set its own national guidelines, which cannot be done until the process is completed for revocation of an exemption issued by the Food and Drug Administration in 1956. The exemption prevented EPA from setting tolerances for residue limits for EDB and other bromine fumigants in a variety of grains.

EPA on September 30, 1983, proposed the cancellation and phase-out of EDB uses on stored grain and grain milling machinery. This action, which was slated to be effective in 30 days, has been delayed by legal appeals filed by nine parties. The appeals process inherent in cancellation orders can take one to two years to complete and permits continued use throughout the hearing process.

In addition to the cancellation proceedings it initiated last September, EPA ordered an emergency suspension of EDB's use as a soil fumigant, which accounted for 90 percent of the chemical's agricultural use. Under emergency suspension orders, no further use of the chemical is permitted during an appeal process.

Ultimately, the interim guidelines for EDB residues in grains and food products that EPA is exploring could be used for federal enforcement purposes. The 1956 exemption that prevents EPA from setting tolerances for EDB in grains was based on a presumption that residues

would not carry over into processed foods but would be volatilized during processing. Improved analytical methods have since demonstrated this to be incorrect, and EPA has initiated the process of revoking the FDA exemption.

The work EPA is doing to determine residue levels for EDB in grains and food products will be based on the sampling done by various federal and state agencies, as well as data being generated by EPA. The U. S. Department of Agriculture found only one positive sample in meats (3 parts per billion) of 330 tested samples from cows, swine and poultry, indicating that meat products do not appear to be involved even though these animals can be expected to consume some EDB fumigated grains, EPA reported. Limited FDA samples of bread, cereal, milk and flour showed EDB residues only in flour. These findings were confirmed by further FDA sampling of flour mills where residues of EDB were found in flour, the agency said.

Further work is being undertaken to refine several important elements needed before a decision can be made to set interim standards for products, including the extent to which levels in fumigated grain are reduced with aeration and with processing and cooking. This last point is felt to be especially important because of concern over the EDB actually consumed by people, the agency noted. Current data suggest that residues are reduced by factors of 100 to 200 as grain is processed into flour and flour into consumer products. The agency feels refinement of these reduction factors is needed for various types of grain and for different processing steps such as baking, frying, etc.

It should be noted that data showed detectable levels of EDB, principally in products such as flour, corn meal, grits and cake mix, which require cooking before being consumed. This processing reduces residues but the exact extent to which they are reduced is unknown, the agency said. EPA will undertake to prepare such foods over the next few weeks to determine the extent of that reduction. Industry is also developing information



A substantial portion of the grain stored in the U.S. in storage elevators like these is treated with the pesticide EDB, now under close EPA scrutiny.

on the reduction that occurs in commercial processing operations. Consumer products marketed in a "ready-to-eat" form have generally not been found to have positive residues of EDB, the agency said.

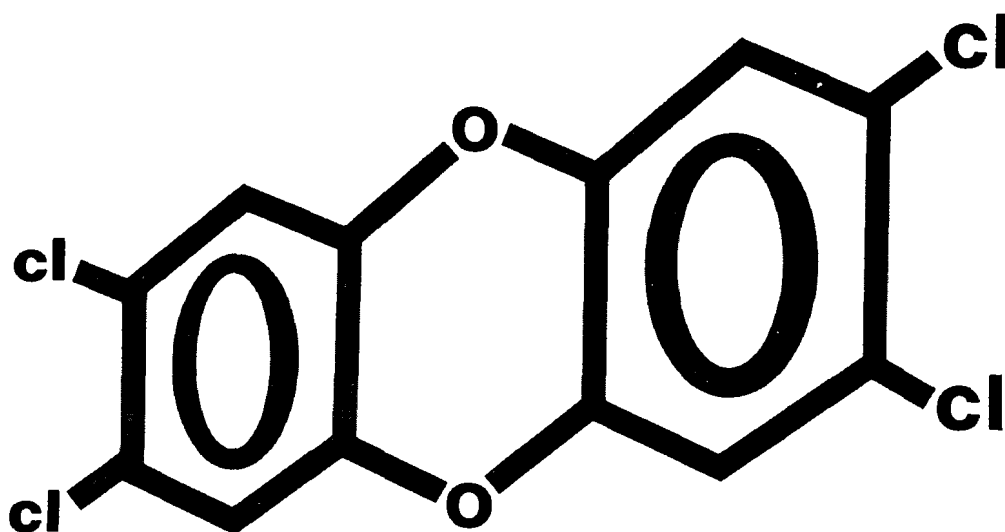
The agency pointed out in its September 30 announcement of cancellation that it would continue to monitor and sample flour, baked goods, milk and meats to establish a more complete understanding of the extent of the hazards to public health resulting from the fumigation of stored grains and spot fumigation of grain milling machinery. It was further stated at that time that, as a part of the regulatory action, "if the extent of the hazard posed from either or both of these uses of EDB becomes more clearly delineated, EPA will consider emergency suspension of these uses as well."

The agency's actions follow reports from the State of Florida and others of the presence of EDB in some commercial food products. The pesticide, first used in this country in the late 1940s, has been determined to have carcinogenic, mutagenic, and teratogenic effects on laboratory animals.

Ethylene dibromide has been registered as a pesticide since 1948. It is a halogenated hydrocarbon, as are DDT, chlordane, heptachlor, aldrin, dieldrin and DBCP, which were subject to EPA regulatory decisions in the 1970s. The principal use, accounting for 90 percent or nearly 20 million pounds per year, was preplant soil fumigation: EDB is injected into the soil to protect a crop from attack by nematodes (root worms). Citrus, pineapples, soybeans, cotton, tobacco and over 30 other fruit, vegetable and nut crops are treated in this way. EDB is also used in quarantine programs to fumigate citrus and other fruits and vegetables after harvest to prevent the spread of tropical fruit flies and to fumigate stored grain and grain milling machinery to prevent insect infestation. Minor uses include termite control, and fumigation of storage vaults, beehives, and timber.

Another major use of EDB is as an additive in leaded gasoline. □

EPA Moves to Curb Dioxin Threat



Dioxin (2,3,7,8-TCDD)

EPA has launched a massive effort to investigate, identify and clean up sites contaminated by the chemical, dioxin.

"When we find dioxin, we will do more detailed studies. When we find levels that could threaten human health, we will take action," said Alvin L. Alm, Deputy Administrator of EPA.

Dioxin contamination has been found in soil, water and air samples. It has become associated in public awareness with Agent Orange, Love Canal, and most recently, Times Beach, Mo.

EPA's efforts will be based on a national strategy that has been developed by an intra-agency task force appointed by Alm six months ago in response to a charge from Administrator William Ruckelshaus to have the agency formulate a policy for dealing with dioxin contamination.

The agency's strategy will focus primarily on what is considered the most toxic of the 75 dioxins—2,3,7,8-TCDD (2,3,7,8-

tetrachloro-dibenzo-p-dioxin). The strategy document, which indicates that this form of dioxin could be present in many sites where certain pesticides were formerly manufactured, formulated and used, calls for coordinating cleanup, regulation and research activities in such a way as to minimize current and future public health problems.

Under the framework provided by the strategy, EPA will attempt to accomplish three goals. It is going to:

- Study the extent of dioxin contamination and the associated risks to humans and the environment.
- Take action necessary to limit further human exposure at contaminated sites.
- Evaluate regulatory alternatives to prevent future contamination and evaluate disposal methods to alleviate current problems.

"The strategy we have developed," Alm said, "is a comprehensive, coordinated approach for addressing a complex and persistent problem. It represents the agency's concerted efforts for dealing with an enormously difficult problem quickly and efficiently. It will provide the public with a thorough synopsis of what to expect from EPA from now on when it sends teams out to investigate possible dioxin contamination."

Alm said the task force, headed by Steven Schatzow, director of EPA's Office of Water Regulations and Standards, divides responsibility for implementation of the strategy among existing agency programs.

