

United States
Environmental Protection
Agency

Office of
Public Awareness (A-107)
Washington, D.C. 20460

Volume 6
Number 6
June 1980

EPA JOURNAL

Environment and the Law



Chemical
Wastes
Exploding!

Environment and the Law



The cover photo showing the recent explosion of chemical wastes at a dump site in Elizabeth, New Jersey, dramatically illustrates the need for environmental protection laws effectively enforced. This issue of EPA Journal focuses on the role of the Agency and the States in such enforcement.

EPA Administrator Douglas M. Costle explains the Agency's enforcement policy and priorities. His overall performance at EPA is assessed in an article reprinted from the Wall Street Journal.

Acting Assistant Administrator for Enforcement, Jeffrey

Miller, discusses in an interview how EPA carries out the laws for which it is responsible. Assistant Administrator for Planning and Management William Drayton, Jr., presents an approach to environmental law enforcement which relies on economic principles.

The Agency's actions to deal with the hazardous waste problem are outlined by Deputy Administrator Barbara Blum. The efforts to control hazardous wastes in New Jersey, where the problem is acute, are explained by that State's top enforcement officials.

The successful conclusion of one of the Nation's most important environmental cases

—Reserve Mining Company's pollution of Lake Superior—is reported by Truman Temple, Associate Editor of EPA Journal. An agreement to greatly improve sewage treatment in one of the Nation's largest cities, Philadelphia, is reviewed in another article. EPA's Regional Offices present examples of how enforcement activities have corrected pollution ills in their jurisdictions.

The status of the drive to clean up pollution from the auto is explained. EPA's monitoring program to insure that coal is burned in compliance with environmental standards is outlined.

A report is presented on activities on Earth Day '80, last April 22, when observances in cities and towns across the country celebrated ten years of progress in environmental laws and cleanup and rekindled dedication to the environmental cause.

On the global scene, Qu Geping, a top Chinese environmental official, explains environmental laws and programs in the People's Republic of China, and progress in key aspects of world environmental law is detailed by Peter Thacher, Deputy Executive Director of the U.N. Environment Program. □

EPA JOURNAL

Douglas M. Costle, Administrator
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Articles

EPA is charged by Congress to protect the Nation's land, air and water systems. Under a mandate of national environmental laws focused on air and water quality, solid waste management and the control of toxic substances, pesticides, noise and radiation, the Agency strives to formulate and implement actions which lead to a compatible balance between human activities and the ability of natural systems to support and nurture life.

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Front Cover: Fireball rises into the night sky after explosion of chemical storage drums at Chemical Control Corp. in Elizabeth, N.J., on April 21, the eve of Earth Day. (Article on P. 10)

Opposite: This is the explosion site at Chemical Control as it looked on July, 1979, when this photo was taken by an EPA official, David L. Cowles of the Environmental Research Center in Cincinnati. Many of the most dangerous drums had been removed by authorities before the explosion occurred. (Article on P. 10)

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Design Credits: Robert Flanagan, Donna Kazaniwsky and Ron Farrah

The EPA Journal is published monthly, with combined issues July-August and November-December, by the U.S. Environmental Protection Agency. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget

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Text printed on recycled paper

Environmentally Speaking

Enforcement and the EPA

By Douglas M. Costle
EPA Administrator



The EPA's enforcement program is a beginning, not an end. We prod industry to seek innovative solutions to legal requirements. We encourage pollution cleanup measures that save money and energy. We try to remove any financial incentives to pollute so everyone has the same stake in complying with the law. Our objective is a clean environment, not a busy courtroom.

However, our underlying strength is our ability to back up our words with action. We rely on voluntary compliance to a large extent, but when necessary, we bring formal enforcement actions—including criminal proceedings on occasion—to make sure that environmental requirements are met.

States have an important role in this too. While a few statutes call for direct Federal regulation, most are based on State regulation with some Federal overview, or on Federal regulation only until States develop approvable programs for direct regulation. EPA's policy is to encourage and assist States to develop such programs, and to help States enforce these programs once they are in place.

Firmness, fairness, and good judgment are requirements for success in carrying out enforcement's roles.

Firmness is the most obvious cornerstone of enforcement behavior. It is best translated into action by telling affected parties in advance what is expected of them, how their performance will be monitored, what action can be expected if performance is poor. Then EPA must be consistent in following through.

While enforcement's objective is to assure compliance with regulatory requirements, fairness must play a key role. It means that the regulator's actions should be reasonably predictable, and should be appropriate to the situation.

Third, good judgment is essential for effective enforcement. It requires fashioning responses that will work.

EPA is determined to achieve a high rate of compliance with environmental rules. By the end of 1979, only 1,696 (6.2 percent) of 27,557 major air pollution facilities were not in compliance with regulations or on a schedule to meet them. Similarly, only 243 (7 percent) of 3,662 major non-municipal wastewater dischargers were not in compliance with their permit requirements or on a schedule to meet them. Our progress with the steel industry has been particularly significant. We've certainly come a long way.

EPA has also adopted a civil penalty policy that requires that settlements for violations of the Clean Air and Clean

Water Acts deprive a violator of the economic benefit gained by failure to comply with statutory deadlines. In addition, penalties are added for recalcitrance and environmental harm, when these are appropriate. Penalties are either paid to the U.S. Treasury or are offset, in whole or in part, by expenditures for environmental improvements above and beyond the requirements of law.

We have numerous examples of the success of this policy. Some of the major penalty settlements we have reached include one with United States Steel for violations of the Clean Air and Clean Water Acts at its Monongahela Valley facilities. U.S. Steel agreed to a number of major environmental improvement projects not otherwise required by law for which it received almost \$23,000,000 in "credits" against the penalty which the company owed. Many other steel companies have also reached settlements with EPA requiring either the payment of penalties or the utilization of EPA's "credits" provision in the penalty policy.

But enforcement is not litigation alone. I see another role—one of attacking our complex, intertwined environmental problems through coordination with other EPA program offices. The problems of managing hazardous waste, consolidating our permit programs and requirements, and controlling discharges from publicly-owned wastewater treatment works immediately spring to mind.

1. The consolidation of permit programs has been designated as one of the Agency's highest priorities, reflecting the Administration's goal of regulatory reform. Consolidated permit regulations involving four different environmental programs—air, water, hazardous waste, and dredged or fill material—were promulgated in May, 1980. This consolidation is expected to produce environmental benefits through more comprehensive management and control of wastes and elimination of program gaps, overlaps, and inconsistencies.

2. A majority of publicly-owned wastewater treatment works have not complied with the Clean Water Act's July 1, 1977, treatment requirements and are contributing a substantial pollutant load into our Nation's waters. Many of these facilities are eligible for extensions of the time for compliance until July 1, 1983. EPA's National Municipal Policy and Strategy coordinates construction grant funding, water quality discharge permitting, and Clean Water Act enforcement to assure that qualified publicly-owned wastewater treatment facilities receive extensions with compliance schedules keyed to construction grant schedules. It also seeks to assure that grant funding is allocated first to projects which require money to

comply with the Act. The strategy also lays out the enforcement response required for each category of non-compliance, making it clear that rigorous enforcement is intended where necessary.

3. In recent months the specter posed by situations such as Love Canal and the Kepone contamination of the James River has heightened public, industrial, and governmental awareness of the dangers posed by our past practices in handling and disposing of hazardous materials. One price of our industrial growth has been the creation of numerous time bombs from these wastes.

In May of 1979, EPA set as its highest priority the clean-up of hazardous waste dump sites threatening the public health.

Although 5,000 potential hazardous waste problem sites around the Nation have been inventoried, the extent of the risks posed is only beginning to be understood. The sites may be abandoned, inactive, or active. In addition, hazardous wastes are sometimes disposed of in unauthorized and potentially harmful ways, such as "midnight dumping." When fully implemented, the regulatory programs under the Resource Conservation and Recovery Act will deal with the majority of concerns such as active disposal sites, but not with some others, such as abandoned or inactive site problems.

To fill existing gaps, EPA and the States must take forceful and expeditious action to remedy those situations which present a substantial risk to public health and the environment. We have and will continue to use existing authorities under the Resource Conservation and Recovery Act, the Clean Water Act, the Toxic Substances Control Act, the Refuse Act of 1989 and common law, as well as existing State authorities, to obtain the necessary relief. Because the problem is so acute, the Administration has also asked the Congress to pass "Superfund" legislation, which will provide money for cleanup of spills and abandoned sites, as well as a mechanism for recovering cleanup costs from those responsible for the problem.

As I said in the Nov./Dec. 1979 *Journal*, the environmental movement is entering its "golden" age. It has achieved maturity at the expense, some might say, of headline grabbing and rabble rousing. The rabble rousers have effectively done their work—the environmental laws are evidence of this. Their anger has been expressed in law—the essence of environmental protection. The burden of environmental improvement has passed from the rebels to the technicians. Our enforcement activities reflect this movement, and these activities are yielding the results we all have hoped for. □

To test for radioactivity, an EPA official collects a sediment sample from a phosphate industry settling pond in Florida.



Reserve Mining Ends Lake Dumping

By Truman Temple

After some two and a half decades of dumping asbestos-laden ore tailings into Lake Superior, the Reserve Mining Company has halted this discharge into the lake and will be depositing it inland.

The company's action came March 16 in response to a Federal court order requested by EPA and others, and was a month ahead of the court deadline. It ended the dumping of some 67,000 tons daily into the lake over a period of nearly 25 years.

The shutdown of the discharge came after what had been described as the longest and most expensive environmental trial ever prosecuted by the Federal Government (EPA Journal, January 1978). In his landmark decision ordering the plant closed at the end of the first trial in 1974, U.S. District Court Judge Miles Lord noted that the case by then had included 139 days of trial, more than 100 witnesses, more than 1,621 exhibits, and over 18,000 pages of transcript.

"It had been clearly established in this case," Judge Lord declared, "that Reserve's discharge creates a serious health hazard to the people exposed to it." The tailings contain asbestos particles of a type suspected of causing cancer and other serious ailments when ingested or inhaled.

What now lies ahead is an on-land disposal system to manage both coarse and fine particles of the tailings so that they will not endanger area residents. The system is designed to prevent the particles from travelling off-site either by air or water.

Although Reserve Mining has been embroiled since 1969 in administrative or legal battles over the dumping, the story actually dates back to 1947 when Minnesota State agencies granted the company permission to take some 130,000 gallons per minute of Lake Superior water and discharge it with taconite tailings in suspension back into the lake. Although the permits at that time specified that this must not result in any adverse effects on public water supplies, it was not until many years later that health experts were able to come up with evidence convincing the court that such a discharge constituted a potential public health hazard.

Reserve Mining, which is jointly owned by Armco Steel and Republic Steel Corporation, began its first full year of commercial operations at Silver Bay, Minn. in 1956, with permits amended to allow 260,000 gallons per minute to be dis-

charged into the lake. (Reserve built a pilot plant at Babbitt, Minn. after getting the go-ahead from the State in 1947, and did not begin construction on the main facility until 1951.) It was in 1969 that the Department of the Interior reported that fine tailings were not being carried to the bottom of the lake as originally believed, and that Reserve should be given three years to study and construct on-land waste disposal facilities. A Lake Superior Enforcement Conference convened that year by the Interior Department also determined that the discharge potentially endangered the health and welfare of persons in States other than Minnesota.

In 1972, at the request of EPA, the Justice Department sued Reserve seeking abatement of discharges into the lake. A year later EPA announced that Duluth's drinking water contained large quantities of asbestos-like fibers believed to originate from Reserve's discharges some 65 miles away. The city began measures to distribute uncontaminated water and filtered water to area residents, ultimately building a filtration plant with Federal and State aid.

Although Judge Lord ordered the Reserve plant closed at the end of the first trial in 1974, an appeals court allowed it to resume operations a few hours later and in 1977 the Minnesota Supreme Court ordered the State to give Reserve Mining permits for on-land disposal. Subsequently a Federal judge set April 15, 1980 as the deadline for ending the discharge into the lake. The company also was ordered to stop emitting the fibers into the air and to pay more than \$1 million in fines and penalties for violating pollution control laws. When Reserve halted the dumping last March 16 it shut down the plant for about seven weeks so that workers could complete the on-land disposal system.

For the many EPA scientists, lawyers, and water pollution specialists involved in the case, the halt in the lake dumping was a special moment in their careers.

"It was a once-in-a-lifetime assignment," says Dr. Robert Zeller, who headed a Federal interagency task force working for several years on the problem. "It was an opportunity to do something important for the Agency and come away feeling you'd contributed significantly to a major problem solution." Zeller, who now is a senior policy advisor in EPA Region 10 for the Office of Water and Waste Management, served as chairman of the interagency group from 1975 to 1979 dealing with the Reserve Mining problem.

"I had a total of 22 people on my task force, from eight agencies, all actively pursuing it," he declared. Actually this was a second assignment for him from 1975 to 1977, when his title was Director of

Municipal Operations and Training Division at EPA Headquarters in the Office of Water Program Operations. A sanitary engineer who had served in the U.S. Public Health Service before joining EPA, Zeller recalls that the Reserve dumping issue "began as a nuisance problem and a suspicion of something more. Then in 1973 when EPA confirmed the existence of asbestos fibers in the water supplies at Duluth, the implications of the problem extended dramatically."

The solution of on-land disposal of the tailings, reached after seemingly endless litigation, is costing Reserve Mining some \$370 million. It has involved upwards of 2,500 workers to build the 5.8 square mile basin and dams and related facilities five miles inland from the lake's shore at Silver Bay. Coarse tailings now are being used as a basic dam-building material, and eventually will be carried in rail cars to the inland site, known as Milepost 7, and dumped into the basin. Fine tailings will be pumped in a water slurry in 24-inch-diameter pipelines to the basin. Excess water will be pumped back to the plant from the basin in a closed-loop system. Eventually the basin will be entirely covered with water, a safety precaution to prevent asbestos fibers from blowing into populated areas.

The disposal site is planned to accommodate taconite wastes for the next 40 years and is capable of holding 823 million tons of tailings. The basin eventually will look like an elongated lake surrounded by hardwood and conifer trees.

In related projects, Reserve has installed more than two dozen electrostatic precipitators at its beneficiation plant in Silver Bay to remove asbestos fibers from the plant's air emissions. It also is building a rock wall inland from a delta of tailings that extends into the lake. The theory behind this is that eventually the wall will sink into the lake due to wave erosion of the delta, forming a subsurface breakwater that will close off the tailings delta, preventing fibers from migrating any further. That, however, is expected to take a long time.

In the aftermath of the case, research is continuing on the whole subject of health effects of asbestos fibers. EPA's Environmental Research Laboratory at Duluth is doing analyses of human, fish, and test animal tissues exposed to asbestos. Since the Agency is concerned with mining wastes in water and air throughout the Nation, scientists are seeking more accurate ways to detect health risks. The Minnesota Department of Health, under a grant from the

Taconite tailings poured into Lake Superior for 24 years from Reserve Mining Company. The firm recently stopped the dumping.

EPA Industrial Environmental Research Laboratory in Cincinnati, also is doing studies of the population around Duluth to see if the incidence of cancer has shown an increase. Thus far, no increase has been observed. The studies will continue for a long time, however, since cancer can take from 20 to 40 years to show up after initial exposure to a carcinogen.

Several EPA employees have won awards for their work in the Reserve Mining case. Dr. Philip M. Cook, a research chemist at the Agency's Duluth laboratory, received the Scientific and Technological Achievement Award this year for his findings on the way asbestos fibers travel through the human body. The research was of vital importance in the Reserve case, since a major problem was to determine if mineral fibers in drinking water accumulated in the body as inhaled fibers do. Dr. Cook provided the first documentation that mineral fibers do pass through the gastrointestinal tract wall.

Gary S. Logsdon and James M. Symons, two engineers with EPA's Municipal Environmental Research Laboratory in Cincinnati, also received the Scientific and Technological Achievement Award for successfully developing an economical treatment method to remove asbestos fibers from drinking water. The two men determined what combination of coagulants would give the best fiber removal for the lowest cost and then developed a technique by which treatment processes could be controlled. Their breakthroughs have allowed many water treatment plants to modify their practices to improve fiber removal. Their work was a direct outgrowth of the problem of removing asbestos fibers from Duluth drinking water, which was pumped from Lake Superior.

A multi-million-dollar special filtration plant completed in 1976 is now removing 99 percent or more of the asbestos fibers from Duluth's drinking water, according to scientists at the University of Minnesota

who monitor the plant under contract. "It's working very efficiently—much better than expected," declares David Markland, a chemist with the university.