EPA's Superfund program, headed by Assistant Administrator Lee M. Thomas, will direct the investigation of sites which appear to contain the greatest potential for contamination. The Office of Water will direct sampling studies at other representative sites to assess potential problems. Research and regulatory activity will seek increased understanding of dioxin and how to deal with it effectively to prevent future environmental problems.

"This strategy presents a picture of where the agency's efforts will be concentrated with respect to dioxin now and in the next few years," Alm said. "We will be gathering samples in many areas of the country, particularly where 2,3,7,8-TCDD contamination may be found as a result of its being

produced as a byproduct in the manufacture of the herbicide 2,4,5,-TCP."

Alm said that the agency's dioxin strategy acknowledges gaps in knowledge about the compound. "However, there is a lot we do know and will be able to do, acting on that information," he added. "We are operating on the assumption that we can't wait for perfect data before taking positive actions."

He added, "Since dioxin contamination has been found in soil, water and air, the strategy brings together the resources of several EPA programs at the headquarters and regional levels.

"This strategy establishes priorities, assigns responsibilities and sets realistic goals," Alm said. "In this way we will be able to achieve a degree of consistency and coordination among EPA offices and our regions, as well as with the states."

The 2,3,7,8-TCDD isomer (a form of dioxin) is known to cause chloracne in humans. In laboratory animals, it has been known to cause cancer, reproductive failure, reduced effectiveness of the immune system and significant changes in enzyme systems. EPA's Cancer Assessment Group states that this dioxin isomer should be regarded as both an initiator and a promoter of cancer.

Dioxin can be an inadvertent contaminant produced in the manufacture of 2,4,5-TCP (2,4,5-Trichlorophenol), a herbicide and basic feedstock chemical used to produce 2,4,5-T and silvex, two well known herbicides used until recently to control weeds, broad-leafed plants of all types, and as a defoliant. These products were used in agriculture, forest management, right-of-way control, and lawn care. The herbicide 2,4,5-T was an ingredient of Agent Orange, a defoliant used in Vietnam. Minute quantities of 2,3,7,8-TCDD and other dioxins are also reported to be associated with the burning of municipal wastes and certain electrical transformer fires.

National standards or levels at which 2,3,7,8-TCDD may cause adverse health or other environmental effects have yet to be established. In the absence of such standards, EPA will make site-specific assessments of risks to determine adequate cleanup measures.

In addition to investigating 2,4,5-TCP-

related production facilities and waste sites, the agency's strategy calls for sampling of air, water, soil, and fish and animal tissue in an effort to determine background levels and where the chemical may have spread. The strategy will also provide for study of the potential risks associated with human and environmental contamination by 2,3,7,8-TCDD and other dioxin isomers as well as for developing regulations to prevent further contamination.

To implement its dioxin strategy, EPA has established seven categories (tiers) of investigation and study ranging from the most probable contamination to the least. They are:

1. 2,4,5-TCP production sites (estimated to be about 20) and waste disposal sites (presently an unknown number).
2. Sites and associated waste disposal sites where 2,4,5-TCP was used as the basic substance in the process of making herbicide products (an estimated 30, with an unknown quantity of waste disposal sites).
3. Sites and associated waste disposal sites where 2,4,5-TCP and its derivatives were formulated into herbicide products (production sites alone are estimated at several hundred).
4. Possible combustion sources such as incineration of hazardous and municipal wastes, internal combustion engines, wood burning stoves, and others.
5. Sites where herbicides derived from 2,4,5-TCP have been and are being used on a commercial basis such as rights-of-way, rice fields in Arkansas, forests, certain aquatic sites, and pastureland.
6. Certain organic chemical and pesticide manufacturing facilities where improper quality control on certain production processes would have resulted in the formation of 2,3,7,8-TCDD (probably less than 100).
7. Control sites where contamination of 2,3,7,8-TCDD is not suspected. These will be compared with known contaminated sites to form a background level for the strategy studies.

The strategy document estimates that 80 to 90 percent of the 2,3,7,8-TCDD contamination will be found in the first two categories.

Cleanup activities in these areas will be managed by the agency's hazardous waste Superfund program. Initial efforts will be aimed at getting parties potentially responsible for the contamination to take appropriate cleanup actions.

Funding for efforts in the remaining categories in the 1984 fiscal year will be undertaken from a separate \$4 million appropriation which has been earmarked for the "National Dioxin Study." A similar appropriation will be sought for 1985. The time frame anticipated for taking samples and conducting investigations in categories 3 through 7 is two years.

Dioxin research will be undertaken with the collaboration of other federal agencies to learn more about the risks of exposure to humans and other species. The other agencies are the Food and Drug Administration (which sets safe food consumption levels), the Centers for Disease Control (which prepares health advisories for EPA's Superfund program), the Federal Emergency Management Agency (which has coordinated relocations during dioxin cleanup operations), the Occupational Safety and Health Administration (which sets workplace exposure limits), and the Veterans Administration (which has developed a large body of evidence on the Agent Orange issue).

EPA also is evaluating alternatives for disposal and destruction of soils and wastes contaminated with dioxin. These methods include securing contaminated soils and preventing runoff or percolation, solvent extraction of dioxin from soils, and incineration to destroy the contaminant. □

Underground Tanks Contaminate Groundwater

by Susan Tejada

In Lee, Maine Raymond Hillman hauls water for his family either from a nearby creek or from a horse trough.

In Wyoming, Rhode Island 16 households use bottled water.

And in Northglenn, Colorado 41 homeowners have sold their homes.

These disparate situations have one thing in common: they were all caused by gasoline leaking from underground storage tanks. In Lee, a 10,000-gallon leak has rendered one quarter of the town's water supply undrinkable. In Wyoming, 16 of some 40 homes in the subdivision have contaminated water. And in Northglenn, estimates are that more than 30,000 gallons of gasoline were lost over a three or four-year period before the leak was discovered.

Leaking underground storage tanks are a national problem.

No one knows for sure exactly how many gasoline storage tanks there are, but estimates put the number currently in use at between one and a half and two million. This does not include abandoned tanks, or tanks used to store other hazardous and non-hazardous liquids. The major oil companies own about 40 percent of the gasoline storage tanks in use, with the remainder belonging to small oil companies, jobbers, factories, farms, police and fire departments, and individuals.

The great majority of tanks in use—about 1.2 million—are made of steel. Only a small number of them—about 16,000—are protected against corrosion. About 200,000 of the tanks in use are made of fiberglass.

Many of the tanks are leaking. In fact, according to recent testimony by Jack Ravan, EPA's Assistant Administrator for Water, "gasoline may be one of the most common causes of groundwater pollution in many parts of the country due to leakage from underground storage tanks." Some studies have projected that anywhere from 10 to 25 percent of the tanks in certain states are leaking. Ravan told the Senate Subcommittee on Toxic Substances and Environmental Oversight that some experts have

"estimated that nationwide there may be between 75 and 100 thousand leaking tanks at this time, and the number is rising."

One reason tanks leak is because of old age. A study by the National Oil Jobbers Council indicated that almost one-third of all tanks in the ground are 16 years or older. The older an unprotected steel tank is, the more likely it is to corrode. A 1977 survey by the American Petroleum Institute (API), updated in 1981, found that, in cases of leakage, corrosion was the cause in 92 percent of steel tanks and 64 percent of steel pipes. By contrast, breakage was the major cause of leaks in fiberglass tanks.

Slow but still significant

Corroded tanks leak slowly, so even a dealer who inventories tank supplies regularly might not detect a leak for a long time. According to a draft report now being prepared for EPA's Office of Solid Waste, "leaks of less than approximately 15 gallons per day cannot be reliably detected with inventory monitoring." But a slow leak is not necessarily an insignificant one. "One gallon of gasoline per day leaking into a groundwater source," said Ravan, "is enough to pollute the water of a 50,000-person community to a level of 100 parts per billion."

Increasing incidents of tank leaks are happening at a time when, according to Ravan, "reliance on groundwater is increasing as a proportion of all fresh water used." A 1983 position paper of the American Institute of Professional Geologists noted that "groundwater provides 23 percent of the fresh water used in the United States. In the semi-arid western states, it provides 38 percent of the fresh water supply. . . . At least 35 percent of public water supplies are derived from groundwater. Thirty-four of the 100 largest cities depend completely or in part on groundwater."