As a postscript to the years of litigation spent by EPA on the Reserve case, there was an unlooked-for event. Pamela Quinn, a lawyer in the EPA General Counsel's office, worked on the case from January, 1974 to November, 1978, one of the longest periods any attorney with the Agency devoted to the struggle. When she went to Minnesota in 1974 during the trial, she met John Hills, a lawyer who was on the Justice Department team trying the case and who later served as senior legal advisor to the Council on Environmental Quality. Romance bloomed, and they were married the following June. The couple now live in Annapolis where he is in private practice and she is on the Maryland Attorney General's staff. □

Temple is Associate Editor of EPA Journal.

Lady With A Mission

If a single private citizen stands out in the public's efforts to save Lake Superior from asbestos pollution, it is a Potomac, Md., secretary named Verna Mize.

Her battle to stop Reserve Mining Co. from dumping tailings into the lake began 13 years ago. A native of Houghton County in the Upper Peninsula of Michigan, where Lake Superior borders the land on three sides, she enjoyed its crystal-clear waters as a child and liked to visit there for vacations after she married.

In 1967 she came back to Washington from a vacation and was telling friends the lake was so clean you could dip your cup over the side of a boat and drink it.

"You drank that water?" a friend asked. "Haven't you heard about Reserve Mining?"

Verna didn't sleep well that night, and the next day she phoned a Duluth newspaper to ask if the stories were true.

"They confirmed that Reserve was dumping into the lake, so I started to do something about it," she recalls. "People said you can't fight city hall, but I felt this dreadful outrage couldn't go on without a battle."

Always using her own funds, without a penny of support from any group, Verna Mize began a long campaign. Her battle cry was "Lake Superior—Preserve It, Don't Reserve It." She flew to Michigan to collect

signatures on a "save the lake" petition, even signing up other passengers on the plane. She persuaded the Copper County (Mich.) Chamber of Commerce of her cause. In response to her appeal, the Chamber adopted a resolution opposing the pollution of the lake by taconite tailings from Reserve Mining. "If the lake was polluted, there went their tourist business," she explains.

After carrying a stack of more than 5,000 signatures on petitions back to Washington, she attracted the attention of the Detroit Free Press and they published an article about her campaign.

"It was a tidal wave of response," she relates. "It washed all over the State of Michigan. It was one of the most beautiful experiences of my life."

Verna Mize quickly learned how to operate in the thickets of environmental campaigns. She developed friends everywhere—in Congress, in Federal and State agencies, even a few in Reserve Mining's town, Silver Bay. One day her network warned that officials of Armco Steel and Republic Steel, the owners of Reserve Mining, were on the Hill lobbying. She gathered two bags of Lake Superior stones from her collection, trudged down to the Capitol, and left one with each member of Congress involved with

the lake, with a note reminding them of her need for their help.

"A few days later, six Senators jointly wrote a letter to EPA saying, in effect, 'Sue them,' " she says. Verna Mize prodded, pleaded, and nagged. She wrote Congressmen, EPA officials, and newspapers. She appeared on radio and TV interviews. She was invited by Senator Philip A. Hart to testify before his Subcommittee on the Environment. Responding to citizen protest, the Federal government sued Reserve and won. And after 13 years she saw Reserve Mining last March finally stop dumping its ore wastes into the lake.

Among her souvenirs of the campaign: An autographed photo from Senator Hart inscribed "Dear Verna, You are proof positive that one person can make a difference." Another from Governor William G. Milliken of Michigan bears the message: "To Verna Mize—The First Lady of Lake Superior."

Verna Mize retired February 29 from her Civil Service job. Her plans for the future: To write a book, at the urging of friends, about the Save Lake Superior campaign.

"My one regret," she reflects, "is that my husband did not live to see this victory. He bore the brunt of the disruption to our family life and yet encouraged and comforted me when the going was rough. 'That lake is worth it,' he would say." □



Workman preparing drums of hazardous waste for reprocessing at the Silresim site in Lowell, Mass.

Hazardous Waste Action

By Barbara Blum
EPA Deputy Administrator

For decades, toxic wastes from extraction and manufacturing processes have been disposed of carelessly—often simply dumped and forgotten in the open fields, nearby ponds or streams, abandoned mineshafts and quarries, and even residential backyards. Sometimes waste disposal problems result from a lack of foresight and a failure to consider long-range effects. In other instances, they grow out of a criminal disregard for public safety and the environment.

The results of improper disposal of toxic and hazardous wastes are now evident in every part of the Nation. Public drinking water supplies and irreplaceable aquifers

have been destroyed, surface waters have been rendered unusable, fires and explosions have threatened whole communities, and the health of untold numbers of people has been threatened by exposure to toxic pollutants in the air and water.

To help protect against toxic by-products, EPA has launched a major regulatory and enforcement drive, including suits using EPA's "imminent hazard" or "emergency" provisions to force the cleanup of the most dangerous hazardous waste problems. I anticipate that 50 such cases will be filed before the end of 1980.

The most widely recognized symbol of the hazardous waste crisis is Love Canal in Niagara Falls, where an entire neighborhood has been abandoned. There are, however, hundreds of other graphic examples scattered across the country.

The issue of how to deal with our legacy of dangerous waste disposal sites and to prevent the development of new "Love Canals" may be the most difficult environmental challenge of the 1980's. EPA has launched four interrelated efforts to bring this problem under control:

1. Litigation under "Imminent Hazard" provisions of existing EPA laws.

EPA and the Department of Justice have begun a major effort to force judicially-ordered clean-up of sites posing the gravest health or environmental threats. Primarily emphasizing injunctive relief, this program seeks to halt dangerous disposal practices and to force privately-funded clean-up. This approach gets results, of course, only where a responsible party can be identified and has adequate financial resources to carry some or all of the clean-up costs.

2. A hazardous waste regulatory program under the Resource Conservation and Recovery Act.

Under this law, EPA is establishing a comprehensive "cradle-to-grave" program to manage the handling of hazardous waste from the point of initial production to eventual safe disposal or destruction. This program, which includes a "manifest" system to track hazardous wastes to

their destination and a "permit" program to insure the wastes go to safe disposal sites, is scheduled for full operation in November, 1980. While this regulatory program is intended to prevent the creation of new hazardous wastes disposal problems, it cannot eliminate problems resulting from past or currently inadequate disposal practices.

3. Emergency control of toxic chemicals threatening navigable waters.

This program, based on Section 311 of the Clean Water Act, provides an emergency response capability for containment and cleanup of 299 listed chemicals in situations which threaten navigable waters.

The approach is similar to that successfully used by EPA and the Coast Guard to respond to oil spills. However, while Section 311 cleanup authority is very useful, it has clearly defined limits. Before authority can be applied, navigable waters must be threatened and the chemicals involved must be among the 299 specifically listed by regulation. Additionally, emergency containment and cleanup may be statutorily limited to actions which stop short of a full response to complex incidents of chemical pollution.

4. A "Superfund" legislative proposal to fill major gaps in dealing with hazardous waste sites.

The Superfund would empower the Federal Government to take *immediate* emergency response and containment action at hazardous waste disposal sites—and then proceed against identifiable responsible parties for recovery of funds expended. Additionally, the fund—financed by a combination of industry fees and Federal appropriations—would allow the Federal Government to move to clean up and contain dangerous sites where Section 311 did not apply (such as a threatened aquifer) and where no responsible or financially viable party could be found and forced to bear the cost.

The Newest Approach

The basic emergency cleanup program under Section 311 of the Clean Water Act has been operational for some time, and the hazardous waste regulatory program and Superfund legislative proposal have received wide publicity. The least known and newest element of the EPA hazardous waste response strategy is the increased use of "imminent hazard" litigation.

EPA is bringing a wide array of statutes and common law remedies to bear on hazardous waste problems posing an imminent danger. As of May 1980, 21 Federal cases have been filed, and more than 100 additional sites were under investigation for possible enforcement action.

Sections of the Resource Conservation and Recovery Act, Safe Drinking Water Act, Toxic Substances Control Act, Clean Water Act, and Clean Air Act all authorize EPA to ask the court for injunctive relief in situations which pose threats to public health or the environment. Section 309 of the Clean Water Act levies a penalty of up to \$10,000 a day for unpermitted discharges to navigable waters (a leaking dump can be considered a discharge). The 1899 "Refuse Act" provides additional penalties for unauthorized discharges or dumping. Available common law remedies include the common law of nuisance and trespass, restitution, and "strict liability" for damages caused by those who engaged in ultra-hazardous activities. We are aggressively using each of these legal tools to address the hazardous waste disposal problem.

The Agency—working with the Department of Justice—has launched a top-priority effort to pursue imminent hazard cases. A Hazardous Waste Enforcement Task Force has been established in EPA's Office of Enforcement, and the Justice Department has created a parallel Hazardous Waste Section. The 30-person EPA Headquarters Task Force is responsible for working with the EPA Regional Offices to develop the technical and legal aspects of hazardous waste cases. Additionally, the Task Force is charged with managing several "national" cases that involve significant legal precedents and that concern multiple sites. Suits against Hooker Chemical Company in New York and in California are one example. Justice Department attorneys, of course, are responsible for the actual litigation of hazardous waste site cases.

To speed development of these cases, EPA and Justice have adopted an innovative set of procedures. Rather than following the "sequential" case review process common in other areas of EPA litigation, our agency and Justice have developed a case development process that is designed to secure "up-front" agreement on the technical and legal aspects of a potential case. As soon as a site appears to have enforcement potential, Task Force, Regional, and Justice staff meet to hammer out an agreement or the appropriate legal theories and the required supporting evidence. Our experience so far suggests that this process moves cases through the system faster than other approaches. Obviously, in imminent hazard cases, time is a critical element.

Another major element in developing imminent hazard cases is establishment of a system to identify potentially hazardous waste disposal sites and to track the status of those sites through the site

inspection, remedial, and enforcement stages. The Hazardous Waste Enforcement Task Force—working with the EPA Regions—has developed a computerized site tracking system to meet this need. By June 1980, the system is scheduled to be operational with terminals available in the Regional Offices to support site cleanup and enforcement activities. Preliminary data from the system reveal more than 5,530 potential hazardous waste sites already on regional investigation logs.

The number of sites to be investigated is growing at an average of 200 per month. EPA's ability to investigate and to analyze the complex chemical samples that are gathered soon will be significantly enhanced. One effort—a contract jointly managed by the Oil and Special Materials Control Division and the Office of Enforcement—will provide 180 more site investigators. Other contracts will expand our capacity to do laboratory analysis.

One of the things that the imminent hazard enforcement effort has demonstrated thus far is that enforcement actions can be effective in the short-term to reduce or eliminate hazards. While complex cases may take years to litigate fully, others have prompted the court to issue temporary orders and preliminary injunctions that solve all or part of the problem. In still other cases, legal action has led the defendants to initiate immediate cleanup actions.

While imminent hazard suits may involve difficult burdens of proof—and can provide no relief at all where the responsible parties are unknown or insolvent—they represent a significant part of the overall EPA response to the hazardous waste disposal problem. As I project the future, imminent hazard cases will continue to play a significant environmental role even after the implementation of EPA's hazardous waste regulations and the passage of Superfund.

People are frightened by Love Canal and by the emergence of threatening hazardous waste sites in their local communities. They are demanding action—and they are getting it.

EPA has established hazardous waste enforcement, cleanup, and control as its first priority. This sense of urgency also is reflected in State programs and in the efforts of concerned citizens and environmental groups.

As our society moves to weed out the "bad actors," however, it must not create a climate of panic which equates all waste disposal practices or sites with unacceptable health and environmental risks. Our "chemical society" will continue to generate potentially dangerous wastes, and our goal must be to manage them safely. Within that framework, there is no doubt that enforcement has a key role to play. □

Earth Day '80

From a sunrise service at the Jefferson Memorial in Washington, D.C. to observances in a thousand cities and towns across the land, Americans recently celebrated Earth Day '80, the 10th anniversary of the Nation's environmental awakening.

Earth Day ten years ago "opened an era of progress in fighting pollution, preserving our natural resources, and safeguarding public health," said EPA Deputy Administrator Barbara Blum in Atlanta on April 22, the day marking the observance.

In Washington, D.C. Earth Day '80 began with a sunrise service at the Jefferson Memorial, where environmental leaders of today read selections from environmentalists of the past including Margaret Mead, Henry David Thoreau, and E. F. Schumacher, author of "Small is Beautiful."

Byron Kennard, chairperson of Earth Day '80, said he also wanted to pay tribute to those who staged the first Earth Day a decade ago.

Later, in Lafayette Park in front of the White House, more than 3,000 bicycle-riding commuters converged to hear Dennis Christopher, star of the Oscar-winning bicycle movie "Breaking Away," say that he had attended the first Earth Day in 1970 and believes the way to save energy is to "just keep pedaling and turning off the lights."

EPA Assistant Administrator William Drayton, Jr., told the group, "Bicycle commuting makes very good economic and energy as well as environmental and health sense. So does the commitment to environmental cleanup this and the last Earth Day signal and

have helped make possible. For every job lost because of environmental costs, the cleanup has created 16 new jobs. Nor is environmental regulation inflationary: People are now getting a much better mix of goods, services, and safety from their economy than they did before. The idea that the regulation that is thus giving us *more* value for our money is inflationary is at least a little odd. As individual bicycle commuters joined together today and in the future we're making sense—and a big difference."

Drayton received a special award for EPA—the Agency with the most employees participating in the Earth Day '80 bike-in.

Thousands of people later in the day examined environmental exhibits on the Mall in front of the Smithsonian Institution; attended films and seminars, and listened to speakers proclaim the need to contribute to the environmental fight. Most were tourists.

Elsewhere in the Nation there were festivals and other observances. In New York, 10 blocks of Sixth Avenue were cordoned off for a street fair. In New London, Conn., a windmill on top of the Connecticut College library was christened. In Illinois, volunteers collected trash along 90 miles of highway between Champaign and Springfield.

Many of the activities mir-

rored events of the first Earth Day, when thousands of American picked up trash along roadsides, waded into polluted rivers to cart out garbage, and participated in environmental teach-ins.

This year, hike, bike and jog-to-work rallies and solar home tours were added to demonstrate pollution-free aids to solving the energy crunch.

For the most part, Earth Day '80 was intended to be quieter than the activist days of a decade ago, both to reflect the changing times and to show more broad-based community involvement.

Instead of protest rallies, more small seminars were being held on topics ranging from acid rain to toxic chemicals. "This is a different time and a different level of activism," said Mike McCabe, Executive Director of Earth Day '80. "We specifically focused on more community-based events because we felt they would be more useful."

While the first Earth Day was mostly a one-day event, many cities this year launched their activities over the weekend to make it a week-long affair.

Various environmental leaders summarized the meaning of Earth Day. Perhaps its biggest impact has been in the consciousness of the voting public, several believed. Bill Butler, general counsel of the Environmental Defense Fund, drew an analogy with an earlier movement: "As the civil rights move-

ment of the 1960's heightened the consciousness of the population at large so that in the 1970's civil rights considerations automatically became part of social decision-making, so in the 1980's environmental quality will be an automatic factor in the society's public decision-making. That, I think was the major contribution of the environmental movement in the 1970's."

Douglas Costle, EPA Administrator agreed. "Ten years ago there were only a handful of adults in this country who knew what the word 'ecology' meant. Today every schoolchild is taught ecology. Environmental protection is becoming a permanent part of our political value system."