A 1983 report by the Congressional Research Service (CRS), titled *Groundwater Contamination by Toxic Substances*, states that "nationwide, approximately 112 million people get their drinking water from the ground; about 90 percent of all rural households depend on groundwater for their water supply." An earlier EPA report on *Ground-*

water Contamination in the Northeast States concludes that "buried storage tanks and pipelines . . . are significant sources of groundwater contamination."

The limited statistics available at this time, many of which are summarized in the CRS report, tend to back up this claim. In Vermont, for example, a 1982 survey identified leaking underground gasoline and fuel oil storage tanks and pipelines as the second leading cause of groundwater contamination incidents. Together with road salt, leaking tanks accounted for nearly 60 percent of Vermont's contamination incidents. In Tennessee, a 1981 *Profile of Existing Groundwater Problems* indicated that gasoline leaks from underground storage tanks and pipelines were a common problem. In Pennsylvania, a 1982 *Water Quality Inventory* found that, of 249 cases of groundwater contamination by toxic materials, 71 percent were caused by gasoline and finished petroleum products. The majority of these cases involved leaking underground storage tanks and pipelines.

Connecticut's *Annual Oil and Chemical Spill Summary for FY 1981-1982* mentions 45 cases of groundwater contamination by gasoline, fuel oil, waste oil, or kerosene, almost all of them caused by leaks from inground storage tanks and pipelines. New Mexico has documented 28 cases of groundwater contamination by gasoline leaking from tanks. And in Michigan, a 1982 *Assessment of Groundwater Contamination* found that 100 of 897 known and suspected cases of contamination were caused by leaking underground storage tanks.

The BTX factor

Gasoline floats on top of water. But some toxic components of gasoline dissolve in water. When gasoline is removed from soil or water, these colorless, odorless components—benzene, toluene, and xylene, or BTX—remain behind. Benzene is an animal carcinogen. Toluene and xylene produce mutations in bacteria.

Awareness of problems caused by leaking storage tanks and pipelines is relatively recent. In the last five or six years, an increasing number of incidents of leakage



has been discovered. Industry and federal, state, and local governments are stepping up efforts to deal with the problems.

Federal efforts:

Pinpointing legal authority

With passage of the Pipeline Safety Act of 1979, the U.S. Department of Transportation was authorized to prescribe safety standards and accident reporting requirements for transportation of hazardous liquids in pipelines. But the issue of where authority lies for federal regulation of storage tanks is not so clear. An EPA workgroup on underground storage tanks, part of a larger EPA Groundwater Task Force, is currently trying to resolve the issue.

The Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) specifically excludes from its definition of hazardous substances subject to provisions of the Act "petroleum, including crude oil . . . natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel. . . ." As a result, Superfund has not been used to clean up gasoline leaks.

The Resource Conservation and Recovery Act (RCRA) requires EPA to develop regulatory controls for the generation, transport, treatment, storage, and disposal of hazardous waste. Existing RCRA regulations on storage tanks are geared primarily to above-ground tanks. But, as problems with permitting of underground tanks began surfacing more frequently over the past few years, EPA's Office of Solid Waste, which administers RCRA, embarked on the study mentioned above, an *Assessment of the*

Technical, Environmental, and Safety Aspects of Storage of Hazardous Waste in Underground Tanks. The study provides a profile of underground tanks used for hazardous waste storage. Sixty-three percent of the underground tanks included in the study were made of carbon steel, the material most susceptible to corrosion. Only nine percent were made of fiberglass. More than half of the underground tanks were more than eight years old, and 44 percent of the waste stored in the tanks was ignitable. The Office of Solid Waste has concluded that, of approximately 2,000 tanks containing liquid hazardous waste, 20 to 35 percent are probably leaking now, and most are probably located in populated areas.

RCRA is due for Congressional reauthorization. One proposed amendment to the law would require EPA to develop final regulations on underground hazardous waste tanks by March 1985. The Office of Solid Waste is currently drafting such regulations.

In at least one case, says Joel Blumstein, an attorney in EPA's Boston office, RCRA's enforcement authority has already been used to remedy the effects of gasoline leaking from underground storage tanks. In 1982, after a year of study, EPA determined that drinking water contamination in the Village of Wyoming, Rhode Island was due to gasoline leaking from nearby Exxon and Mobil service stations. In 1983, under the imminent hazard authority of Section 7003 of RCRA, EPA issued Administrative Orders to compel the two companies to intercept and treat the contaminated water in the community. With the Administrative Orders now in force,

affected residents are receiving bottled water paid for by the companies; the companies are testing for contaminated soil and must remove and dispose of any that they find; Mobil is doing the engineering work necessary to place temporary groundwater interceptor wells at the site; and negotiations with the companies about funding a community water system are continuing.

Best bet: TSCA

While the Office of Solid Waste is concentrating its efforts on regulating hazardous waste storage tanks under RCRA, the best bet for EPA regulation of underground tanks for storage of non-waste materials such as gasoline and other hazardous substances appears to lie with another law the agency administers, the Toxic Substances Control Act (TSCA). Under the direction of EPA Deputy Administrator Al Alm, the agency is currently examining legal authority under TSCA to set in place a comprehensive regulatory program for chemicals leaking from underground storage tanks.

The agency will look at regulatory options for both new and existing tanks, including the possibilities of overseeing methods of leak detection and cleanup, and setting construction and installation standards. Proper installation is especially important for fiberglass tanks. A fiberglass tank not fastened down properly or surrounded by proper backfill material may crack or break.

The agency will also examine non-regulatory options, such as working with

industry to develop voluntary guidelines or distributing information to tank owners and the general public on technical aspects of inventory control, leak testing, tank replacement, and potential liabilities.

In the past, EPA has awarded grants to three states for work on the storage tank problem. With EPA funding, Maryland has developed three publications: a procedures manual for installing and maintaining underground storage tanks, a training manual for employees at storage tank facilities, and a list of related technical codes and organizations. With additional EPA funding, New York has developed a model code on underground storage tank regulation and California is developing a program for detection, correction and prevention of tank leaks. The prevention phase involved developing a model ordinance mandating secondary containment for new tanks and monitoring for old tanks. The code has now been passed by several cities in Santa Clara County.

State and local efforts: Legislation and investigation

A few jurisdictions across the country have begun to take action on their own to handle hazardous liquid leaks from underground storage tanks. The EPA Office of Solid Waste report describes six such efforts. In addition to the California program described above, the report mentions:

- Development by the Cape Cod Planning and Economic Development Commission of model groundwater protection bylaws and regulations requiring tank registration, tank inspection, and zoning restrictions in groundwater recharge areas.
- Passage of legislation in Prince George's County, Maryland requiring tank and piping system testing for storage tank facilities.
- Investigation by the Michigan Department of Natural Resources of problems associated with underground storage of petroleum fuels. The Department found that, in 1977-78, there were 396 reports of soil and/or groundwater pollution by petroleum fuels leaking from underground tanks.
- Investigation by the New York Department of Environmental Conservation of hazardous liquid leaks and spills. The study estimated that, of 83,000 functioning underground tanks in the state, 20 percent were leaking.

- Enactment of legislation in Suffolk County, New York to control groundwater contamination resulting from storage of hazardous materials in both underground and above-ground tanks. The county health department began a tank permitting, inspection, and testing program, and discovered that 10 percent of all tanks tested were leaking.

- Additional information prepared for EPA's Office of Solid Waste mentions three other jurisdictions with storage tank programs under way or in development: in Dade County, Florida, preparation of regulations to control underground storage of petroleum products; in Kansas, regulation of petroleum storage tanks; and in Texas, proposal of regulations for inspection of underground tanks.

Industry efforts: Cutting losses

When gasoline or hazardous liquids leak from a storage tank, industry loses more than the liquid itself. It loses money—the money it takes to replace the lost product and the money it may take to repair any environmental damage or compensate any potential victims. As Joseph Lastelic, a spokesman for the American Petroleum Institute, recently told a reporter for *The New York Times*, some petroleum companies are being sued by communities whose drinking water supplies have been contaminated by leaking gasoline. Furthermore, the companies, he said, have an economic stake in the millions of dollars worth of gasoline leaking away into the ground.