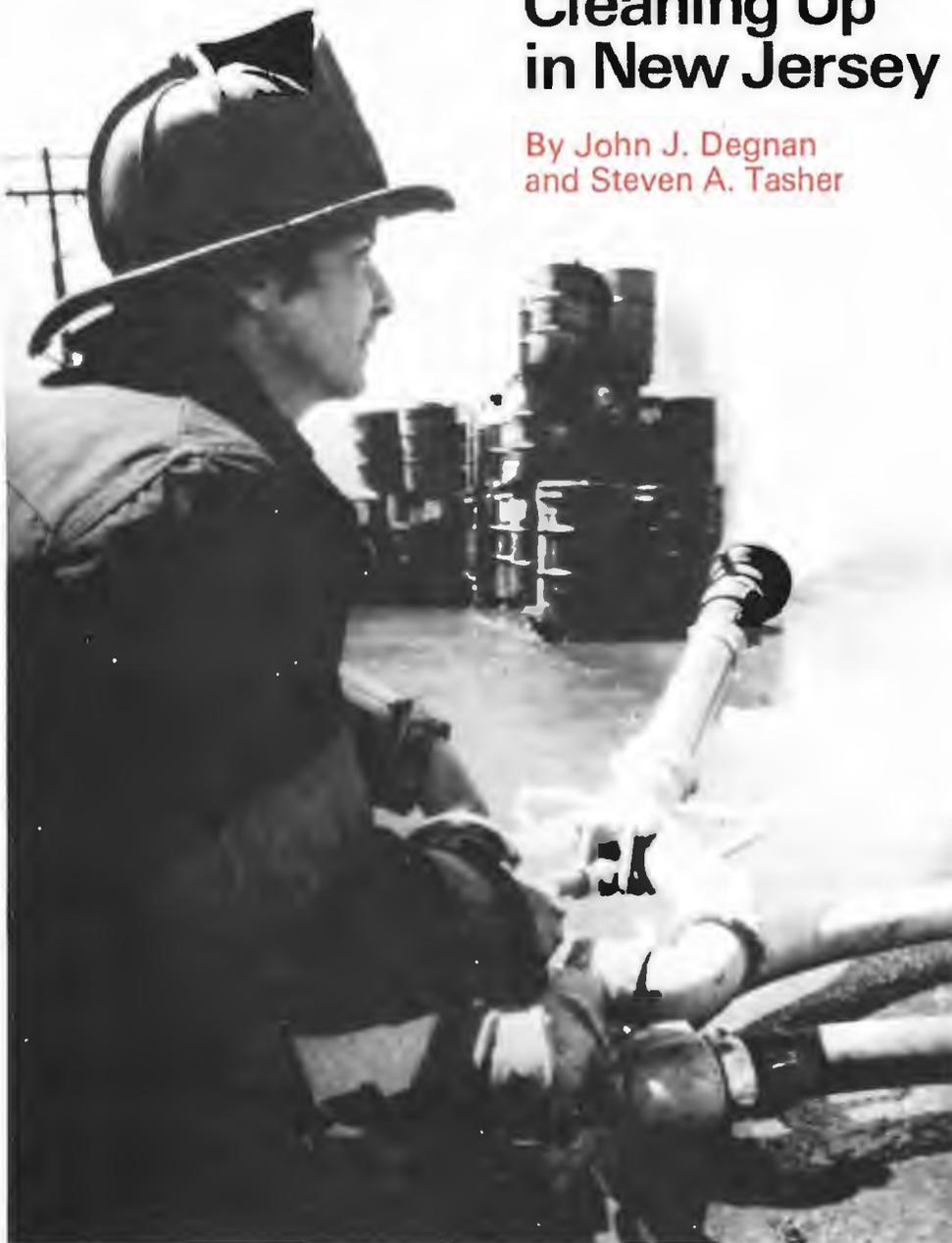
Galdwin Hill, former national environmental correspondent of the New York Times, had this comment in a column in the Times: "Because 'environment' is not some absolute stage of grace but an infinite series of choices on how we alter our natural heritage, the quest for environmental quality is not a cause that can ever be counted as 'won,' so that everybody can sit back and forget it. But it is a cause that cannot be lost, given reasonably wise choices. One way or another the effort will continue. The record of 10 years shows plainly that the crystallization of public concern evinced in Earth Day 1970 was a bell that cannot be unringed." □



Award to EPA for greatest participation in Washington, D.C., Earth Day bike-in is received by William Drayton, Jr. (left), EPA Assistant Administrator, from Dennis Christopher, star of the bicycle movie, "Breaking Away."

Cleaning Up in New Jersey

By John J. Degnan
and Steven A. Tasher



Fireman fights blaze in Elizabeth, N.J., where drums of chemicals exploded at waste dump site.

Explosions and fire ripped through the dump site of the Chemical Control Corp. April 21, the eve of Earth Day, in Elizabeth, N.J., sending drums of flaming chemicals flying through the night sky and spewing black smoke over a 15-mile radius. Firemen in gas masks battled the blaze for hours. The background of the Chemical Control hazardous waste disposal case is one of those reviewed in the following article.—Ed. Note.

The New Jersey Department of Environmental Protection has estimated that ap-

proximately 15,000 firms in the State, including many of the Nation's largest manufacturers of chemical and petrochemical products, generate potentially hazardous waste materials. During 1977, these firms produced in excess of 1.2 billion gallons of liquid chemical waste and 350,000 tons of semi-solid chemical sludges. And there is no indication that this production has abated.

The problem of improper disposal of hazardous wastes is particularly acute in New Jersey because of its dense population, the highly industrialized nature of its economy and its position along the north-east transportation corridor. Furthermore,

the State has a relatively rainy climate and a topography rich with rivers, lakes and wetlands, all of which make it practically impossible to safely store wastes in the ground. EPA estimates that in New Jersey more than 100 old abandoned landfills may exist that pose threats similar to those posed by Love Canal. This danger has made the State particularly sensitive to the efforts to solve this problem.

The magnitude and severity of illegal toxic waste disposal in New Jersey came to light as the result of investigations undertaken by our office and the United States Attorney's Office. During the course of these investigations, it became apparent that the collection, transportation and disposal of toxic wastes, as well as the operation of dump sites, are integral parts of an illicit industry which reaps big profits. This bootleg disposal industry is made up of intricate networks of small, single-function companies operating under the protection of large parent corporations.

The difficulties in legitimate waste disposal lead to the potential for abuse. Toxic liquid waste may be mixed with non-toxic solid waste and unlawfully buried at landfill sites. At some dumps, liquid chemical wastes are emptied into pools and ditches and subsequently leak into adjacent ground or surface water. "Midnight" dumping of hazardous wastes under cover of darkness into municipal sewer systems or directly into waterways is another common method of disposal.

Perhaps the most imminently dangerous situation we have uncovered in New Jersey is the practice of accumulating toxic wastes in "transfer" stations. Transfer stations are warehouses or industrial lots where drums of toxic liquids are stored pending disposal. Their existence allows collectors, who are often connected to those who own both the transfer station and the landfill, to circumvent the State's manifest system which is supposed to record the movement of liquid hazardous wastes from "cradle to grave." The transfer station, purported to be a treatment facility, records the receipt of the waste indicating that it has been recycled or incinerated when, in fact, the waste is stored awaiting quick burial in a landfill.

Since recognizing the problems created by improper disposal of toxic wastes, New Jersey has mounted an extremely aggressive enforcement effort to protect its citizens and their environment. The Economic Crime Section of the Division of Criminal Justice has secured indictments against individuals and corporations as the result of toxic waste investigations. These defendants have been prosecuted for creating and maintaining a common law public nuisance, for violating the New Jersey

Water Pollution Control Act of 1977, for collecting solid waste water without the required Certificate of Public Convenience and Necessity, and for conspiring to commit these illegal activities.

Within the Economic Crime Section there has been established a Toxic Waste Investigations and Prosecution Unit. The small staff of this unit has developed sophisticated investigative techniques necessary for the effective prosecution of toxic waste violators. Aerial and photographic surveillance have proved invaluable in toxic waste investigations. The unit has also established a central intelligence system for Federal, State and local agencies concerned with toxic wastes.

Civil prosecution has also proven to be an important enforcement tool. Litigators from the Division of Law have aggressively advocated the State's interest in a series of nationally recognized cases. Two examples illustrate the problems and benefits associated with these prosecutions.

Chemical Control is the owner and operator of a chemical waste disposal facility located on a two-acre site in Elizabeth, New Jersey. The operation was conducted in such a manner that drummed wastes were collected at a rate that far exceeded the company's desire or ability to dispose of them. When our office first became aware of the situation it was estimated that between 30,000 and 50,000 55-gallon drums of waste had accumulated on the site. Many of the drums were decaying and their contents were leaking on to the ground and into the nearby Elizabeth River. There was also the constant danger that the drums might explode or burn, releasing noxious and potentially lethal fumes over a populated area.

The State instituted legal action against the corporations and individuals responsible for the operation of the facility, alleging that it was operating in violation of several State statutes. After a series of proceedings, including the imposition of a temporary restraining order closing the facility, the court held in favor of the State, concluding that the site constituted a serious threat to the public health and welfare. In an unprecedented action which has attracted the attention of Attorneys General and environmental enforcement officers throughout the country, the judge barred management from operation of the facility, appointed a receiver to oversee the operation and cleanup the site, and froze the assets of the cooperation involved.

The chemicals are being removed from the Chemical Control site through a series of cooperative efforts. Generators who have already paid once for disposal are removing their own waste from the site. The State Spill Compensation Fund, which was established by the Legislature to deal with discharges of hazardous substances

into the waters of the State, has paid for stabilization and some immediate cleanup. Federal, State and local officials have contributed as have representatives of the chemical industry. Nevertheless, funding the cleanup (which may still cost millions of dollars) will remain a problem since indications are that defendants' assets are not nearly enough to cover cleanup costs.

A similar case arose at the A to Z Chemical Company in New Brunswick, New Jersey. At that facility, four to seven thousand drums of toxic and flammable wastes were leaking and stored haphazardly throughout the site. The State obtained an Order to Show Cause with temporary restraints requiring the owners and operators to safely remove the waste. When they failed to do so, the court ejected management, appointed a joint receiver (an engineering firm and an attorney) and froze all corporate assets.

These cases underscore several problems associated with regulation and prosecution of typical members of the industry. Owners and operators often shield their activities behind a corporate veil and, in some cases, the bankruptcy laws. While extensive litigation may eventually provide sufficient funds to clean the site, the enforcing agency may be responsible for immediate cleanup costs. And in most cases initial costs for site inspection, monitoring, and a comprehensive cleanup plan will be borne by the State with little hope for ultimate recoupment. In New Jersey these funds may be provided by the State Spill Compensation Fund.

At the heart of the problem is the unavailability of safe and accessible disposal sites. The huge expense of responsible disposal, due in part to a lack of proper facilities, makes illegal disposal extremely lucrative. At the same time, the absence of appropriate disposal sites is a frequently asserted defense and judges may be reluctant to impose penalties if they perceive that the defendant has no choice.

These situations illustrate the strong need for remedial legislation and a stepped-up enforcement effort. Toward that end, Governor Brendan Byrne has announced a comprehensive four-part program aimed at coping with the problems of illicit disposal of hazardous wastes.

First, the plan created a strike force composed of members from the various divisions of the Department of Law and Public Safety including the Attorney General's Office and the State Police, as well as other Federal, State and local agencies. The strike force, established by an EPA grant of \$500,000 matched by \$110,000 in State funds, has enabled the various agencies to expand their cooperative efforts to detect, investigate and prosecute violators,

to develop improved civil and administrative remedies for the mishandling of toxic wastes, and to work toward the development of a clean, efficient and economic system of disposal. It is the first such program funded by EPA and is expected to serve as a valuable model for the rest of the country.

Second, based on the position that the generators of toxic wastes should bear the cost of the spill, the State has amended its Spill Compensation and Control Act to create a cleanup fund for abandoned dump sites and mismanaged disposal areas. The fund is financed through the imposition of a fee on toxic waste generators based upon their production. The system guarantees the availability of cleanup funds despite the financial condition of the violator. The Act also imposes treble damages upon uncooperative violators.

Third, the State has amended its Solid Waste Management Act to impose stiff fines and jail sentences for those convicted of illegal disposal. In New Jersey, a prison term of up to five years and a fine of \$25,000 per day may be assessed in such instances.

Finally, the Governor appointed a special advisory committee representing government, industry and environmental interests, to study the development of regional hazardous waste treatment and disposal facilities to meet the State's industrial commitment. That report, which has recently been promulgated, is presently under review in the Governor's office.

One unfortunate consequence of New Jersey's comprehensive enforcement and legislative efforts has been an increase in the illegal dumping of hazardous wastes in our sister states. States in the Northeast region which lack comprehensive environmental laws and trained investigators have become magnets or natural targets for those who illegally dispose of toxic wastes. As a result, the States of the Northeast region have grouped together to share information on legislation and enforcement techniques and to exchange technical assistance on methods of solving the problem.

New Jersey has long since recognized the dangers created by the improper disposal of toxic wastes and has implemented innovative legal remedies, both civil and criminal. In addition, the State has acted responsibly to examine and solve the core question of developing scientifically appropriate systems on the proper disposal of hazardous wastes. We recognize, however, that the ultimate solution is regional in scope and requires the cooperation of the States and the Federal government. □

Degnan is Attorney General of New Jersey and Tasher is Deputy Attorney General.

Carrying Out the Law



An Interview with Jeffrey Miller Acting Assistant Administrator for Enforcement

Q Could you tell us how much was collected in penalties last year as a result of EPA enforcement action?

A Penalties assessed in consent decrees or court orders surpassed \$30 million last year, a substantial increase over previous years. In many consent decrees, the penalties are offset by expenditures for environmentally beneficial projects: environmental controls above and beyond those presently required by law, specifically designed research projects, etc. Our policy in these court actions is to extract penalties that remove the economic benefit that polluting sources have derived from delayed investments of capital to install, operate, and maintain pollution controls, investments that would have been made had the controls been installed in a timely manner. In addition, of course, millions of dollars have been assessed in administrative penalties under Acts incorporating such provisions.

Q Are the courts sympathetic in environmental enforcement cases?

A We have a very high success rate in court. Judges are sensitive to environmental problems. They breathe the air and drink the water and read the newspapers and I think they are very responsive to our problems.

Q What about criminal charges? Is this something that you emphasize as an important tool?

A Yes. The appeal of criminal prosecutions in a regulatory program is that they encourage individuals to carry out their regulatory responsibilities far more effectively than a civil action against a corporation would. In a civil action a corporation may have to pay a fine and be put on a court-ordered schedule to comply with whatever requirement is being vio-

lated. With a criminal action individuals in that corporation stand a chance of paying fines themselves or going to jail. As this happens to environmental managers around the country others very quickly feel the heat. This reinforces their commitment to carry out the responsibilities within their own corporation.

Over the last few years we have significantly increased the number of cases that we refer to the Justice Department for criminal action. Back in 1975 I think we only had four or five such referrals and last year we had 23. I expect this is one area in which we'll seek continued growth.

Q How about the rate of prosecution where environmental laws are being violated—is it increasing?

A We have had about 1,200 referrals to the Justice Department for civil and criminal actions during the life of the Agency. Two thirds of those have been in the last three years. I mentioned earlier that the rate of criminal referrals has increased greatly over the last 4 or 5 years. Court actions, however, are not the whole story. Much of the enforcement that we do is administrative and the assessment of the administrative penalties and the issuance of administrative orders has greatly increased over the last several years. The amount of enforcement activity is on the increase, and will continue to increase. We are primarily limited by the number of people that we have working in the area.

Q How is industry accepting EPA's enforcement role compared to 10 years ago?

A I see two main reactions by industry to environmental requirements. First, industry is increasingly resistant to the establishment of new requirements: lobbying hard in Congress against new legislation and litigating in court almost all new regulations and standards. On the other hand, most corporations are good citizens and make every effort to comply

with environmental requirements once they are established. Most large corporations have sizable and competent environmental staffs and many have internal compliance auditing programs. As a result, over 90 percent of major industrial sources have installed required air and water pollution control equipment.

Q Public interest groups are sometimes challenging EPA's actions in court. Is this resulting in better laws and better enforcement?

A Most of the suits by public interest groups have involved standard-setting rather than enforcement. Typically, their aim is to force the Agency to accelerate its schedule for promulgating standards, or to address problems it has neglected. Many of those suits have been successful. For instance, the whole Prevention of Significant Deterioration program under the Clean Air Act resulted from a suit initiated by the Sierra Club. The Agency's strategy to address toxic water pollutants from industrial sources resulted from a suit by the Natural Resources Defense Council. So some of these suits have significantly shaped current environmental programs.

Although few public interest groups have filed enforcement suits, some have been very successful. For instance, Rivers Unlimited, an environmental group in Ohio, filed suit to force EPA to revoke its approval of Ohio's permit and enforcement program for water quality. The settlement of that suit resulted in a great improvement in the Ohio program including an increase in the resources being devoted to it. Other examples are the suits filed by the Natural Resources Defense Council and the State of Alabama against TVA for violations of Clean Air Act requirements. EPA intervened as plaintiff in the cases. The settlement of the cases, which has been entered in the Federal district court in Alabama but is still pending before the Federal district court in

Tennessee, establishes schedules to meet air pollution requirements for all of TVA's power plants. TVA's plants are such significant air pollution sources that their cleanup will result in a decrease of about 15 percent of sulfur oxides emitted from all electric utilities in the southeast.

I have been surprised that there haven't been more citizen suits in the enforcement area.

Q What have been the most significant achievements in EPA's enforcement effort?