In general, when pollution victims have sued, the courts have held oil companies responsible for property damages caused by gasoline leaks. Settlements have run into the millions of dollars. According to *National Petroleum News (NPN)*, Exxon paid somewhere between \$5-10 million to settle claims stemming from a leak in East Meadow, New York, and Chevron paid about \$10-12 million to settle similar claims in Northglenn, Colorado. Estimates put the average cost of cleaning up a simple tank leak at \$70,000. This could climb as high as \$1 million where soil cleanup and tank removal are involved.

Insurance does not always ease the pain of hefty payments. A National Oil Jobbers Council survey, reported in *NPN*, found that, while two-thirds of the respondents were covered for "sudden and accidental" leaks, they had no protection against slow leaks or special liability. "Few, if any, policies cover

[slow] leaks," *NPN* explained, "especially those which go undetected for long periods." Yet such leaks are the ones that can be most costly to remedy.

With such high stakes, industry is moving to cut potential losses. "The majority of the major oil companies have a tank replacement program," says Rudy White, API's underground leak specialist. "This usually involves replacement of unprotected steel tanks with tanks that are made of protected steel, coated with fiberglass, or made of reinforced fiberglass. The companies are about half-way through their replacement programs now." While the major oil companies step up their tank replacement programs, *NPN* points out that such a move often is not feasible for "the little guy," the smaller marketer who cannot afford new tanks. In addition, fiberglass tanks are chemically incompatible with certain substances, including some new blended fuels.

Industry concern is reflected at API. "We receive eight to twelve calls a day," says White, "asking questions about things like proper tank installation and testing methods. We get calls from anyone who deals with underground storage tanks—chemical companies, fire departments."

To answer the need for information, API offers three services. First, the Institute provides free consultations to any community or fire department with a leak coming from an unknown source. "We will help them identify the source of the leak," says White. "It's then up to the community to decide how to handle it." Second, API staff will travel to interested communities to present a one-day seminar on prevention, detection, investigation, and cleanup of underground storage tank leaks. And third, API puts out publications and audiovisual products on the subject. These include bulletins on removal, installation, lining, and cathodic protection of tanks; an underground spill cleanup manual; and a slide/tape presentation on underground leak detection.

Leaking underground storage tanks have earned an amusing, if inevitable, acronym: LUST. The problems these tanks create, however, while perhaps inevitable, are far from amusing. In the coming months, both the public and private sectors will be paying more attention to finding ways of solving the problems. Groundwater contamination, to which leaking underground storage tanks are a prime contributor, could, says Al Alm, "emerge as the environmental problem of the eighties." □

87 EPA Employees Honored



Administrator William Ruckelshaus presents a gold medal award to Don Barnes, an EPA environmental scientist, for his work on a strategy to deal with the toxic chemical, dioxin.

In recent ceremonies, EPA cited 87 of its employees for outstanding contributions in 1983.

At the December 16 ceremony, Administrator William Ruckelshaus said, "We are proud of these employees, their personal achievements, their contributions to the Nation's quest for a better environment, and above all, because they represent hundreds and hundreds of the finest federal employees—those who serve at the 40 or more EPA installations around the country."

Ruckelshaus noted that among the awardees were men and women who have worked closely with governors and state agencies in environmental cleanup. He called federal-state partnership efforts—ordered by Congress in many of the environmental laws it has passed—a major development since EPA was founded.

Among the EPA honors, the Distinguished Career Award went to Nicholas J. Dormer and posthumously to Robert T. Walsh. Dormer is an accountant at EPA headquarters and was cited for an outstanding career in financial management and budgeting, spanning 41 years of public service. Walsh was a chemical engineer with the Office of Air and Radiation in Research Triangle Park, North Carolina. He made significant contributions in developing air pollution control technology.

The Gold Medal for Exceptional Service went to two groups. In addition, it was awarded to three individuals: Dr. Donald Barnes, an environmental scientist at the headquarters Office of Pesticides and Toxic

Substances; Dean F. Hill, a chemist with the National Enforcement Investigations Center in Denver, and John C. Wise, Region 9 Deputy Regional Administrator.

Dr. Barnes was cited for his exceptional and tireless efforts in developing policy positions on dioxin and for clearly explaining them in a variety of public forums over four years.

Cooperative federal/state efforts were singled out in the achievements of the other individual gold medal winners.

Dean Hill was responsible for setting up and managing the National Technical Assistance Program for State Pesticide Analytical Laboratories, a key element in the grants program to assist the states in carrying out the federal pesticide law. A national training program was established for state pesticide chemists. Procedures were developed for on-site audits at state pesticide laboratories. Hill established and is now editor of a bi-monthly newsletter, *Internal Standard*, which exchanges technical information. The enforcement grant program was strengthened by the expansion of lab analyses and the ability to resolve lab problems.

John Wise was honored for distinguished and dedicated leadership and sound professional management as the Acting Regional Administrator of Region 9, which is responsible for California, Arizona, Nevada, Hawaii and the Pacific Islands of Guam, American Samoa, Northern Marianas, and the Trust Territories. He was cited as being particularly effective in the development of state/EPA agreements and liaison with the governors in his region.

One group medal went to three attorneys

—Anne Asbell, David Batson and Arthur Ray; a biologist—Ed Bender; an environmental engineer—David Rogers; and the Assistant Regional Administrator for Policy and Management in Region 4—Howard Zeller. They comprised the litigation team which helped win a \$24 million settlement in the case of the U.S. vs. Olin Chemical Company, Inc. The complex negotiations lasted 18 months and revolved around the DDT contamination of the Wheeler National Wildlife Refuge and adjacent lands and waters near Triana, Ala.

Six employees also shared the work that brought the other group a gold medal. They are Ira Wilder, Frank Freestone, Dr. John Brugger, Michael Gruenfeld, Uwe Frank and James Yezzi, Jr. They were cited for outstanding service to environmental protection through their conception, development and testing of the EPA Mobile Incineration System. The system was designed for field use to destroy hazardous organic substances collected from cleanup operations at spills or at uncontrolled hazardous waste sites. The incineration system—a breakthrough in hazardous waste treatment and disposal—consists of four trailers with a kiln, a secondary combustion chamber, an MX scrubber and a stack monitor.

Other honors included eight Administrator's awards for excellence, 55 Silver Medals for superior service, two Trudy A. Speciner awards for outstanding contributions by non-supervisory professional employees and five Public Health Service meritorious service medals. □

Four Major Enforcement Actions Taken

Four major actions have been taken recently involving EPA and environmental enforcement.

First, EPA, the State of Louisiana and 10 hazardous waste generators have agreed to an estimated \$50 million cleanup of two hazardous waste sites in Baton Rouge owned and operated by Petro Processors.

Second, in the biggest amount ever sought by any federal agency for damage to natural resources, the Justice Department sued the Shell Oil Company for almost \$1.9 billion in environmental damage that the government says was caused by a Shell pesticide factory near Denver, Colo.

Third, the Justice Department has gone to court against the Occidental Chemical Company (formerly Hooker Chemicals and Plastics Corporation) to recover nearly \$45 million spent by EPA and other federal agencies to clean up the hazardous waste site at Love Canal, in Niagara Falls, N.Y. The wastes were disposed of at the site by Hooker.

Fourth, EPA and Occidental agreed on a \$30 million settlement on the cleanup of the S-Area landfill in Niagara Falls, N.Y.

If the Louisiana agreement is approved by a federal court in Baton Rouge, it would settle one of the largest hazardous waste settlements ever brought by the government.

The agreement involves the U.S. Steel Corp., Dow Chemical Co., Shell Chemical Corp., Exxon Corp., Allied Chemicals Corp., Ethyl Corp., Uniroyal Corp., Copolymer Rubber and Chemical Corp., American Hoechst Co. and Rubicon Chemical Inc.