A You see the biggest achievements in the more mature programs, especially in the air and the water programs. We have achieved a better than 90 percent rate of compliance by major industrial sources with basic Clean Air and Clean Water Act requirements. This generally high level compliance is yielding a number of environmental improvements—we have only a handful of non-attainment areas now for sulfur oxides in air, and particulate levels in air are down greatly. Many river segments polluted mainly by industrial sources are much cleaner now. In Maine, for instance, where the rivers were polluted primarily by wastes from pulp and paper mills, the Atlantic salmon are being seen for the first time in thirty or forty years. That kind of thing is happening around the country.

Particular enforcement actions can result in dramatic local improvements. For instance, the settlement of an EPA suit against U.S. Steel in Pittsburgh will result in about a 50 percent reduction in particulates in the air over the Pittsburgh area. I think the environmental improvements we are observing nationally are produced by the generally high level of compliance that we have achieved.

Q Are there many major gaps in EPA's environmental enforcement authority?

A There are significant gaps. One is in the hazardous waste area. The Resource Conserva-

tion and Recovery Act will help prevent future Love Canals by controlling hazardous wastes from cradle to grave. But the Act does not address existing Love Canals. All we have now to deal with existing hazardous waste dumps is a patchwork of emergency authorities and a very small remedial fund under Section 311 of the Clean Water Act. These authorities are not nearly sufficient to do the entire job. That is the reason that we need legislation to set up a "superfund" to give us the money to immediately clean up hazardous waste sites where necessary, and to give us more effective judicial remedies against the people who are responsible for the hazards in the first place. The Administration is working with the Congress to develop such legislation.

The second main area is our inability under the Clean Air Act to get at the problem of acid rain. The Clean Air Act primarily addresses health-related problems from sources in a particular area. Acid rain is generally not a health problem, and it results to a significant degree from air pollutants transported far away from the area in which they were generated. The whole structure of the Clean Air Act is such that it just doesn't correct these kinds of problems. I suspect that we will see some new authorities placed in the law to deal with acid rain in 1981 when Congress reviews the Clean Air Act again.

Q Will regulatory reform make it easier to obtain compliance with environmental cleanup regulations? The bubble concept, for example, which permits a trade-off of pollution sources inside a plant if overall cleanup standards are met?

A In the short term, reforms like the bubble concept may be somewhat disruptive because they force changes in the way we address problems. They are complicated and they have to be assimilated.

In the longer range, as we become able to deal with new regulatory approaches on a more routine basis, their promise of encouraging compliance and making it easier will be fulfilled. For instance, the whole idea of the Bubble Concept is that by experimentation and innovation an industry can achieve environmental objectives in a cheaper and easier way. Obviously, if it can do so, the industry will be less resistant to moving forward and complying. Also to the extent that internally-developed innovation is used by a company as a means of compliance, the company has a psychological stake in its success. Further, when innovations resulting from something like the Bubble Concept produce cheaper ways of compliance, these innovations might be applied elsewhere.

Q Are cumbersome legal proceedings making it hard to obtain quick, effective environmental actions?

A For routine kinds of problems the very best mechanism is an administrative penalty. We have that in a number of areas. Under Section 311 of the Clean Water Act, for instance, we may assess administrative penalties for oil and hazardous material spills and for failure to have spill prevention, containment, and control plans. We have administrative penalties for violations of the Toxic Substances Control Act and the Federal Insecticide, Fungicide and Rodenticide Act. A similar provision is Section 120 of the Clean Air Act which establishes penalties for violations by major sources, although the mechanism is somewhat cumbersome. In general, these are fairly quick, precise, clean remedies.

Court cases do take a long time. They can last for years. The Reserve Mining case lasted for many years, but it did succeed in ending the depositing of taconite tailings into Lake Superior. That result could not have been achieved in any other way. More routine court cases obviously don't last that long, but nevertheless they do take

time. On the other hand, there is really no substitute for the injunctive relief that you can get from a court and there's certainly no substitute for the effect that a criminal case has on the industrial community.

So despite the fact that court actions are resource intensive and will take a long time, they are essential.

Q Do you see environmental mediation as a major tool in settling environmental differences that might otherwise wind up in court?

A Yes—but not so much in the enforcement area. In enforcement you are talking about a rather specific legal requirement and you either meet it or you don't, so there's not too much to mediate. Where I see it being used is in broader, more complicated legal areas, for instance to resolve the local objections on the siting of a new industrial plant. Mediation may even be useful in the standard-setting area but I don't see it as being widely used in enforcement.

Q Do you encourage innovations in settling enforcement cases such as environmental protection trust funds set up with penalty monies?

A Yes. We are constantly looking for better ways to get our job done and, using the powers of the courts, there is a lot of room for innovation.

I think the environmental trust fund idea emerged in the Allied Chemical case, where the company partly offset a penalty which had been assessed by the court by establishing a trust fund for environmental improvement.

We have picked up that idea and we've used it in several large cases, including settlements with the cities of Philadelphia and Los Angeles and with several steel companies. The device enables us to take money from environmental pollution fines that would otherwise be lost in general revenue

funds and use it to make specific environmental improvements.

We have also begun to use receivers or special masters in judicial actions where a violator has historically been unable to manage the particular project at issue. For example, in our suit against the City of Detroit, one of the main problems was that the cost sharing contracts that Detroit had with the outlying communities for processing their wastes were outdated and did not generate enough revenue for Detroit to move forward with secondary treatment. The court appointed a special master who updated all of those agreements to produce sufficient revenues. This was an effective solution.

A third area of innovation is the whole hazardous waste enforcement program in the Love Canal case and other similar situations. We are using emergency and common law authorities that two or three years ago we would not have dreamed of applying on a wide-spread basis. We've done a lot of legal thinking and innovation to establish a program of judicial actions in areas where we have not yet received specific statutory authority.

Q What parts do EPA and the Department of Justice play in working together in environmental enforcement cases?

A The Department of Justice is EPA's lawyer in court and we have a memorandum of understanding with Justice as to how we work together. Under that agreement EPA is a full participant in legal proceedings and our lawyers can appear in court alongside the Department of Justice attorneys. We work primarily with the Land and Natural Resources Division in the Department of Justice, particularly with the Pollution Control Section which handles most of our cases, and with the new Hazardous Waste Section which handles our hazardous wastes initiatives. In addition we are beginning to work with the

Criminal Division of the Department on some of our criminal referrals.

Q How does EPA work together with the States?

A The environmental laws that we administer have a decided Federalist bent to them and envision States carrying out the bulk of environmental control and enforcement. Our efforts are to encourage States to assume a large enforcement rule and to give them assistance in doing so. Many States are very aggressive in this area. The State of Wisconsin, for instance, took all of the major water source violators into State court and did so very successfully. Some States aren't quite as enthusiastic in the enforcement area and our role is proportionately greater. But we see an increasing willingness on the part of the States to maintain a prominent enforcement profile and we are trying to encourage that.

Q What is the status of EPA's permits consolidation initiative?

A Our efforts to streamline the permit process have produced some specific accomplishments. First, regulations to consolidate the procedures governing five of EPA's permit programs should be in the Federal Register by the time this Journal is published. The regulations provide a common set of procedures for these programs within the limitations set by the different laws. The new permit application form has one part requesting general information needed by all programs and subparts with questions specific to each program.

The regulations also enable States which have been granted permit authority to consolidate their programs, if they want to. Discussions have been held regarding State experiences with consolidated permitting as well as State interest in adopting a consolidated procedure. There are provisions for joint Federal/State actions (public notices, hearings, etc.) where both a State and EPA have permit authority over a particular facility.

Every region has a single contact for new source permits and coordination of permit writing activities in the Regions.

We are working with other agencies, such as the Department of the Interior, to consolidate permits for coal mining and other operations where both agencies have jurisdiction.

We hope to provide consistency and reduce overlaps and duplication of work by industry as well as by States and EPA—a process that will produce additional benefits for the environment.

Q How does surveillance and analysis fit into the EPA enforcement program?

A The Surveillance and Analysis Divisions in our regional offices are the enforcement shock troops. They are the inspectors that detect violations and find a reason for them. Without good professional Surveillance and Analysis Divisions there would be very little enforcement.

Q What is the overall role of the Office of Enforcement?

A Obviously, our role is to enforce the law. But the process is much more complicated than that—the private sector, the Congress, the States, and EPA all work together to understand environmental problems, and to produce a fabric of environmental laws and regulations to deal with them. State environmental agencies and EPA's regional offices work together to spot and correct violations of these environmental requirements. The Office of Enforcement simply makes sure that the job gets done.

Q What are the biggest enforcement tasks before EPA now?

A Our biggest challenge is absorbing the increasing enforcement workload resulting from all of EPA's new programs without a commensurate increase in money and people. Our tasks are much greater

than they were five years ago. We have new laws to enforce, including the Toxic Substances Control Act and the Resource Conservation and Recovery Act. We've also created a special enforcement task force to clean up existing hazardous waste sites. Even under the older acts, the Clean Air and Water Acts, our enforcement responsibilities have greatly increased. Each time EPA establishes a new standard or requirement there is an increase in the enforcement workload, and our resources have not grown to match. This presents us with a great challenge to devise new and more efficient ways to do our work and to establish strict and sometimes painful priorities.

There are also a number of more specific areas which will present a great challenge over the next few years. One is obviously the effort to address the worst hazardous waste problems—the Love Canals of the world—and, related to that, setting up workable systems to enforce the forthcoming Resource Conservation and Recovery Act regulations.

Another challenge is to implement Section 120 of the Clean Air Act. This involves assessing administrative penalties against hundreds of major air polluters that are in violation of Clean Air Act requirements, penalties calculated to take away the economic benefit the polluting sources derived from delaying compliance.

Bringing major publicly-owned treatment works into compliance with water pollution requirements is also a major challenge, especially since the low compliance rate for this segment of sources is connected to some extent with the failure of the Federal government to provide the necessary construction grant funds to get those facilities built on time.

Also, our mop-up enforcement operations against major steel and electric companies, primarily in the air pollution area, present significant challenges. □

This interview was conducted by John Heritage, Assistant Editor of EPA Journal.



Enforcement at the Grassroots

The success of environmental enforcement depends on action at the grassroots. It is in the communities and rural areas that goods are produced and consumed; vehicles sold, maintained, and fueled; wastes generated and disposed of. The fate of clean-up laws depends on whether they are upheld or violated in these localities, as the country goes about its daily business.

Because EPA's regional offices operate at the grassroots, they do most of the Agency's enforcement work—the surveillance and analysis, courtroom support, follow-up to insure compliance. Working with the States, they handle most of the

cases—an industry exceeding a pollution limit, illegal dumping of hazardous wastes, a gas station pumping leaded fuel into an unleaded car.

In the report that follows, each of the 10 EPA regional offices explains a case in which it has been involved. The cases range from leaky oil pipelines to tainted drinking water. The outcomes often aren't just fines and cleanup directives. Innovations, energy savings, and better cooperation between discharger and regulator frequently result.

These profiles of enforcement cases were prepared by the offices of public awareness, information and enforcement in the EPA Regions.

Saving Energy

Officials of EPA and the Brown Company, a Berlin, New Hampshire pulp and paper-making concern, reached an agreement which resulted in protection of air quality, collection of a substantial civil penalty, and which allowed the company to burn more economical higher sulfur fuel.

In 1978, EPA's New England Regional Office sought legal action against the Brown Company for violations of the Clean Air Act. The company was burning fuel oil containing more than the 1.0 percent sulfur limit established by the New Hampshire State implementation plan for achieving air quality standards.

Brown's boilers burned approximately 50.4 million gallons of sulfur-containing fuel annually, making Brown the single largest source of sulfur dioxide pollution in Berlin. Air quality monitors recorded violations of primary (health protecting) air quality standards for both sulfur dioxide and suspended particulate matter.

Thus EPA referred the case to the Department of Justice. In response, Brown proposed a plan which would halt the air quality standards violations without requiring the use of low sulfur fuel. After 16 months of negotiations, EPA, the State of New Hampshire, and the Brown Company entered into a consent agreement in which Brown agreed to an extensive air pollution abatement program which was expected to solve air pollution problems in the Metropolitan Berlin area while permitting Brown to use 2.2 percent sulfur fuel. The cleanup plan, which cost the company an estimated twelve million dollars, included construction of taller smokestacks to better disperse air pollutants, installation of additional air pollution control equipment, and construction of a new combination wood waste/oil power boiler.

The Brown Company also agreed to pay a \$66,000 penalty for violating Federal air pollution regulations. Twenty thousand dollars of the penalty imposed on the Company was allocated to the New Hampshire Air Resources Agency to monitor Brown's compliance with the terms of the decree.

The new boiler will replace two existing oil-fired power boilers resulting in a saving of about 11 million gallons of oil a year. In addition, the combination boiler will solve a solid waste problem by disposing of large amounts of bark which are generated by the pulp and paper-making process. The new boiler will also avert water pollution problems resulting from breakdown of the bark and leaching of the products into drinking water supplies in the area.

The construction of the new boiler is subject to Prevention of Significant Deterioration Regulations which are designed to protect clean air areas. EPA found that the construction and operation of the new boiler would not violate PSD regulations or Federal ambient air quality standards and issued Brown Company a PSD permit. The permit allowed the company to begin construction of the new boiler and to move forward with its environmental cleanup program, to be completed by December, 1981. An expanded ambient air pollution monitoring system will be maintained by the company for twelve months after completion of the project to demonstrate that clean air standards are being attained in Berlin.

William R. Adams, EPA Regional Administrator, noted, "This agreement is a very satisfactory one, resulting in substantial environmental benefits—not only in terms of air quality, but also water quality and solid waste management—as well as energy savings. I believe that this case is an excellent example of how government and business can work together to develop solutions which satisfy our energy and economic needs while protecting the environment and the public health."

Waste Controls

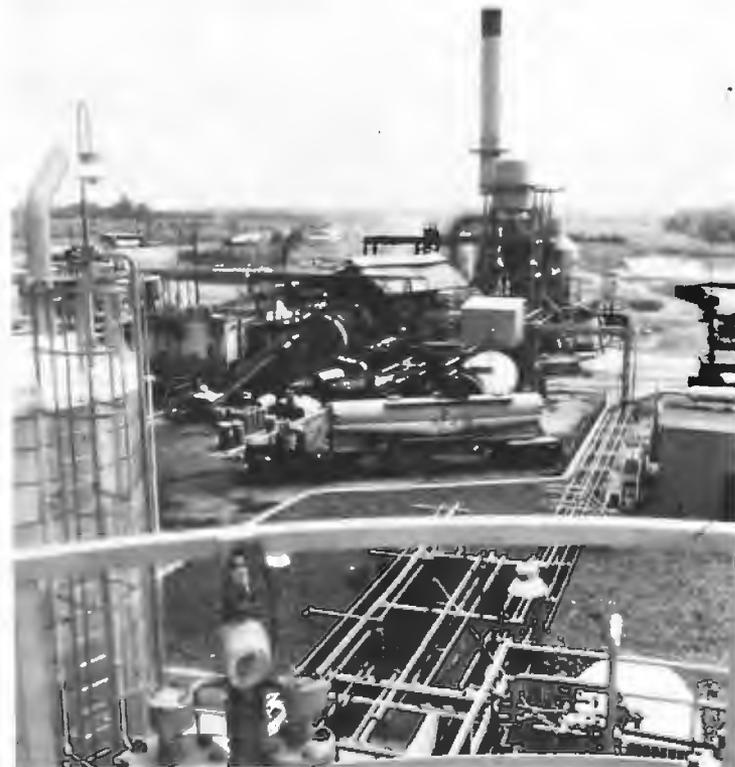
A precedent-setting consent agreement was reached last March regarding the incineration of hazardous waste materials. The agreement, arranged by EPA's Region 2, is with Rollins Environmental Services, Inc. of Bridgeport, New Jersey.

Rollins Environmental Services is a waste disposal facility which began operation in 1970. Wastes are treated and disposed through physical, chemical, and biological methods, as well as incineration. In 1977, EPA issued a Notice of Violation charging that the Rollins incinerator was not being operated in accordance with air pollution laws. In November, 1978, EPA and the Company entered into a Consent Order to correct those violations. A final consent agreement resulted from charges that during 1979 the incinerator was not consistently operated within the temperature limits of that Order.

Charles Warren, Region 2 administrator, indicated that the Rollins agreement is ex-

pected to become a national model for controlling the operation of hazardous waste facilities. The action, taken under the Clean Air Act, anticipates the regulations now being developed by EPA under the Resource Conservation and Recovery Act. The agreement imposes not only penalties for past violations, but it also sets forth strict operating limits for the incinerator to ensure that chemical wastes are thoroughly destroyed with no adverse impact on the environment. In addition, stiff financial penalties are triggered automatically should the limits be violated, precluding delays if EPA had to go through the courts.