Under the terms of the agreement, the companies are to clean up hazardous conditions caused by the dumping of toxic chemicals and other wastes over a 15-year period at the two sites.

The work would include evacuation and containment of buried wastes and would require groundwater monitoring at the sites. The companies also would be required to maintain the sites in perpetuity and monitor the sites for at least 30 years or longer if there is a threat to health or the environment. They also would reimburse the EPA for \$600,000 in enforcement and investigative costs.



The South Plants area of the Army's Rocky Mountain Arsenal, where Shell Chemical Company had a pesticide factory.

EPA filed suit against the owners and the waste generators in July 1980, alleging that toxic organic compounds and heavy metals had been released into local waterways, eventually finding their way to the Mississippi River, and were posing a threat to an underground drinking water supply.

In its Shell Oil suit, filed at the request of the U.S. Army, the Justice Department charged that more than 40 hazardous substances manufactured or used at the Shell facility, located on the grounds of the Army's Rocky Mountain Arsenal, had spilled and that some had leaked into underground water supplies tapped by nearby communities.

The Justice Department filed suit against Shell after the Army and the company failed to agree on how much each should pay to clean up the site. The complaint against Shell seeks money to pay for the anticipated costs of cleaning up environmental damage.

In 1982, a Memorandum of Agreement was entered into by the Army, EPA, the State of Colorado and Shell, under which the Army and Shell began discussions about possible cleanup activities at the arsenal.

The State of Colorado has tried since 1975 to force the Army and Shell to clean up the arsenal. Shortly before the Justice Department suit, the Colorado Health Department filed a damage claim against the Army and Shell asking each for \$50 million in damages

for each release of hazardous substances from the arsenal into the environment.

The chief chemicals found at the Shell site are aldrin and dieldrin, two pesticides that were banned in 1974 by EPA because they were suspected of causing cancer and birth defects. According to the Justice Department suit, Shell and a predecessor firm leased land at the arsenal and dumped toxic chemicals at the site from 1947 until 1982.

The activities of the Shell subsidiary, the Shell Chemical Corp., have caused only part of the environmental pollution at the arsenal, according to EPA officials. The arsenal was a center for the production of nerve gas and other chemical weapons, including mustard gas and phosgene gas, from 1942 to 1970. EPA officials said more than 160 different contaminated sites had been discovered at the 26-square-mile arsenal. The Justice Department said Shell was not being held responsible for any environmental damage for which the Army was solely responsible.

Shell is being sued under the Superfund law, which deals with the cleanup of hazardous waste dumps.

In its Occidental suit, the government is seeking to recover money already spent by the government under the Superfund law and other statutes to clean up the Love Canal landfill and relocate residents living near the site.

The Justice Department moved to file the

More Appointments at EPA



Marcia E. Williams



Steadman M. Overman



Russel H. Wyer

cost recovery claim in an amendment to the original suit filed in December, 1979, against the former Hooker Chemicals and Plastics Corp. That suit had requested that the firm clean up Love Canal.

EPA is also seeking a ruling making the company liable for all future costs incurred by the federal government in its continuing cleanup of the area.

To meet the threat posed by the nearly 21,000 tons of hazardous wastes which Hooker dumped into the canal from 1942 through 1953, EPA and the New York Department of Environmental Conservation have been jointly cleaning up the site with Superfund money pending final resolution of the suit against the company.

A leachate collection and treatment system has been installed at the site, and the site will be covered with a synthetic cap. EPA and the state have also funded a number of environmental, health, engineering and other studies of the Love Canal area.

The claim against Occidental is the largest cost recovery action filed to date under the Superfund law.

The fourth legal action—an agreement to clean up the S-Area landfill in Niagara Falls—was filed by the Justice Department, on behalf of EPA, in the U.S. District Court in Buffalo. The consent decree, also signed by the State of New York and the City of Niagara Falls, is subject to a public comment period before the agreement becomes final.

The cleanup is designed to prevent further migration of the chemicals from the landfill and to protect the drinking water supply of nearly 50,000 Niagara Falls residents as well as the Niagara River.

Occidental has agreed to undertake a comprehensive remedial program to contain and clean up the landfill and nearby groundwater which has become contaminated by the landfill.

Between 1947 and 1975, Hooker disposed of about 63,100 tons of chemical wastes at S-Area. The landfill is located at Occidental's Buffalo Avenue plant, next to the city's water treatment plant, and within a few hundred feet of the Niagara River, an international river. The S-Area landfill and Love Canal are among several landfills in the Niagara Falls area used by Hooker since World War II to dispose of hazardous chemical wastes. □

A deputy assistant administrator and three division directors have been named recently at EPA. In addition, three scientists will join the Agency as part of a new Senior Visiting Scientists program.

Marcia E. Williams is the new Deputy Assistant Administrator of EPA's Office of Pesticides and Toxic Substances. Williams has been with the Agency since 1970. She worked until 1974 as a statistician and mathematician at EPA facilities in Michigan and North Carolina. From 1974 to 1978, she held various management positions in the Office of Air, Noise and Radiation's mobile source emission control office in Ann Arbor, Michigan.

In 1978, Williams came to EPA headquarters as Chief of the Statistical Evaluation Staff in the Office of Planning and Management. She joined the Office of Pesticides and Toxic Substances in 1979. There she has served as Director of the Special Pesticide Review Division and as both Deputy Director and Acting Director of the Office of Toxic Substances.

Williams holds a bachelor of science degree in math and physics from Dickinson College, where she was graduated summa cum laude. She also did graduate work in physics at the University of Maryland.

Steadman M. Overman has resumed legislative duties with EPA after a four-year intergovernmental exchange assignment to the State of Ohio. Overman, first Assistant Director, then Director of EPA's Legislative Division from 1971 to 1980, now becomes Director of the agency's Office of Legislative Analysis, part of the Office of External Affairs. He will assist in coordinating agency participation in Congressional hearings, and will supervise preparation of testimony and the drafting

of bills and amendments for agency submission to Congress.

During his Ohio assignment, from 1980 to 1984, Overman was Chief Legal Counsel of the Ohio Department of Health, and received the Distinguished Service Award of the Ohio Association of Health Officials for his work in that position. Overman previously served with the U.S. Public Health Service. This included service as Chief of the Office of Legal and Legislative Affairs in the Bureau of State Services and as Chief Counsel for the Office of Legislative Affairs in the Consumer Protection and Environmental Health Service.

Overman previously worked for the Ohio Department of Health from 1953 to 1963. He holds a bachelor's degree from the Georgia Institute of Technology, a master of public health degree from the University of North Carolina, and a doctor of jurisprudence degree from Capital University Law School.

Russel H. Wyer was named Director of the Hazardous Site Control Division, part of EPA's Office of Solid Waste and Emergency Response. Wyer had been Acting Director of the Division, which oversees Superfund remedial cleanups at hazardous waste sites. Wyer has been with EPA since 1970, serving until 1981 as Deputy Director of the Oil and Special Materials Control Division. Before joining EPA, Wyer held several positions with the Federal Water Pollution Control Administration in Charlottesville, Virginia, and also served as a Sanitary Engineer for the U.S. Public Health Service in Kansas City, Mo.; Pine Ridge, S.D.; and Portland, Ore. Wyer holds a degree in civil engineering from the University of California at Berkeley.

Update

A review of recent major EPA activities and developments in the pollution control program areas.

Black History Month

EPA is actively supporting the observance of National Black History Month in February.

This year's theme is "Black Americans—the Struggle for Excellence in Education (Black Inventors and Scientists—America's Resource). The EPA Offices of Civil Rights and Public Affairs and the EPA Chapter of Blacks in Government are planning a series of activities to support the theme.

Events scheduled include an art exhibit, panel discussions involving EPA employees, guest luncheon speakers and other activities. The recent passage by Congress of legislation to make Martin Luther King Jr.'s birthday a national holiday starting in 1986 has helped give a special stimulus to this year's celebration of Black History Month. Further information on Black History Month activities can be obtained by phoning Dwight Doxey, Office of Civil Rights, at 382-5669.

HAZARDOUS WASTE

Emergency Response

EPA recently announced the award of two contracts totaling some \$79 million to provide immediate emergency response at hazardous waste sites in the south and in the western and northwest states.

The contracts are with Hazardous Waste Technology Services, Atlanta, a division of Soil and Material Engineering, Inc., and Environmental Emergency Services Co., Portland, Ore., a division of Riedel International, Inc.

Each firm will provide all clean-up personnel, equipment, and materials needed to conduct



Gary M. Katz



Dr. David V. Bates



Dr. Raymond C. Loehr



Dr. John M. Neuhold

Gary M. Katz was named Director of the Management and Organization Division, part of EPA's Office of Administration and Resources Management. Katz comes to EPA from the Office of Management and Budget, where he had been a management analyst and, most recently, coordinator of analytical project teams for the OMB Management Review, part of the FY 1985 Budget Review. Katz previously worked at EPA, from 1971 to 1978, holding positions in grants administration, agency planning and management, and agency civil rights and labor standards compliance. Katz worked from 1967 to 1971 for the Environmental Control Administration in the former U.S. Department of Health, Education, and Welfare prior to the Administration's reorganization into EPA and, from 1966 to 1967, in the Office of the Mayor of the City of New York. Katz holds a bachelor's degree in political science from Gettysburg College, and a master's of governmental administration from the Wharton School of the University of Pennsylvania.

Three eminent scientists will be joining EPA as part of a new program to improve agency science by attracting distinguished visiting researchers to EPA laboratories. The National Academy of Sciences will administer the Senior Visiting Scientists program and help recruit researchers in the environmental field from universities and other institutions.

Dr. David V. Bates is one of the first three scientists to participate in the program. To help improve EPA's ability to set air quality standards Bates will conduct research on the effects of ozone on humans and the mechanisms by which ozone affects human health. He will work at the Clinical Research Branch of EPA's Health Effects Research Laboratory in Chapel Hill, N.C. Bates is a professor in the School of Medicine at the University of British Columbia.

Dr. Raymond C. Loehr will conduct research on chemicals in land-based hazardous waste sites to help EPA study waste management alternatives. He will divide his time between several EPA laboratories. Loehr is a professor of engineering at Cornell University and a member of the National Academy of Sciences.

Dr. John M. Neuhold will study water quality data at EPA's Environmental Research Laboratory in Duluth, Minn. to help the agency establish water quality-based pollution standards. Neuhold is a professor in the College of Natural Resources at Utah State University.

Speaking about the new program, EPA Administrator William D. Ruckelshaus said, "These scientists will help us promote those areas of environmental science that are most significant to the agency." □

Superfund emergency activities. Each contractor is also responsible for maintaining a management organization to support a standby network of cleanup resources and to provide on-scene deployment of these resources in accordance with the EPA On-Scene Coordinator's instructions.

The Hazardous Waste Technology Services firm will stand by to handle Superfund emergencies for EPA's Region 4—Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Tennessee, and Kentucky.

Environmental Emergency Services will handle Superfund emergency actions for EPA's Regions 6 through 10, covering the western and northwestern states.

Contracts for Superfund emergency actions in the New England, Middle Atlantic, and Midwestern states will be awarded shortly.

At present, cleanup work is being carried out at 182 hazardous waste sites across the nation: 51 emergency responses and 140 long-term remedial actions (both kinds of work going on at some of the sites).

Delaware Go-Ahead

Delaware has become the first state in the nation to receive federal authorization under the Resource Conservation and Recovery Act (RCRA) to implement its hazardous waste program, EPA recently announced.

RCRA is the federal law that established the national program to control hazardous wastes being generated now and in the future. (Another federal statute, the Superfund law, deals with the problems created by hazardous wastes disposed of before RCRA went into effect.)

EPA Administrator William D. Ruckelshaus said, "Delaware's authorization signals a new era for this country as the states and federal government move jointly to assure that the hazardous wastes our society produces are effectively controlled. Programs will be unique to each state yet consistent with EPA's hazardous waste standards."

Gaining authorization is a multi-phased process for the

states, but until final authorization is obtained, EPA operates the federal hazardous waste program within each state. Once authorized, the state operates its own program.

The state must demonstrate that the wastes it has identified as hazardous and its standards for regulating waste generators, transporters, and treatment, storage, and disposal facilities are equivalent to EPA's definition of hazardous wastes and EPA's standards. States must also demonstrate that their hazardous waste facilities' permitting process is equivalent to EPA's and includes opportunities for public participation and authority for adequate enforcement.

Delaware began to seek EPA's authorization in November 1980, when the federal hazardous waste regulations developed under RCRA first became effective.

TOXICS

Benzene Standards

EPA has announced its decision to issue final standards controlling benzene fugitive emissions from petroleum refineries and chemical manufacturing plants and to propose standards for controlling benzene emissions from coke by-product recovery plants. At the same time, the agency announced its intention to propose withdrawal of standards proposed for three other source categories of benzene.

"These regulations will address those stationary sources of benzene which have the most significant impact on public health," said Joseph A. Cannon, EPA Assistant Administrator for Air and Radiation. "The two sources we will be regulating account for over 70 percent of the stationary sources of benzene, which has been linked to numerous blood disorders, including adult leukemia," he said.

In the spring of 1984, the agency intends to issue final regulations establishing emissions standards for benzene fugi-

tive emissions (non-stack emissions, such as leaks) from petroleum refineries and chemical manufacturing plants and it will propose standards for coke by-product recovery plants. The agency will propose withdrawal of the proposed standards for maleic anhydride plants, ethylbenzene and styrene plants, and benzene storage vessels, on the basis that new emissions data and subsequent risk assessment have shown the sources do not warrant regulatory action because their risk to public health is small.

Benzene is used to manufacture a wide range of products including plastics, insecticides, and polyurethane foam. Benzene is also a derivative of petroleum. Numerous occupational exposure studies have linked the chemical to a number of blood disorders, including acute myelogenous leukemia (a cancer of the blood-forming system in adults). These studies, as well as widespread public exposure to benzene emissions from stationary sources (55,000 megagrams/yr.) (one million grams, or megagram, equals 1.1 ton) led EPA to list benzene as a hazardous air pollutant under the Clean Air Act in 1977 and led to subsequent proposals for national emissions standards for benzene emissions from the four source categories in 1980 and 1981.

The final standards for emissions from some 229 sources will reduce benzene fugitive emissions from petroleum refineries and chemical manufacturing plants from about 7,900 megagrams to about 2,500 megagrams per year.

Additional benefits to air and water quality will result from the new fugitive emission standards because the controls will reduce emissions of other potentially toxic hydrocarbons and because leak control techniques will further limit benzene and other organics from entering wastewater systems.

Capital costs for the final regulations are estimated to be \$5.5 million for all sources of the benzene fugitive emissions at refineries and chemical plants, and annualized costs are estimated to total \$0.4 million.

Butadiene Review

A 180-day review of the chemical 1,3-Butadiene—a substance used in the manufacture of synthetic rubber and certain plastics—is being initiated by EPA to determine if the compound should be regulated.

EPA is under statutory obligation to decide in a 180-day time period 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.

1,3-Butadiene caused cancer in both sexes of rats and mice in laboratory tests. These studies have been reviewed and found valid by EPA staff scientists, industry scientists, and the National Toxicology Program's Board of Scientific Counselors.

Judging the significance of the risk and whether the potential harm to humans is serious or widespread involves several considerations. These include the number of persons exposed, the level, frequency and duration of their exposure, the route of exposure, and the potency of the agent.

1,3-Butadiene is a short-chain unsaturated hydrocarbon that is primarily used as a compound in the manufacture of various types of synthetic rubber, plastics and latexes. The major uses of the butadiene rubber products are: tires and tire products, automobile parts, toys, footwear, automotive belts, hoses, and tubing.