The consent agreement fulfills part of a public commitment made last year by EPA and the New Jersey Department of Environmental Protection to correct past operating violations at the Rollins facility and to conduct a thorough environmental assessment of the installation. The assessment is now underway, directed by the New Jersey department, which is also pursuing the correction of other operating deficiencies.



Hazardous waste incinerator owned by Rollins Environmental Services, Inc. in Bridgeport, N.J.

Warren pointed out that the consent agreement was worked out with the full cooperation of Rollins itself. "All levels of government and the industries that generated and dispose of hazardous waste must recognize that the public simply will not accept disposal facilities unless they are constructed, operated and maintained with a proper regard for human health and the environment," Warren said. "This agreement represents the kind of close control that will have to be imposed if we are to achieve this public confidence."

Warren also cited the regulations now being developed by EPA under the Resource Conservation and Recovery Act, and the many initiatives already undertaken by New Jersey to control hazardous wastes.

Rollins was fined a penalty of \$65,000 for the violations. It is also required to follow strict operating conditions when incinerating priority wastes. Priority wastes are defined as any concentrations over one percent of the waste aggregate of the following: benzene, cyclohexane, dimethyl terephthalate, ethylene amine, 1,4 dioxane, polycyclic aromatics, aromatic amines, halogenated hydrocarbons, cyano-wastes (both organic and inorganic), herbicides, and pesticides.

The wastes must be incinerated only at temperatures of 1750°F and higher for specified durations.

These operating conditions are designed to ensure complete, safe destruction of the wastes. The agreement also required the company to install a complex system of sensors on the waste stream feed, recorders and strip charts, automatic shut-offs and alarms to ensure operating conditions are met. In addition, monthly reports and analyses, including recording charts, must be sent to EPA.

Should the company violate any of the specified operating conditions, penalties ranging from \$1,500 for a minor violation to \$25,000 for a full day's violation will be automatically imposed without the need for

further legal actions. In announcing the action, Warren emphasized that proper hazardous waste disposal remains a major problem to be worked out at all levels of government. "If we wish to avoid hazardous waste disasters such as Love Canal, Chemical Control Company, or the midnight dumpers, we must have well-planned, safely operated disposal sites that will be acceptable to the public."

Reducing Oil Spills

Eureka Pipeline Company operates an extensive petroleum pipeline system in West Virginia which for many years has been the leading source of oil spills in the state. For example, as recently as last year, Eureka was responsible for over 50 percent of all reported oil spills in the state.

EPA has been trying to find a way to get Eureka to take some positive action to reduce spillage. Although a 1972 agreement between EPA and Eureka had resulted in a substantial decrease in the amount of oil spilled, the reduction seemed to be a result of the company removing over half of its lines from service. The number of individual spills remained the same, as did the volume of oil spilled per mile of pipe in operation.

In April 1978, the EPA Region 3 staff in Philadelphia became aware of what appeared to be a clear criminal violation of the Clean Water Act on the part of Eureka: failure to report an oil spill to EPA. Spill reports to State authorities are routinely forwarded to the EPA and are usually checked against reports filed directly with the Agency. One set of Eureka spill reports forwarded to EPA by West Virginia did not appear in the Agency's records.

Further checks revealed that a large number of spills reported to the State by Eureka had not been reported to the EPA.

In addition, the number of spills reported by Eureka to the EPA had dropped suddenly in 1977 and 1978 when 19 and 25 spills respectively had been reported. In comparison, for the period 1972 through 1976, Eureka had reported an average of 94 spills per year.

EPA legal staff felt the matter was serious enough to take enforcement action. A case was prepared and referred through the Department of Justice to the U.S. Attorney in the Southern District of West Virginia in January 1979.

When the U.S. Attorney confronted Eureka with the facts of the case, the company readily admitted its guilt. However, it claimed that the non-reporting was not deliberate. A new employee had not understood that the spills had to be reported to both the State and EPA.

Through negotiations, Eureka finally agreed to plead guilty to 15 counts of failure to report. The incidents occurred in August and September 1977. In return for the guilty plea, EPA would not press enforcement action on any of the other non-reporting incidents that occurred up to June 1979.

The case was formally filed in court in June, 1979, and Eureka pleaded guilty before U.S. District Judge John T. Copenhaver, Jr. on August 7, 1979.

Judge Copenhaver issued a judgment and order on September 27. He fined Eureka \$25,000 for five of 15 counts. The fines were paid into the Federal government's oil spill cleanup fund. Eureka was also placed on probation for four years on the other 10 counts. The terms of the probation require that company to reduce the total volume of oil spilled during each of the next four years. In 1980, spills must be reduced to 2,600 barrels, down from the 3,200 barrels spilled in 1979. Spills must also be reduced to 2,000 barrels in 1981; 1,500 barrels in 1982; and 1,000 barrels in 1983.

Should Eureka fail to live up to the terms of the probation, it could be subject to additional fines of \$100,000.

Cleaning the Air

An EPA criminal suit filed against Allied Chemical Company of Ashland, Ky., resulted in a maximum fine of \$925,000. The step also led to the first installation in the United States of the Minister-Stein advanced technology air pollution control system.

The criminal action against Allied Chemical was filed after a long history of non-compliance with Kentucky air emissions standards. The action, filed on June 9, 1976, was based upon Allied's violations of an EPA Administrative Order designed to bring the facility's coke batteries into compliance with applicable particulate emission standards. Allied had consented to the terms of the order in February, 1975.

In October, 1976, Allied pleaded *nolo contendere* to the criminal charges. Of the penalty assessed by the court, \$125,000 was to be paid immediately and the remainder was to be paid for each sixty-day increment that the facility was not in substantial compliance with the terms of the EPA Administrative Order. Allied was ordered to pay \$100,000 for violations during the first increment, after which the court amended the sentence, ordering Allied to pay the remaining \$700,000, if substantial compliance with the Order had not been attained after approximately one year.

Under the pressures of the EPA Region 4 criminal action, Allied Chemical began a program to reduce emissions. The company agreed to meet both the terms of the Administrative Order for its existing battery of coke ovens and, for a battery which was reconstructed, the emission rates for new sources being built in areas of non-attainment.

The effort to achieve compliance included the installation of the Minister-Stein system for air pollution control on the reconstructed battery. The capital costs of the renovation program exceeded \$15 million.

(The Minister-Stein system is used to control air pollution emissions that result from pushing coke out of a coke oven into a railroad car.)

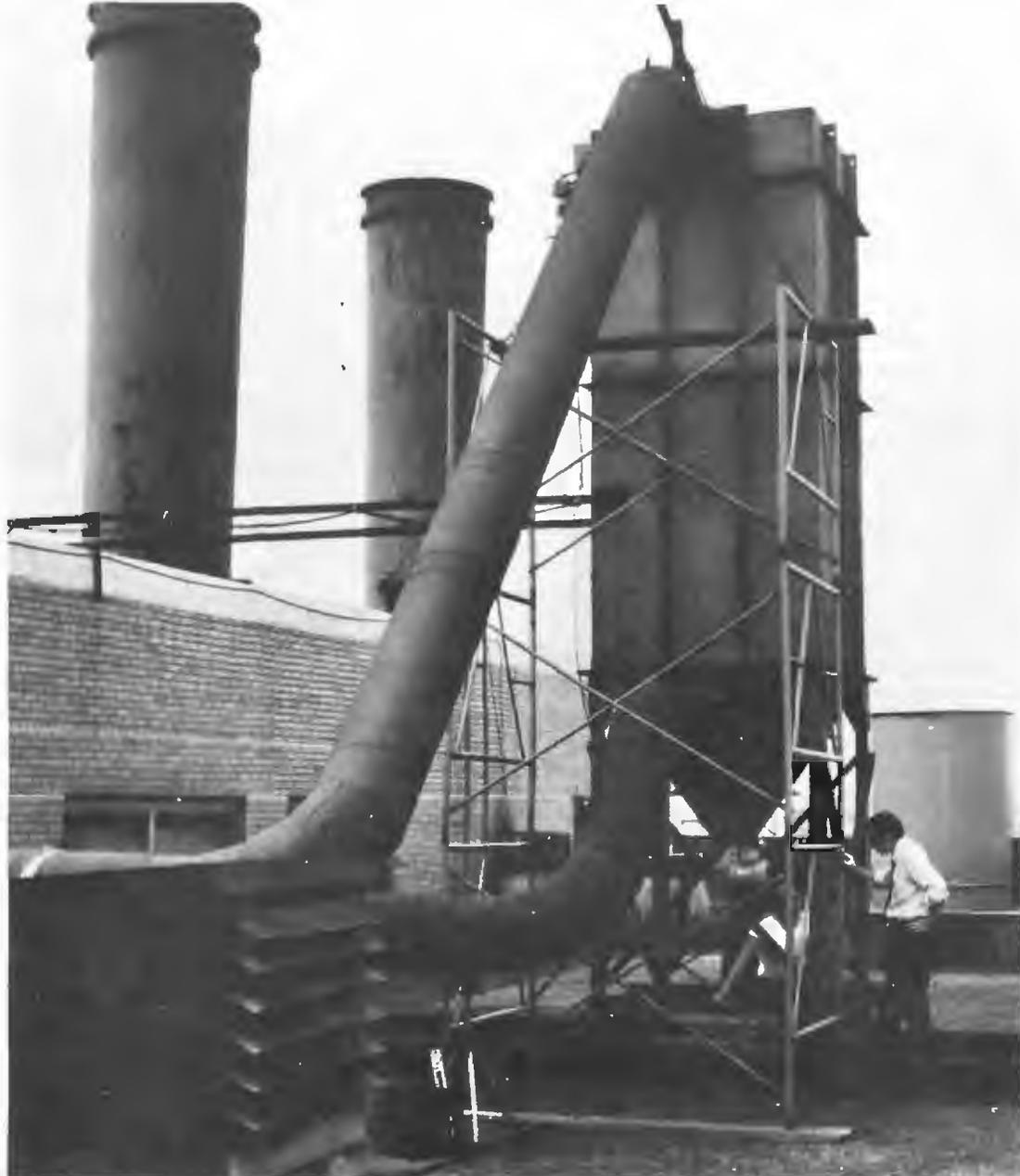
Four years after the initiation of the criminal proceedings against Allied, the facility is in compliance with the Administrative Order except for emissions on one battery. Allied is currently installing the Minister-Stein control system on its existing battery to provide additional controls in an effort to achieve full compliance with the order and the Kentucky emission standards.

Because of its good faith effort to achieve compliance with the court order, Allied has not had to pay any of the additional \$700,000 in penalties. More importantly, the firm made positive steps toward full compliance and the development of a "model" facility. The installation of the Minister-Stein system has created a great deal of interest in the industry and Allied has hosted a large number of visitors from the industry and government agencies.

Innovating to Comply

One of the world's largest automakers has developed a new technology to control air pollution at six of its plants in Ohio, in response to Region 5 EPA and State of Ohio enforcement actions. Savings to the company at one plant alone are expected to exceed \$1 million over what would have to be spent to reach compliance by more costly, available technologies.

In late 1979 Region 5 and General Motors Corporation (GM) announced an agreement in which GM would be given time to install new, cost-saving technology that will reduce particulate pollution from smokestacks at six of its Ohio Assembly plants. The order was final in February 1980; the agreement ended a long-standing environmental dispute and augurs well for that technology to be adopted by other manufacturing installations with coal-fired boilers.



Filters inside sheet metal housing catch emissions of particles from coal-fired boilers at General Motors plant in Warren, Mich.

With this cooperative effort, GM benefits: It is saving an estimated \$7.8 million over what it would spend in order to reach compliance by other, more costly means. The environment benefits: It is estimated that particulate pollution at the six plants will be reduced from previous levels of more than 550 tons per year to less than 200 tons per year with the new technology.

As a bonus, other companies that utilize or convert to coal-burning boilers will also benefit: GM is testing out its new system and is making available engineering data to other companies interested in finding ways to burn coal more eco-

nomically and in an environmentally sound manner.

GM's difficulties in meeting Ohio's stringent particulate standards became known to EPA in the mid-1970's, after the company had applied to the State for permits allowing variances from the State's Implementation Plan (SIP) for seven of its plants with coal-fired boilers. The Region 5 Enforcement Division requested emissions data from the plants, and engineers' analyses indicated that two of the facilities were in violation of State standards.

In October, 1976, Region 5 issued a Notice of Violation of the SIP particulate standard to GM's New Departure Hyatt Bearings Division in Sandusky for alleged emissions of more

than twice the allowable rate in tons per year. Company representatives met with Region 5 representatives in November and again in July, 1977. GM representatives stated that the company disagreed that a violation of Ohio regulations existed, and that GM requested a hearing before the director of the Ohio EPA to challenge his proposed denial of a variance for the company. The State denied that variance.

In April 1977, Region 5 issued a Notice of Violation of the Ohio particulate standard to GM's Packard Electric Division in Warren. At this facility emissions were also alleged to be approximately twice the allow-

able limits in tons per year. Company and EPA representatives met the following month; the same points were raised by GM, and the two notices of violation and their appeals were joined in one legal case.

Although no Notices of Violation were issued to GM's Fisher Body Division installations in Columbus, Elyria, Mansfield, and Hamilton, Region 5 and GM agreed to include the plants in settlement discussions. Together the four plants were alleged to emit more than 300 tons per year of particulates; 147 tons per year are allowable under Ohio's regulations.

In November, 1978, GM applied to EPA for an Innovative Technology Order as provided for in the Clean Air Act. Such an order allows a plant up to five years to comply with emission standards if certain conditions are met. Among these conditions is that the innovative technology achieve greater continuous emission reduction—or the same continuous reduction at lower cost in terms of energy, economic or environmental impact other than air quality—than would be possible with available technology.

GM requested an Innovative Technology Order so that it could install a new system to reduce particulate emissions at 15 boilers at the six plants. The system, called a side stream separator, is a modification of an existing industrial pollution control device for filtering particulates out of boiler exhaust gases before they reach the stack. GM's Fisher Body Division spearheaded development of the side stream separator; its engineers were reported to have worked for more than a year with suppliers to develop the system.

In that system, exhaust gases and particulates from plant boilers are directed through a series of vertical tubes inside conventional mechanical dust collectors. As many as 80 of the tubes, each about six feet long and six inches in diameter, are clustered in each collector. Small steel vanes, or diverters, on the tubes direct the air so that it "whirls" like a cyclone inside the tubes, which causes

the larger particulates to fall into a collection bin.

Most of the remaining particulates are captured on small filter bags that are hung in a collection chamber next to the mechanical collector. This soot is sucked onto the filters through "side stream" exhaust ducts attached to the main collector.

After a thorough investigation of all relevant facts, including public comment, EPA set a 15-step schedule that will bring the six plants into compliance with Ohio's regulations for particulates by July 1981. The company submits quarterly reports of its progress toward compliance for each of the plants' side stream separator systems. At the conclusion of the quarter just past, all plants were proceeding on schedule.

A Chemical Bomb

Near the small town of Reserve, Louisiana, EPA found a chemical time bomb waiting to explode. The fact that it didn't go off is a testimony to the coordinated efforts of EPA employees.

In 1979, International Gasohol thought it had found a perfect site for its new home in an abandoned chemical plant which had once been operated by Southeastern Chemical.

When Southeastern ceased production of a pesticide chemical, it walked away and left things exactly as they were.

There were hundreds of metal and cardboard drums scattered over the site and in the buildings. Most of these drums contained chemical wastes, unused materials, and unsold products. There were more than two dozen large storage tanks left on the site. Some of these tanks still contained highly corrosive acids. No one who was left in the area knew how deadly these acids and wastes were. And, as the years passed, nature was slowly but surely wearing away the outside of the containers. At the same time the contents of the

containers were slowly eating through the confining walls. Chlorosulfonic acid in one tank was able to make small breaches in the walls and began to slowly escape as a thin white vapor trail.

International Gasohol believed that the site needed some cleanup and they hired a company to identify the materials in the tanks. But still no one was aware of the danger of the site and how close it was to being an exploding bomb.

It wasn't until January 29, 1980 when an EPA inspector reviewed the site as part of a routine investigation of hazardous waste locations, that the imminent threat began to be recognized. When a toxicologist reviewed the inspector's report, he noted the potential for acids and sodium cyanide to mix and produce deadly hydrogen cyanide. The EPA inspector found cyanide in two mislabeled barrels and there was acid vapor in the air. He was also quite disturbed over the fuming chlorosulfonic acid tank.