Based on data now available, EPA believes that significant risk of serious harm may occur during the production of synthetic rubber from 1,3-butadiene. Significant risk may also be associated with other exposure patterns but additional exposure data are needed to evaluate this. Present data indicate that exposures to populations near production facilities are likely to be low and that significant risks may not exist. □

Soviets Grappling With Pollution

Although the Soviet Union faces more pollution problems than the United States, it has only about 50 percent of our capacity in the United States to cope with them. That's the conclusion reached by Region 5 EPA Administrator Valdas V. Adamkus, who visited the Soviet Union as head of a U.S. delegation of environmental experts last September.

The Soviets have made some progress in controlling pollution but they still have a long way to go, he said. "They tell us that everything is under control, but that's simply not so. There is no construction grants program for wastewater treatment plants, for example, and many of their waste treatment plants are outmoded and invariably overloaded.

"And don't bother to ask which is the most polluted river in the Soviet Union and which city has the dirtiest air. That's something no foreigner will ever find out. Although they are very willing to exchange scientific information, they keep their environmental troubles pretty much to themselves.

"There is nothing comparable to the EPA in the Soviet Union, and that's perhaps their biggest problem," said Adamkus, who is fluent in Russian as well as in Polish, German, and Lithuanian.

"Different ministries handle different pollution problems, and a lot of responsibility is delegated to various health authorities," Adamkus said. "Although the Soviets have some very strict environmental laws and they do want a clean environment, their form of government and economy make effective pollution control impossible."

Their biggest problem is compliance with and implementation of sometimes overlapping environmental regulations, he stressed. "The main reason is that every industry is trying to protect its own interests and conflicts are common," he said.

"Pretreatment of industrial effluents, for example, is required," Adamkus observed. But, every industry—and even every factory—has its production plan, or quota. And the fulfillment of that quota takes precedence over any environmental concerns. "Therefore it often happens that raw, untreated wastes are dumped right into the rivers," he said. "If the steel industry, for example, can get away without spending any rubles for pollution control, then the chemicals industry tries



Signing a protocol agreement on cooperative activity for 1984-85 at a September 1983 meeting in Kharkov, USSR, were (seated, from left to right) V. Lozansky, chairman of the Soviet team; E. Jeremenko, a Soviet research director; and Valdas Adamkus, EPA Region 5 Director and chairman of the U. S. delegation.

to avoid these expenditures also."

Since the Soviets lack broad and uniform implementation of environmental regulations throughout their vast territory, water pollution problems will haunt them for a long time to come, Adamkus believes. Still, he said that water pollution has received the greatest emphasis up to now and is by far the best-addressed environmental problem.

A pleasant surprise in water quality control, Adamkus said, was Volgograd (the Stalingrad of World War II fame). The city is a huge steel-making center, but no industry is allowed to discharge anything into the Volga River. All effluents are not only pretreated but also recycled, with most of them being used to irrigate fields. Boats and barges are not allowed to discharge into the river either. Wastewater from river craft is pumped ashore, then treated and recycled. There are even patrol boats that cruise up and down the river to see that nothing is discharged. However, the excellent wastewater treatment in Volgograd is the exception rather than the rule, Adamkus said.

"Generally, air pollution receives the same attention as water pollution but here, too, the results are uneven," said Adamkus. "We found Volgograd suffering from smog, and other large cities, especially industrial centers, seem to fare no better."

Hazardous wastes come third in priority. "From the impression we received, the Soviets don't recognize the potential seriousness of hazardous wastes," he said, "and because of this oversight, hazardous waste problems have already begun to appear."

"That's not the case, however, with toxicants. Because they are closely associated with water pollution, toxicants receive more attention," Adamkus pointed out.

Because agriculture in the Soviet Union is of vital importance, the interest in pesticides is also high. The Soviets use pesticides liberally, but don't have nearly as many varieties available as the United States. They have problems with fish and bird kills, too. To reduce silt and pesticide loads in streams, the Soviets are making frequent use of buffer strips—shrubs or



The Don River at Rostov in Russia. This is one of the major waterways in the Soviet Union, where officials are working to control pollution.

other vegetation planted along edges of sloping fields.

"There is, in the Soviet Union, a continuing high interest in research and development," Adamkus observed. "The Soviets are committing their best scientific talents and resources to the development of environmental technology and methodology," Adamkus said. "Western literature and science are used to the fullest extent, and the desire to cooperate with the West in environmental matters is decidedly there."

Two members of the North American delegation, Dr. R. V. Thurston of Montana State University and Dr. D. J. Randall of the University of British Columbia, visited the Institute of Aquatic Biology in Borok. Here a team of Soviet scientists, led by one of the foremost experts in the field, Dr. Gherman Vinogradov, has been conducting numerous studies on the effects of pollution on fish. Dr. Vinogradov, in collaboration with Dr. Thurston, has published several studies on low-pH (acid) waters and fish physiology in both the Soviet and the Western press, thus contributing to the overall knowledge of scientists the world over. Although Soviet scientists are often restricted by lack of equipment and supplies, their commitment to environmental protection has impressed the U.S. delegation.

"As far as the EPA is concerned," said Adamkus, "the Soviets are working together with us on scientific projects and sharing information with us. We hope that this cooperation will continue to our mutual benefit, not only in controlling toxicants and nonpoint sources of pollution but in other areas as well." The control of point-source effluents, instrumentation, modeling, air pollution technology, and the latest techniques in biomonitoring are subjects of great interest to them.

"We were taken to Lake Sevan in Armenia, where an extensive water conservation project is under way," Adamkus said. Because of hydroelectric use, the water level of the lake went down some years ago, he explained, and now the Soviets are trying to divert some river water to bring the lake up to its former

level. In addition, they are monitoring fish and crustaceans as well as pollutants from tributaries. "It is a showcase project, well conceived and well executed," Adamkus said. In fact, the Soviets have created a national park around the lake so that they could monitor and control all aspects of the environment, he added.

This was Adamkus's fifth trip to the Soviet Union since 1972, when, as a member of another U.S. delegation, he helped negotiate the first environmental agreement between the United States and the U.S.S.R.

Accompanying Adamkus in addition to Drs. Thurston and Randall were James W. Meek, Chief of the Implementation Branch, Water Planning Division, EPA Headquarters; Ronald Preston, an aquatic biologist with EPA's Region 3 Wheeling, W. Va., office; Dr. Rosemarie Russo, EPA's associate director for research operations, Environmental Research Laboratory, Duluth, Minn.; Madonna McGrath, then director of EPA's Great Lakes National Program Office in Chicago; and Dr. Richard A. Schoettger, director of the U.S. Fish and Wildlife Service Fisheries Research Laboratory in Columbia, Mo.

In 1982, under the US-USSR Agreement on Cooperation in the Field of Environmental Protection, a Soviet team had visited the United States. In its trip last year the U.S. delegation visited Moscow, Kharkov, and other areas in its 16-day program.

The delegation's official mission was to meet with Soviet scientists, review ongoing projects in the field of water quality research and plan cooperative activities for the period 1984-85.