EPA Region 6 Enforcement and Surveillance and Analysis Divisions worked on the sampling plans and the Hazardous Waste Task Force and Department of Justice were informed when more tests conclusively proved the danger.

On March 5, 1980, suit was filed in Court in New Orleans against Southeastern Chemical and 2001 Inc., the present owners of the site. A motion for a Temporary Restraining Order and Preliminary Injunction was also filed and a hearing was held on that day. EPA employees testified as to the hazardous condition of the site. It was simply a matter of luck that a disaster had not already occurred. EPA also testified that if enough water were to get in the tank that was leaking chlorosulfonic vapor, there would be an explosion.

At the hearing the Louisiana Department of Natural Resources intervened in the action with the consent of all parties.

On March 6, the court ordered the defendants to immediately remove the cyanide and the acids in the storage tanks and to conduct a study to identify the wastes

that were once drummed in order to properly dispose of them.

The cyanide has been removed and properly disposed of. While other acids were in the process of being removed, there was a small explosion in the chlorosulfonic tank which blew a vapor cloud about 100 feet into the air, but the tank did not blow up and no one was hurt. Removal of the other acids has been delayed until the chlorosulfonic can be removed safely. International Gasohol is currently negotiating for possible purchase of the site.

Legal Precedents

Two important legal precedents were established in Region 7's enforcement of Missouri's sulfur dioxide standards against Union Electric Company in St. Louis, Mo.

In 1972, Missouri Governor Kit Bond submitted to EPA an implementation plan which contained State emission regulations designed to ensure attainment and maintenance of the national standards for sulfur dioxide. (These regulations limited sulfur dioxide from the Union Electric Power Plants located in the St. Louis metropolitan area to 2.3 pounds per million BTU heat input.) The Administrator approved Missouri's plan and thus the state emission regulations became enforceable by EPA under the Clean Air Act.

Based on a finding that sulfur dioxide emissions from Union Electric's Labadie, Sioux, and Meremae Power plants were exceeding the limit, EPA issued a Notice of Violation to Union Electric on May 31, 1974. On August 8, 1974, Union Electric filed a petition in the Eighth Circuit Court of Appeals challenging EPA's approval and authority to enforce the state's sulfur dioxide limit on grounds that it was neither technologically nor economically feasible to comply and that such a requirement was more stringent

than necessary to insure attainment and maintenance of the national standard.

The court dismissed Union Electric's petition saying it was without jurisdiction to consider the claims raised by the company in its petition. This decision was unanimously affirmed by the U.S. Supreme Court in July 1976.

This finding established the important legal precedent that the States may submit emission regulations more stringent than necessary to meet national air quality standards and EPA cannot consider the technological or economic feasibility of achieving such regulations when determining their approvability. The Supreme Court instructed the company that it should seek any necessary relief from the State of Missouri.

Following the Supreme Court decision, Union Electric petitioned the Missouri Air Conservation Commission in September, 1976, for a relaxation of the sulfur dioxide emission limitation or a variance to allow its individual power plants to continue to operate with excessive sulfur dioxide emissions. When these issues were not resolved at the State level, the Region 7 Administrator issued a second Notice of Violation to Union Electric Company on January 13, 1978.

Union Electric Company then sought a stay in Federal Court and was successful in obtaining both a temporary restraining order and an injunction precluding EPA from initiating any further administrative or judicial action to enforce the State's regulations pending a resolution of the variance proceeding before the State administrative agency and/or courts. EPA appealed the ruling, and in February 1979, the Eighth Circuit Court of Appeals reversed the judgment of the District Court and directed that the complaint of Union Electric be dismissed.

In directing dismissal of the complaint, the court upheld a previous decision that pre-enforcement judicial review of an abatement order on grounds of technological or economic



Homestake gold mine in Lead, South Dakota.

infeasibility is inconsistent with the Clean Air Act. Further, it included those instances where EPA has not issued an abatement order but has issued a Notice of Violation.

The court stated that one purpose of the enforcement provisions of the Clean Air Act is to require the States to act promptly in granting or denying variance requests and that this purpose would be thwarted if Federal courts were permitted to remove the pressures that Congress clearly thought necessary to accomplish the objectives of the Act. This case, in conjunction with the previous case, establishes important legal precedents for the Agency.

Due in part to these decisions, the Union Electric Company has reduced its sulfur dioxide emissions by approximately 120,000 tons per year.

Mining Gold

With the February signing of a second consent decree, the EPA, State of South Dakota,

and Homestake Mining Company in Lead, S.D. may have reached the end of years of litigation over Homestake's pollution of Whitewood Creek with wastes from a gold mining operation.

Under this agreement, Homestake paid penalties totalling \$390,000, with \$40,000 allocated to the Federal government for past discharge violations and \$350,000 to the South Dakota Department of Game, Fish, and Parks which will use the money for EPA-approved restoration and revitalization of Whitewood Creek, a tributary of the Belle Fourche River.

Homestake also agreed to undertake a research program to develop new state-of-the-art technology for treatment of the remaining discharge from its Lead operation. If all goes as planned, the new treatment system should be working by September 1, 1981.

For more than 100 years Homestake has been mining gold from the Black Hills, discharging wastewater containing mill tailings and high concentrations of suspended solids, heavy metals and cyanide used in its gold extraction process.

As a result, sections of Gold Run and Whitewood Creeks were unfit for fish or aquatic plants.

With the passage of amendments to the Federal Water Pollution Control Act in 1972, however, EPA was given enforcement authority to control the quality of waste material discharged into water. The Act set limits on discharges, and State water quality standards were developed which had to be met by July 1, 1977. To comply, Homestake had to build a tailings pond to hold its mill tailings and a treatment system for heavy metals and suspended solids and cyanide.

Unable to complete the construction of the tailings pond and treatment system by the July 1 deadline, Homestake signed the first consent agreement with EPA in January, 1978, providing a timetable for completion of these projects and for civil penalties if the schedule were not met.

Homestake completed the tailings pond as scheduled but not the treatment system. Therefore, EPA sought to enforce the consent decree and filed an additional lawsuit in Federal District Court for Homestake's continuing viola-

tions of the Clean Water Act. Subsequently, the second consent decree was worked out which settled the enforcement action, setting out new deadlines and stipulating a penalty.

Commenting on the second consent decree, Roger Williams, EPA's Regional Administrator in Denver, said that he feels "the company, State and EPA have found an acceptable solution to a long and continuous problem at Lead which is not only acceptable to the parties but one which will have positive environmental benefits. EPA is encouraged by the present commitment of Homestake to protecting water quality. In this case, we have certainly come a long way since the early days of mining when streams were thought of simply as vehicles for disposal of wastes."

Sugar Cases

Final settlement is expected soon in Region 9 enforcement actions taken against two of Hawaii's largest and most prominent sugar companies. The firms are the Honokaa and Laupahoehoe Sugar companies. The EPA civil actions began early in 1975.

The actions arose out of the firms' inability to comply with Hawaii's particulate and visible emission regulations. Violations were caused by the burning of

trash and bagasse, wastes which remain after sugar cane is harvested and the raw sugar has been removed from the cane.

The sugar cane waste is burned in boilers, thereby disposing of the waste and also serving as a source of fuel utilized in generating power for the sugar company. This burning process is the source of particulate and visible emissions. The task of particulate control and the more difficult problem of meeting visible emission limitations are paramount concerns in the sugar industry's struggle for compliance with Hawaii's stringent air pollution regulations.

Results obtained from Region 9 efforts to improve air quality and increase energy self-sufficiency are believed to be among the best in the sugar industry. Both companies have installed substantial controls with combined costs approaching \$2 million. One has also installed a new high efficiency boiler. Settlement of the civil actions included the payment of \$32,800 in civil penalties for past violations.

Subsequent to the filing of EPA's actions, the companies merged and the single unit now operating under a new name has further plans. A plant to be constructed soon will pre-dry and pelletize the wastes formerly burned without any type of pretreatment. The pelletized wastes will be stored and later used as fuel to generate electricity to be used by the com-

pany and to provide extra electricity to be sold to the Hawaiian Electric Company. This pelletizing process will not only further contribute to better air quality but will also promote energy self-sufficiency.

Protecting Drinking Water

In one of the first decisions of its kind anywhere in the country, a Federal court last year ordered a community water supplier in Oregon to correct the conditions that in 1978 contributed to the outbreak of gastrointestinal disorders among more than 170 persons in the small coastal town of Neskowin.

The order, issued in May, 1979, in U.S. District Court in Portland, applied provisions of the Safe Drinking Water Act of 1974 that allows the EPA to seek injunctive relief in situations where drinking water standards and other requirements of the statute are being violated.

The case against the Neskowin water system rested on EPA's allegations of dozens of violations of the Safe Drinking Water Act. The violations were discovered by EPA's Northwest regional personnel from Portland and Seattle. The violations, discovered as early as July, 1977, and continuing until the judge issued his order, included:

- violations of bacteriological standards.
- violations of requirements that call for water suppliers to take drinking water samples, analyze the samples, and regularly report the results to EPA.
- violations of national drinking water standards for turbidity.
- failure of the Neskowin water system to notify its customers of the standards violations.

After repeated attempts by EPA to obtain satisfactory corrective action were unsuccessful, the matter was referred by EPA to the Department of Justice. A complaint was filed in

U.S. District Court in Portland where it was successfully argued by Assistant U.S. Attorney Thomas C. Lee.

Under the terms of the court order, Neskowin Enterprises Inc., the privately owned firm that operates the drinking water system, was directed to begin immediately to make improvements in the facilities that provide water to its customers.

Although the Neskowin system was small, it served thousands of vacationers who annually visited the town to stay in its lodges and eat in its restaurants, all of which were served with water from Neskowin Enterprises Inc.

Despite the court ruling, Neskowin Enterprises failed to comply with the order and two months later—in July 1979—the company was held by the court to be in willful contempt of the Court's prior order.

The contempt order was not the end of the case.

Because of the obvious lack of diligence on the part of Neskowin Enterprises in taking the remedial action ordered by the court, EPA incurred extraordinary expenses in enforcing compliance. EPA personnel made frequent trips from Portland to Neskowin for field investigations and data accumulation, and from Seattle to Portland for court appearances made necessary by the defendant's failure to promptly make the required corrections to the system. Lawyers in the Region 10 enforcement division petitioned the court for recovery of those expenses, and were successful in being awarded \$5,327. The funds, since paid to the U.S. Treasury, were the first such recovery made in the Nation in pursuing drinking water compliance.

The penalty phase of the case is still pending. Issuance of the order against Neskowin Enterprises represents only half of the relief sought by the U.S. Department of Justice. In addition to the injunctive relief, the complaint also asked for assessment of civil penalties in the sum of not more than \$5,000 a day for each day in which violations of the Safe Drinking Water Act occurred. □



Sugarcane harvest in Hawaii.

Auto Pollution: The Remaining Job

By Benjamin Jackson

On November 8, 1979, the EPA denied certain requests for waiver of the carbon monoxide auto emission standard, while granting others. In doing so, we determined that a majority of the automobile industry is able, given current auto emission technology, to meet the more stringent carbon monoxide standard that becomes effective in 1981.

This decision may not have the appearance of great importance, but it does demonstrate that overall, the emission standards established by the Clean Air Act can be met by the auto industry. There should be no more arguments about the standards: they are established; industry can meet them and the cars rolling off the assembly line should be in compliance with the emission standards.

But, despite the fact that industry is able to meet them, much work remains in the auto cleanup area. Why?

First, some cars are not meeting standards when new. In January of 1977, EPA initiated its assembly line testing program, known as Selective Enforcement Auditing. The program tests statistically representative samples of production vehicles to determine their compliance with standards. Results from the program indicate that about 18 percent of the 1979 models did not meet one or more standards at the assembly line—and this is after some mileage had been put on the car and careful dealer preparation had been performed.

Second, cars contain defective emission control components and systems. EPA surveillance programs have discovered a significant number of instances in which the failure of an emission-related component has caused the vehicle to exceed standards. If the component does not work properly due to an inherent defect, a weakened braze joint, for example, all of the components built using that same manufacturing technique may be susceptible to failure. Since a component manufacturer may build the same part for a number of auto manufacturers, the problem can be widespread.

Another reason for vehicles not meeting emission standards in-use is that cars are

tampered with. Our most recent survey indicates that tampering—removing or rendering inoperative emission controls—occurs in the emission control components of 18 percent of cars. The most prevalent tampering was with the exhaust gas recirculation system. Further, the incidence of tampering increased with age from a low of 10 percent in one-year-old cars to over 30 percent in five-year-old vehicles.

Fourth, cars designed for the use of unleaded gas are being fueled with leaded. Lead destroys the catalytic converter which is the principal emission control on most post-1975 model cars. A survey of over 40,000 vehicle fuelings showed that fuel switching is occurring at a rate of 8-10 percent.

Part of the problem in dealing with the fuel switching phenomenon is that there are several contributing factors—the price differential between leaded and unleaded, the perceived reduced performance from a vehicle operating on unleaded gas, and the lack of availability of unleaded gas during a gas crisis. There are common misconceptions, for example, that engine “knock” is caused by unleaded gasoline and that vehicles will get better fuel economy with leaded gasoline. Engine “knock” is caused by insufficient octane of the gasoline and there are unleaded gasolines on the market that cover the spectrum of octane quality.

We also suspect that some motorists believe that the reason they are not getting the fuel economy they expected from the EPA mileage figures is because of emission controls, specifically, the catalyst. Thus, they believe that using the cheaper leaded fuel will deactivate the catalyst, improve fuel economy, and save money. Of course, this is not at all true. Catalyst deactivation or removal will not affect fuel economy, and while some money may be saved initially by purchasing leaded gasoline, the added exhaust system and engine maintenance associated with the use of leaded gas will tend to offset the price differential saving.

The energy problems facing the Nation may further exacerbate the fuel switching problem. If gasoline supplies are short, we fear switching may increase.

Fifth, owners are not seeking service at recommended intervals and cars are not being properly serviced by mechanics. Proper maintenance is required to assure continued emissions control as well as fuel economy. Manufacturers have reduced the amount of periodic maintenance required for their cars which is attributable, in part, to the use of unleaded gasoline which increases the useful life of engine parts such

as spark plugs and engine oil. Our information indicates that owners, nevertheless, do not perform the periodic maintenance required to keep emission controls operating efficiently. Many motorists wait until they encounter performance problems before they seek maintenance. In fact, our contractor-operated recall testing facility in Springfield, Virginia, rejects 20-25 percent of vehicles in classes selected for emission testing because of improper maintenance. In addition to not performing the required maintenance, malmaintenance and deliberate misadjustment are occurring on a large number of in-use vehicles. We believe that the owner's dissatisfaction with his vehicle's performance and inadequate mechanic training accounts for a significant amount of malmaintenance.

It is difficult to assess how much each of these causes contributes to air pollution. It is clear, however, that these problems rob the American public of air quality improvement that has already been paid for in the purchase price of new cars. For example, in 1981 we will spend \$5 billion on the emission controls of new cars and \$1.3 billion on unleaded gas (over leaded) for the lives of those cars. If we assume that all of the above causes for in-use non-compliance will reduce control effectiveness by about 12 percent over the life of the car, we will lose three quarters of a billion dollars in the investment in pollution control. In terms of air quality, this means that the mobile source contribution to air pollution from that 1981 fleet will almost double.

In order that we do control emissions from mobile sources, it has been necessary for us to develop and implement a wide range of enforcement programs. The Selective Enforcement Audit program is one which has achieved one of its most important objectives of encouraging manufacturers to identify and correct emission problems before they are tested by EPA. For example, during the 1979 model year, we required 38 configurations to be tested, comprising a total of 344 cars.

In anticipation of an EPA audit, and to prevent failure of such an audit, manufacturers tested over 16,000 cars. Even though our information indicates that about 18 percent of new cars failed the audit in 1979, the number has decreased from over 20 percent in 1978 and the audit practice has become an integral part of the auto manufacturing industry. More stringent application of the assembly line test program can reduce these percentages even further.

Under the Clean Air Act, we are authorized to order the recall of vehicles if they do not conform to standards. Recall investigations are initiated based upon the analysis of data from a surveillance pro-

gram which incorporates data from assembly line test audits, vehicle manufacturers, inspection/maintenance and other field programs, and reports of defective emission components. To supplement the available surveillance data, EPA personnel conduct an in-use surveillance test program at two contractor laboratories to assess emission performance. From information supplied by this surveillance network, classes of vehicles suspected of exceeding emission standards are selected for formal investigation and, if noncompliance with the Federal standards is evident, the manufacturer is required to submit a recall plan to remedy the nonconformity.

Because tampering and fuel switching activities represent a significant threat to the national vehicle emission control program, we have launched a new mobile source enforcement initiative directed specifically at controlling tampering and fuel switching. We have recently established field offices in Denver, Colorado, and Washington, D.C. to conduct investigations and prosecute violators with the emphasis focused on major vehicle fleets, new car dealerships, commercial auto repair facilities, and service stations. This program includes a special effort directed at preventing a widespread increase in fuel switching caused by a shortfall in unleaded gasoline which is accompanied by monitoring of the petroleum industry to detect the locations and severity of such shortages.

It is our contention that the anti-tampering and anti-fuel switching enforcement effort will complement and facilitate the implementation of inspection/maintenance programs by preventing further deterioration of the vehicle fleet before inspection/maintenance programs are implemented. It is simply not fair to permit the public to believe that tampering and fuel switching is OK by not enforcing now, only to find that the practice will require remedial expenditures by the public when I/M is implemented.

Additional support is provided for the adoption of inspection/maintenance through two important warranty provisions in the Act—production and performance warranties. The new provision in the 1977 Clean Air Act Amendments for Federal enforcement of emission warranties holds a strong promise for truly effectuating the production warranty against vehicle defects that cause a vehicle to exceed standards. Prior to the Amendment, a lawsuit by the owner was the only means of recovery if the manufacturer or dealer refused to

honor a valid warranty claim. Now the Agency can investigate consumer complaints covered by the warranty for possible violation and take appropriate enforcement action when such violations are identified. Just as valuable is the performance warranty which enables vehicle owners who fail a State inspection/maintenance test to repair their cars at the manufacturers' expense if the vehicle has been properly maintained.

Finally, there is the State inspection/maintenance. I/M is a program under control of a State or local government which periodically measures the emissions of vehicles, and requires cars which fail the I/M emission standards to be repaired. Thus, the program is intended to identify cars which need remedial maintenance or adjustment and require their repair. By providing an incentive for owners to maintain their vehicles, and for mechanics to properly adjust and repair cars, it is this program which has the greatest potential to effect a reduction in in-use emissions. The Clean Air Act Amendments of 1977 required the States to submit implementation plans by January 1979 demonstrating attainment of the ambient air quality

standard by 1982. If such a plan did not show attainment of the carbon monoxide or oxidant standard at that time, the Act provides for an extension until as late as 1987 provided the plan schedules I/M implementation by 1982. Currently, 50 urban areas are required to implement this program. Not only will the I/M program have a major impact on the need for improved automotive service, both in terms of the quality of service and the owner's understanding of its need, but it will be an important deterrent to emission control tampering and fuel switching.

As you can see, the mobile source enforcement program has a critical and complex mission in controlling mobile air pollution. Only through developing complementary and inter-related programs can we begin to tackle the enormous pressures opposing our stance in preserving the environment. And it is our belief that only by concentrating resources on in-use vehicles and particularly, a directed effort to support inspection/maintenance, can auto-related urban air pollution be brought under control. □

Jackson was until recently EPA's Deputy Assistant Administrator for Mobile Source, Noise and Radiation Enforcement.



This is a poster developed by EPA to help the effort to clean air pollution by urging auto tune-ups. For a copy of the poster, contact the public information office at the EPA Motor Vehicles Emission Test Lab, 2565 Plymouth Road, Ann Arbor, Mich. 48105

The New Philadelphia Story

In settlement of a decade-long EPA enforcement case, Philadelphia will stop dumping its sewage sludge in the ocean and will complete building one multi-million dollar modern waste treatment plant this year.

Construction of two other huge waste treatment plants in Philadelphia has also started and the city has agreed to establish a special \$2 million environmental trust fund for environmentally-beneficial projects not currently required by law.

These developments are described by Jack J. Schramm, EPA Region 3 Administrator, as "very important steps toward providing the people of Philadelphia and their neighbors with a cleaner environment."

The settlement concludes lengthy litigation involving suits, countersuits, and several government agencies.

When William Penn founded Philadelphia on the banks of the Delaware River some 300 years ago the river and estuary offered an excellent harbor, a good location for business and industry, and outstanding recreational opportunities. Unfortunately, the city has spent most of its history polluting the very river to which it owes its life. For most of this time, the pollution was unintentional and no one really thought much about water quality.

But as early as the 1920's the city's sewage disposal practices were recognized as inadequate. A 1929 study sponsored by the Chamber of Commerce stated, "The city of Philadelphia discharges its sewage and liquid wastes, with the exception of about 10 percent of the total flow, untreated into the streams coursing by its front door." The study concluded, "... this neglect... is a major factor in producing the heavy pollution of the raw water used for the city's water supply."

It was not until the 1950's that what was considered adequate sewage treatment was finally provided for the entire city. Three major treatment plants were built. Two of the plants provided primary treatment (about what most cities had), while one provided intermediate treatment (slightly less than today's secondary treat-

ment, and considered advanced for the times). These combined plants discharged about 500 million gallons a day of wastewater into the Delaware River. Sludge from the facilities was first stored in lagoons at the plant sites. When space ran out in 1961, the city started to dump its sludge in the Atlantic Ocean at a site 12 miles off the Delaware-Maryland border.

In comparison to what it had done earlier, the city's sewage treatment and disposal practices of the early 1960's were considered as good. It did not take long, however, to discover that pollution from Philadelphia was still degrading the river and ocean too.

First, the Food and Drug Administration (FDA) discovered that shellfish living on the ocean bottom at the sludge dump site were being contaminated by the sludge. The FDA closed the site to shellfish harvesting.

At the same time, the newly created Delaware River Basin Commission and a special Department of the Interior study group were looking into the pollution problems of the Delaware River. Based on this work, the river basin commission established water quality standards for the river in 1967, and the following year set maximum allowable waste discharge limits for each of the more than 90 major discharges located from Trenton, N.J., to below Wilmington, Del.

As part of this cleanup effort, Philadelphia was ordered by the river basin commission and the Commonwealth of Pennsylvania to upgrade its sewage treatment plants. The cost at the time would have been \$100 million. The city's response was to appeal the order, but the appeal was denied the following year.

During 1970, city officials developed a schedule for upgrading the treatment plants. Completion dates ranged from October 1975, until October 1977. During the next two years preliminary design work was completed for all three plants.

In 1972, new impetus was given to the drive to clean up water pollution. The Clean Water Act Amendments required that all municipal treatment works must achieve secondary treatment efficiency by the end of 1977. In accordance with these requirements, the city signed a memorandum of understanding with the EPA and the Commonwealth of Pennsylvania pledging upgrading of the treatment plants. Completion dates under the memorandum were somewhat different than those agreed upon two years earlier, but final completion of all three plants slipped only two months to December 1977.

The clean water law also significantly expands a Federal grants program to help municipalities build sewage treatment works. The Federal share of costs was

increased from 55 to 75 percent, and \$18 billion was earmarked for the program. Philadelphia gained hundreds of millions of dollars through the program.

But just as the Clean Water Act seemed to help solve some of the city's sewage problems, another new law complicated the picture. The Marine Protection, Research and Sanctuaries Act required that Federal permits be obtained from EPA in order to dump wastes into the ocean.

The city applied for such a permit, essentially requesting that it be allowed to conduct dumping as usual. However, an EPA review of the application and associated data revealed that damage was being done to the ocean at Philadelphia's 12-mile site. A strong indication of the problem was FDA's ban on shellfish harvesting there. As a result of the review, EPA granted Philadelphia a dumping permit, but required that the site be moved to an area almost 30 miles east of the old site about 40 miles off the coast.

In the meantime, Philadelphia was confronted by another aspect of the Clean Water Act. The law required that all wastewater discharge receive a Federal permit to do so. For municipal sources, the permit acted as a compliance and enforcement tool for the December 1977 secondary treatment requirement.

In 1974, EPA was ready to issue Philadelphia its first discharge permits. By this time, however, it had become obvious that the upgrading schedules agreed upon in 1972 would not be achieved. Construction and grant delays were blamed. With reluctance, EPA gave the city from December 1978, until July 1980, to complete construction of the plants and bring them into compliance. During the interim, the permits required that each of the three plants be operated at their maximum design efficiency.

Back on the ocean dumping front, EPA was faced with issuing Philadelphia another ocean dumping permit. Monitoring of the new 40-mile dump site revealed environmental degradation similar to that which occurred at the earlier 12-mile site. In fact, FDA had banned shellfish harvesting at the new site just as it had at the old.

EPA felt that the intent of Congress in the ocean dumping law was to ban such dumping if it proved harmful to the environment. Since the evidence seemed to prove that Philadelphia was harming the ocean, EPA moved to end Philadelphia's dumping. The permit issued in 1975 required that the city reduce dumping from the previous 145 million dry pounds per year to 120 million pounds per year. The permit also required a 50 percent reduction by 1979 and a complete halt to ocean dumping by the end of 1980. The city was required to find land-based alternatives to sludge dumping in the ocean.



EPA officials aboard a U.S. Coast Guard vessel monitor the effects of sewage sludge disposal in the Atlantic by the City of Philadelphia. The City's dumping is scheduled to stop by the end of 1980.

The city quickly appealed the conditions of the permit. The appeal was rejected by the EPA Administrator. The city also appealed its wastewater discharge permits. Discussions over this appeal continued.

While all these appeals were going on, Philadelphia was violating the conditions of its wastewater discharge and ocean dumping permits. EPA registered a total of 72 discharge violations and six compliance schedule violations for the treatment plants. Some 32 violations of the ocean dumping permit, mostly related to developing alternative disposal methods, were also noted.

In 1976, EPA issued a notice of violation to the city concerning the ocean dumping violations. During hearings the following year, an administrative law judge recommended that EPA assess Philadelphia \$225,000 in penalties for the violations. City officials vowed not to pay the fine if assessed.

At this point, EPA felt that something had to be done about Philadelphia's

multiple water pollution problems. The issues were complex, and the solution to one problem often exacerbated other problems. In order to tie all the loose ends together, EPA's legal staff developed a draft consent decree which would hopefully lead to a final solution.

This draft consent decree was sent to the city in July, 1977, as the basis for further negotiations.

Over the next several months, intensive discussions were held between city and EPA officials. Slowly, tentative agreements were reached on most of the outstanding issues.

In March 1978, EPA sent to the city a revised consent decree which incorporated the results of the negotiations. EPA considered this version non-negotiable and informed the city of such. Nevertheless, within a few weeks, the city returned the decree to the EPA with several "minor" changes. The changes rendered the document useless in EPA's view.

With negotiations now at a standstill, EPA informed the city that it would ask the Department of Justice to formally bring

suit. Within a week, the city sued EPA first, claiming that the Agency was deliberately holding up construction grants and harrasing the city over other sewage treatment matters.

In May 1978, EPA Regional Administrator Schramm formally assessed the city the \$225,000 ocean dumping fine which had been recommended by the administrative law judge. Later in the month, Justice, on behalf of EPA, filed suit against Philadelphia for failure to upgrade its treatment plants in a timely manner. The Commonwealth of Pennsylvania was also a party to the suit against the city. EPA also brought suit to collect the ocean dumping fine.

Within a few days, Philadelphia countersued, asking that the court stop EPA from collecting the fine. Soon afterwards, the State of Maryland, the Delaware River Basin Commission and the Sierra Club asked the court to become intervenors in the suit on the side of EPA.

The court consolidated all the suits and asked the parties to sit down again and try to work out an agreement. There followed almost a year of intense negotiations. Finally, a compromise agreement was reached and a consent decree was formally signed by all the parties on May 30, 1979.

Regional Administrator Schramm hailed the agreement as "testimony to the fact that confrontation can lead to negotiations and finally to a pledge of cooperation."

The consent decree pledged Philadelphia to complete upgrading of all its treatment plants by November of 1983. EPA would provide over \$519 million in grants to help to defray the costs of the projects which had by now soared to approximately \$700 million. The city also reaffirmed that it would stop all ocean dumping by the end of 1980.

To settle the ocean dumping fine and its other violations of water pollution laws, Philadelphia agreed to establish a special environmental trust fund to be used by the city to undertake environmentally beneficial projects not currently required by law. The initial deposit to the fund was \$2.165 million.

At the time of this writing, the city seems to be keeping fairly close to the deadlines established in the consent decree. One treatment plant is all but completed, and construction at the others is underway. Ocean dumping has steadily decreased. Only 10 million pounds of sludge will be dumped the last six months of this year. Both EPA and the city fully expect ocean dumping to end on time, a full year before the Congressionally-mandated deadline. □

Economic Law Enforcement

By William Drayton, Jr.

Regulatory law enforcement, from the time a violation is detected onward, is a mess. If an agency is lucky enough to detect a violation, it is often able to do little more. If jawboning fails to induce compliance, regulators must either give up or litigate, and litigation is uncertain, slow, and costly. Even if the agency does prevail in court, it cannot be sure that the judge, who may be reluctant to impose over-criminalized and standardless penalties, will provide an adequate remedy. As a result, massive delay occurs, public and private resources are wasted, scofflaws are rewarded, and voluntary compliance is undermined.

Breaking this vicious cycle which engenders ever-decreasing voluntary compliance requires a quick, sure, and fair method of ensuring compliance by those violators who have been discovered. The State of Connecticut, with the financial assistance of the EPA, has developed and successfully tested such a method. Connecticut's innovation can be adapted to other enforcement programs, including those outside the area of environmental regulation.

Central to the Connecticut approach is an economic standard that recaptures the gains realized from noncompliance by charging violators an amount just sufficient to make compliance as economically attractive as profitable commercial expenditures, thereby denying scofflaws the unfair advantage they would otherwise have over law-

abiding competitors. This recapture standard sets a financial charge exactly fitted to the facts of each case, one that varies directly with the value and duration of noncompliance. A simple formula using capital budgeting concepts translates capital costs, operating and maintenance expenditures, taxes, lost profits, and other variables over time into a monthly assessment equal to the average monthly benefits of noncompliance. In a case involving past delinquency, the total benefits of noncompliance, and therefore the assessment, is easily calculated by multiplying this monthly figure times the number of months of delinquency.

Using this recapture standard, a regulatory agency can adopt a host of economic remedies which lie between jawboning, which is often ineffective, and major sanctions, such as permanent injunctions, which are often too expensive and politically unwise. As an upper limit, an administrative agency could impose a civil assessment that would fully recapture the benefits of noncompliance. Less severe impositions, such as surety devices, which would provide for payment of some fraction of the full assessment, could also be based on the recapture standard. The ability to require immediate payment of only part of the full assessment while retaining the option of demanding full payment provides an agency with a flexible range of enforcement responses the agency can adapt to the facts of each negotiating situation. These quick, low-cost, intermediate measures with escalating impact enable an agency to avoid the dilemma of doing all or nothing.

This economic standard makes it reasonable to allow administrative agencies to impose assessments without first going to court. The formula-defined assessments are ministerial and can be reviewed and corrected easily. There is also the safeguard that no firm can ever be charged more than it has saved by ignoring the law. The Connecticut legislature authorized—and

the Connecticut business community did not oppose—the delegation of administrative civil penalty powers to the State's environmental agency chiefly because they understood that these safeguards would be effective. By thus removing the chief grounds for fearing such delegation, the Connecticut economic standard opens the way for widespread legislative adoption and judicial acceptance of administrative civil assessments.

Early indications are that this economic approach to enforcement, which has been in use in Connecticut's air compliance program for five years, works well. Where the response to noncompliance has been automatic (small assessments for procedural violations), compliance rates have risen from just over 50 percent to 98 percent. In two cases where the agency used surety devices (enforceable escrow agreements), firms that had previously overrun compliance deadlines by 66 percent and 133 percent thereafter remained almost exactly on schedule. In other cases of potential or existing delinquencies in meeting compliance deadlines, sources improved their performance without assessments having to be made. In short, the early evidence is that these tools do what they are supposed to do—reinforce compliance by the majority and deal effectively with the recalcitrant minority.

Many of the elements of the Connecticut approach could be applied to meet the needs of other regulatory programs. Indeed, several of these innovations have already been adopted elsewhere. In 1977, the Clean Air Act was amended to require major sources that failed to meet a July, 1979, abatement deadline to pay a "delayed compliance penalty" determined according to the Connecticut formula. The Carter Administration sought similar authority in the Clean Water Act Amendments of 1977, but this provision was lost in the final compromises of the House-Senate Confer-

ence Committee, in part because the EPA could seek such remedies in the courts under existing law. The EPA has also initiated a new penalties policy that calls for the Agency and its State counterparts to seek cost-of-compliance penalties in all its court cases. Portions of the approach have been used in court cases in several other States, including Illinois and Pennsylvania.