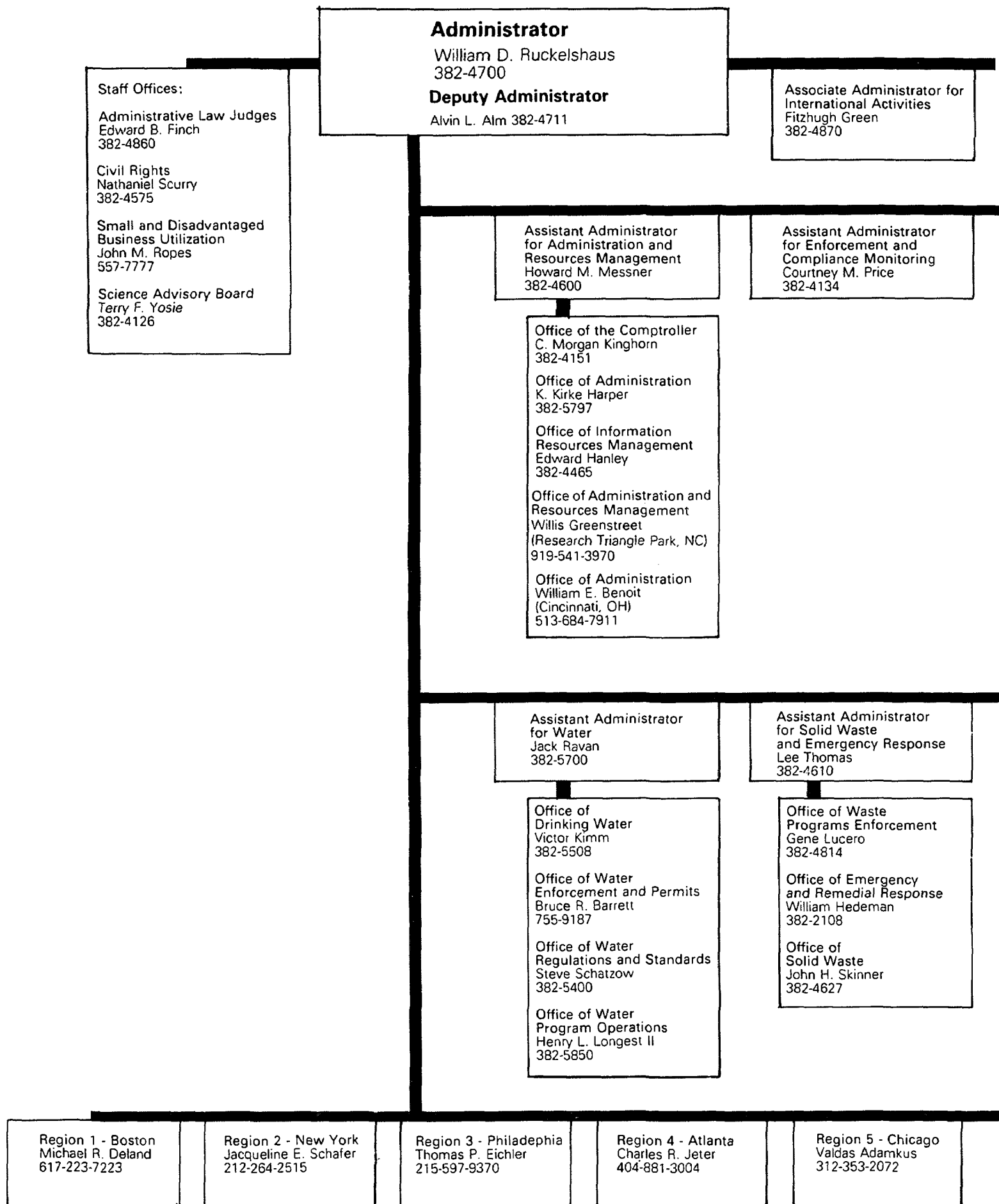
Adamkus said he has high hopes for continued cooperation. "I will not be surprised if the Soviets propose new initiatives to increase the exchange of environmental experts. Despite all the disagreements between East and West, the Soviet Union and the United States will try their best to continue their dialogue and cooperation in efforts to restore and preserve the natural resources of both countries." □

Andropov Comments on Environmental Protection

In a speech delivered in absentia to the plenary session of the Communist Party Central Committee December 26, Soviet leader Yuri Andropov said the following about environmental protection:

"This present-day scale and pace of development of productive forces demand changes in the attitude to questions connected with environmental protection and the rational use of natural resources. This is a task of major economic and social importance. For what is at issue in effect is protecting the health of the people and taking a careful, thrifty approach to the country's national wealth. Moreover, these are also questions of the future. Their resolution will determine the conditions in which the succeeding generations will live. It must be stressed that despite the serious efforts being made by us, this problem on the order of the day remains acute.

"This indicates that work for the protection of nature requires even more persistent and purposeful efforts. A narrow departmental approach is intolerable in this field, perhaps, more than in any other field, as it sharply lowers the effectiveness of the use of capital investments, hampers the pursuance of a single policy in carrying out nature protection measures, engenders irresponsibility for the ecological consequences of the decisions taken, is conducive to illusory economy, which, in the final analysis, results in great losses. In a word it is necessary to show a comprehensive approach to this problem from the nationwide positions, and resolutely improve the whole system of environmental management and control."



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Under a Winter Moon



We took advantage of a thaw in January's chilly temperatures on a recent Sunday afternoon to walk along the Potomac River just south of Shepherdstown, W. Va. We were looking for ducks.

Mergansers, golden eyes, and buffle heads are among the duck species which occasionally seek refuge on the ice-free sections of the river during winter.

We began where the Potomac sweeps under a high railroad trestle on the south end of Shepherdstown and heads for Washington some 60 miles away.

Using the road that skirts the steep banks on the West Virginia side of the Potomac, we didn't see any ducks immediately, but we did observe bluebirds nibbling at the fruits of a hackberry tree.

Further downstream we could see the ruins of an old mill, the crumbling remains of a once bustling operation. Another type of ruin present on the bank was a massive pile of trash. Such scars still pock many stream and river banks in otherwise hauntingly beautiful West Virginia.

Those who dump their bottles, cans, old refrigerators and rusty bed springs are

counting on the same force that destroyed the mill to remove their garbage—periodic floods.

In addition to being an area where natural forces sometimes erupt, this stretch of the river was the scene of several savage Civil War battles. Blue metal signs along the roadway describe some of the engagements fought here.

Noticing a canoe passing, we called out to the paddlers to ask if they had seen any ducks. The reply was that the only ones they had seen were above Shepherdstown.

As the canoe disappeared down river we kept walking and hardly noticed that dusk had arrived. Finally we decided that it was getting too dark to see birds now and we began our return.

The quavery scream of a screech owl startled us as we walked though the gathering night. A sudden breeze rattled the bare branches of an elm tree above us and we noticed that the temperature was dropping rapidly. The thaw had ended as quickly as it arrived.

Stars spangled the night sky. Gradually a nearly full moon rode above the tree tops. Its beams silvered the river as a mounting breeze ruffled the waters.

On either side of the river huge sycamore trees raised their white gnarled and twisted limbs above their main trunks. They reminded us of boys in costume on Halloween night trying to frighten each other.

Sycamores are often predominantly white in winter because their tight bark splits. These are ancient trees developed before the evolution of flexible bark.

Some giant sycamores still stand along the Potomac although their interiors have been eaten out by disease. Hikers caught in rain or snow storms have sometimes stepped inside these massive cavities and found shelter until the storm passed.

Using a flashlight, we checked one of the roadside signs we were passing in the dark. The sign informed us that the river at this point was known as Pack Horse Ford, an historic low-water crossing point much used by pioneer travelers who brought many of their possessions on horseback.

After the battle of Antietam thousands of Confederate soldiers retreated to Virginia by using this ford under cover of darkness. It seemed peaceful now in the still of a January night.

No echo remains of the shouting and splashing of desperate men lashing their frantic horses across the water pathway. No muffled reverberations sound from the cannons that boomed in the battles. Washed away long ago were the torn corpses and blood spilled by the wounded.

And as always throughout history when the roaring and tumult of human battles cease, the forces of nature—the rising moon, the flowing river, the gusting wind—continue on their rounds.

This January chill that left us shivering by the time we reached our car must yield too to the dictates of the seasons. The great wheel of time is turning. Nothing can stop it. Another spring is on the way. —C.D.P.



Saving the Bay Together: EPA Administrator William Ruckelshaus speaks to a conference at which an agreement was reached to set up an executive council to carry out a joint cleanup of the Chesapeake Bay. With Ruckelshaus are (l-r) John Gottschalk, president of the Citizens Program for the Chesapeake Bay; Vir-

ginia Gov. Charles S. Robb; Maryland Gov. Harry Hughes; Pennsylvania Lt. Gov. William Scranton, III; Washington, D. C. Mayor Marion Barry; and Virginia State Sen. Joseph V. Gartland, Chairman of the Chesapeake Bay Commission.

See article on P.10

Back Cover: Scenic view of Kenai Peninsula, part of the Kenai National Wildlife Refuge which is inhabited by moose, grizzly bears, wolves, trumpeter swans and many other wild animals. Photo by Michael Flaherty of EPA's Office of Emergency and Remedial Response.



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