Economic law enforcement makes compliance just as profitable as commercial investment. Because it is an equitable and objective tool, regulators can be given ministerial authority to use it quickly without first having to go to court. It is also a simple tool; staff members can apply it in ten to twenty minutes.

This new economic approach can greatly strengthen regulatory law enforcement. It has worked well in Connecticut, cutting noncompliance rates and delay in both large and small cases. It opens the way to widespread, philosophically acceptable use of administrative civil penalties. It makes possible a wide array of finely modulated responses to non-compliance, such as the flexible reserve escrow. It allows regulators to break free from the frustrating role of issuing ineffectual threats that are only occasionally backed up by bouts of slow, uncertain, and probably ineffectual litigation. It can force prompt compliance by hard-core recalcitrants, thereby strongly reinforcing the voluntary compliance of the majority. It can build on this initial compliance to insure proper operation and maintenance of the installed control equipment. It is a simple, practical idea that can make regulatory law enforcement work better. □

Drayton is EPA Assistant Administrator for Planning and Management. This piece is excerpted from an article by him published recently in the Harvard Environmental Law Review. Copies of the full article may be obtained by writing PM-208, EPA, Washington, D.C. 20460.

World Environmental Law

By Peter Thacher

Less than ten years ago the U.N. General Assembly decided there should be a U.N. Conference on the Human Environment "to encourage, and to provide guidelines for action by governments and international organizations designed to protect and improve the human environment."

Such a conference was held in Stockholm in June 1972. Delegates from 113 nations approved an Action Plan with 109 recommendations and a declaration of 26 principles, and recommended the institutional and financial means by which to set the Plan in motion. UNEP, the United Nations Environment Program, came into being January 1, 1973, headquartered in Nairobi, Kenya. Its global objective is "to safeguard and enhance the environment for the benefit of present and future generations of man."

International treaty agreements are one major instrument to meet the UNEP objective. In this short appraisal of environmen-

tal progress since Stockholm, I will concentrate on examples of international law which have come into force as a result of UNEP's work with governments in that most "international" region of the planet, namely, the area beyond national jurisdiction. Among the many important treaty accomplishments which are thus excluded, and which deserve more detailed consideration than is here possible are the conventions on International Trade in Endangered Species of Wild Fauna and Flora (1973) and on the Prohibition of Military or Any Other Hostile Use of Environmental



EPA Administrator Douglas M. Costle (left) and Dr. M.K. Tolba, Executive Director of the U.N. Environment Program, confer at the Program's headquarters in Nairobi, Kenya.

Modification Techniques (1976) and the Convention on Long-Range Transboundary Air Pollution which was signed on November 13, 1979.

Governments were largely motivated to convene the U.N. Environment Conference by an awareness of the geographic spread of pollutants, more exactly, of their effects, far beyond the place of their release. A disturbing signal in the late 1960's was the discovery of DDT in penguins in far away Antarctica.

Early in the preparatory process for Stockholm, protection of the oceans was singled out as a major task for the Conference, and, in February, 1971, an inter-governmental Working Group on Marine Pollution was set up to design a master plan to safeguard the health of the oceans for the greater benefit of all mankind, and to initiate actions with a view to inter-governmental agreement by the time of the Stockholm Conference on some particular measures which were both urgent and feasible, such as a convention on the control of ocean dumping.

Important for the design of the "master plan" to protect oceans was the revelation that the major sources of the most damaging marine pollutants were man's activities on land, which reach the oceans through sewers, continental run-off, rivers, or atmospheric transfer, almost none of which had come under international review or control. (A notable exception was the Partial Test Ban Treaty of 1963 which sharply

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Douglas Costle's Balancing Act

By Rich Jaroslovsky

By his own definition, Douglas Costle is a statesman.

A statesman, the Environmental Protection Agency head maintains, is an official "propped up by pressure equally applied from all sides." That is a pretty fair account of Mr. Costle's current situation.

These are tough times to be the nation's top environmental

regulator. President Carter and Congress are pushing energy initiatives that may have less-than-congenial environmental effects. Business lobbyists, sensing an antiregulation mood, have redoubled their efforts to weaken what they see as restrictive laws and rules. Environmental groups, thrown on the defensive, are struggling merely to hold their hard-won legislative victories of the early and mid-70's.

Mr. Costle's response to all this is a casebook study in bureaucratic survival. On the one hand, he has given ground to business on some issues to avoid potential bruising battles. On the other, he has carefully chosen which battles to fight, and has more or less maintained his credibility with the environmental movement.

A Less Visible Target

"I think Doug has decided

that he doesn't want to be a lightning rod for all the storms that are going around," says Gus Speth, a veteran environmental activist who is now chairman of the White House Council on Environmental Quality. "I think that's been a wise course."

What he's trying to do, Mr. Costle says, is to make his agency a less visible target for its opponents to shoot at. "I have consciously tried to position the agency in what, clearly, are harder times," he says.

So far, it seems, his strategy has worked fairly well. While some environmentalists complain that he isn't aggressive enough, others say he's doing the best job possible, given the political realities. And while industry still regularly blasts EPA regulations, some executives quietly admit that the agency has shown more flexibility than in prior years and has

trimmed some of its red tape.

"Costle is a very astute politician," says Donald Cannon, environmental director of the National Association of Manufacturers. "He's saying nice things to everybody and trying not to alienate anybody."

Mr. Costle puts his strategy in terms of "reasonableness and responsibility." His job as administrator, he says, "is to make a reasonable decision," considering both economic and environmental concerns. "If I'm not balancing those things, I'm not doing my job," he says.

In recent months, Mr. Costle has shown his "reasonableness" towards industry on a number of issues. He adopted a so-called "bubble" policy, avidly sought by steel, chemical and other companies, for measuring some types of industrial

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curtailed the release of radionuclides from nuclear weapons explosions.)

As a result of working group meetings in London, Ottawa, and Reykjavik, this pre-Stockholm working group had produced an agreed on international treaty to control Ocean Dumping which was endorsed by the Stockholm Conference and opened for signature in London in December 1972. It entered into force on August 30, 1975 and provides guidelines on a global scale for the controlled disposal of terrestrial wastes in the oceans.

This was early evidence of the feasibility of establishing new international law through an approach which concentrated legal, scientific, and economic attention on a carefully defined problem.

Also, recommendations presented to governments at the Stockholm Conference reflected the need for international cooperation in assessment activities—to identify high priority pollutants, their principle sources, pathways and risks, trends and consequences. This has been a major area of activity in all parts of the globe by UNEP and its partners throughout the U.N. System. In addition to providing better insights for national policy decisions, research and monitoring information generated by UNEP's "Earthwatch" program

have significantly helped negotiations leading to agreed measures to control pollution.

But without waiting for more complete information, the Stockholm Declaration set forth the 26 principles in a statement of political consensus to guide negotiators on new international law, calling on nations to take all possible steps to prevent pollution of the seas, to halt excessive discharge of toxic substances, to prevent serious damage to ecosystems, to ensure that activities within national jurisdiction do not damage the environment of other nations or of areas beyond national jurisdiction, and to cooperate to develop international law on liability and compensation for victims of environmental damage.

A specific set of 21 marine pollution control principles was also endorsed as guiding concepts for future conferences, among them: that every country has a duty to protect and preserve the marine environment and, in particular, to prevent pollution that may affect areas where an internationally-shared resource is located, that governments should adopt appropriate measures to prevent pollution whether acting individually or on the basis of international agreements, that nations should cooperate with one another and with competent international organizations in the implementation of agreed on rules, standards, and procedures, and that regional measures should be adopted to prevent pollution of areas which, for geographical or ecological reasons, form a natural entity and an integrated whole.

At the first meeting of UNEP's Council of 58 governments in 1973, a policy objective was set to detect and prevent serious threats to the health of the oceans through controlling both ocean-based and land-based sources of pollution, and UNEP was asked to stimulate regional agreements for this purpose. This policy directive to concentrate on the regional approach has been reiterated at nearly all council sessions since the date, and UNEP, together with many other agencies of the U.N. system have helped a growing number of countries to agree on new international agreements to protect the oceans.

First, and best known of these was the 1976 Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution, "to preserve this common heritage for the benefit and enjoyment of present and future generations." Originally outlined as part of a comprehensive Action Plan to Protect the Mediterranean, approved by the governments surrounding the Sea in early 1975, this treaty agreement is linked intimately to other elements—scientific and economic—which are mutually reinforcing; the treaty provides the legal basis for related monitoring and other activities, without which governments would find it difficult to discharge their treaty obligations on a continuing basis.

The most recent accomplishment in international law in UNEP's program is the

pollution: the policy allows companies to limit emissions on a plant-wide basis, rather than forcing them to meet specific limits for every individual pollution source in the plant. The administrator has also allowed Ohio utilities to keep burning local, high-sulfur coal, instead of requiring them to install costly equipment or to look elsewhere for cleaner fuel. Just last month, he granted ailing Chrysler Corp. a special waiver of certain pollution rules for its crucial new line of autos.

In a similar vein, Mr. Costle recently gave all auto makers two extra years to meet the agency's new limits on soot emissions from diesel cars. The diesel issue had taken on a familiar pattern; when the EPA first proposed the rules in 1979, auto makers—who want to

make more diesel cars to help them meet government fuel-efficiency standards—complained that the limits were too strict and couldn't be met with current technology.

When he announced the time extension—which Mr. Costle says was based on "engineering" grounds and won't seriously harm human health—the Administrator was careful to sound conciliatory to the industry. He said the auto companies had told him they could meet the new deadline, and he even publicly praised their "can-do" attitude.

But if he expected the industry to be openly grateful, he was disappointed. General Motors, the U.S. company with the biggest stake in diesel cars, said that even the new timetable could "seriously jeopardize the use of diesel engines with all of their fuel economy advan-

tages." It accused the EPA of setting "unnecessarily stringent" limits that "could stifle diesel technology."

That response, some environmentalists say, illustrates what's wrong with Mr. Costle's approach. If extending the deadline "was part of a real deal worked out with the auto industry, where they say, fine, we can meet these, that's OK," says Carl Pope, an official of the Sierra Club. "But Doug isn't getting anything in return" for his concessions, he complains.

The end-result, Mr. Pope says, is that Mr. Costle conveys an impression of weakness to industry. "They think that if they raise a stink, he'll stop," Mr. Pope says. "So everybody pressures him." For his part, Mr. Costle concedes that "some people are going to try to take advantage," but he says that's an unavoidable fact of life.

To be sure, industry is hardly convinced it has a friend at the EPA. Much of Mr. Costle's supposed flexibility is just "rhetorical," the NAM's Mr. Cannon maintains. Meanwhile, he says, the agency keeps coming up with "proposals that are just out of whack with the real world."

In one recent battle, Mr. Costle took on—unsuccessfully—a coalition of coal interests, electric utilities, powerful legislators and his own Carter administration colleagues in the Energy Department. The issue was the President's huge, \$10 billion proposal to get electric utilities to burn coal instead of oil. Mr. Costle wanted tight pollution limits attached to the Federal aid, and took his case all the way to the President before losing.

Mr. Costle was arguing that the increased sulfur emissions

Kuwait Regional Convention on the Protection of the Marine Environment from Pollution and its associated Protocol concerning Regional Cooperation in Combatting Pollution by Oil and Other Harmful Substances in Cases of Emergency. Both treaties were negotiated and signed as part of a comprehensive Action Plan for the protection and development of the marine environment and the coastal areas of Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. The treaties entered in force on June 30, 1979 and all eight governments have since completed ratification.

Like the Barcelona Convention these countries have bound themselves to protect their sea for the benefit of future generations, and have accepted a number of general obligations (to establish national standards, laws, and regulations to give effect to these obligations, to avoid mere transformation of one type of pollutant to another which could be more detrimental, etc.), and have agreed to tackle all sources of pollution whether from ships, dumping, land-based sources, offshore exploration and exploitation, or other activities such as land reclamation and dredging, as well as to set up specific procedures and institutions to deal with pollution emergencies. One such, a Marine Emergency Mutual Aid Center (MEMAC) is now being established in Bahrain, and a survey mission to identify national institutions and start the supporting scientific program is now visiting the countries involved.

caused by more coal burning would worsen the problem of acid rain in the Northeast and Canada. But the Energy Department and the others said the curbs sought by the EPA would make the bill impractical and so unappetizing to industry that it wouldn't pass Congress.

"The President was caught between a rock and a hard place," one senior EPA official says. Mr. Carter's ultimate decision to forgo the tight curbs was a defeat for Mr. Costle, the aide says, but the attention generated by his efforts is "helping put acid rain on the map" as an issue the country must deal with.

One Energy Department official offers another explanation for Mr. Costle's pressing the matter. It was "costless to his campaign to keep on the good side of the environmentalists," the aide observes. Whether that was the administration's inten-

Most significantly, in an area which many view as the most rapidly developing portion of this planet, these nations agreed on what I believe to be the most far-sighted environmental obligation agreement among sovereign states.

Article 11 of the Kuwait convention provides that each nation "shall endeavor to include an assessment of the potential environmental effects in any planning activity entailing projects within its territory, particularly in the coastal area, which may cause significant risk of pollution in the Sea area," and, further "to develop individually or jointly, technical and other guidelines in accordance with scientific practice to assist the planning of their development projects in such a way as to minimize their harmful impact on the marine environment." Projects now being developed by UNEP in its role as providing secretariat services to these governments will strengthen national machinery and procedures to help them fulfill these commitments.

To UNEP, as a global organization, the Kuwait treaty has a value extending far beyond the immediate needs of this region, important as they are, because it demonstrates the willingness of a most significant group of developing countries to commit themselves collectively to take environmental considerations into account in their development planning and decision-making

at the national level for the sake of their shared common future.

Closely allied at the international level has been the generation of "guidelines" far short of international law. An extremely important example, directly relevant to the above treaties, was signed in New York on February 1, 1980, as a result of an initiative by UNEP, the U.N. Development Program, and the World Bank in which nine inter-governmental development assistant institutions, "convinced that in the long run environmental protection and economic and social development are not only compatible but interdependent and mutually reinforcing," and recognizing their responsibility to ensure the sustainability of activities financed by them, have declared their support for the Stockholm principles and Action Plan and their determination to develop environmental measures in the design of development activities and to support these with training and other assistance. As a result of this agreement by institutions which supply not less than \$25 billion for international development assistance throughout the world, governments will be assisted not only in projects to rehabilitate environmental problem areas, but in the vital, preventive area where the choice between "clean" and "dirty" development has often been dictated by short-term costs, to the defeat of long-term benefits. □

Thacher is Deputy Executive Director of the U.N. Environment Program.

tion, things worked out that way. Environmental groups applauded him, even in defeat. "Doug Costle, to his credit, really did go to the mat on this," says Robert Rauch, an official of the Environmental Defense Fund.

Mr. Costle claims a few victories, too. For instance, after laboring mightily, the EPA last year issued emission standards for new coal-fired power plants. The rules were among the most important and politically sensitive ever issued by the agency, and while they didn't delight either environmentalists or industry—both sides sued—the level of outrage wasn't nearly so great as agency officials had feared.

'A Convert on Coal'

"I'm a convert on coal," Mr. Costle maintains. "New coal-

fired power plants, I'm delighted with. They're very clean."

Also, the Administrator has been able to head off, at least so far, attempts by business and some legislators to soften the Federal Clean Air Act. A number of industries, including coal, steel and oil, insist that the law must be changed if the Nation is to meet its energy goals and continue economic growth. "There must be a revision of the Clean Air Act," declares Charles DiBona, president of the American Petroleum Institute, the oil-industry group. "I think that will happen in the next year or two."

Mr. Costle insists that "environment and energy don't necessarily have to conflict." But he fears that, given the current political climate, any major legislative review of the law might result in weakening it. Observes another administration environmental officer: "If

Costle pushed too hard, I think you'd have the Clean Air Act opened up in, oh, about 25 minutes."

One Energy Department official, who has tangled with Mr. Costle from time to time, puts the present situation this way: "Costle is very, very skillful. He knows this is a terrible period for the environmentalists, and he's just playing it beautifully—giving a little ground here and there but holding out where he wants.

"The environmentalists may be angry at him now," this official says, "but they'll thank him later." □

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1

REGION

Cleanup Suit

U.S. Attorney Edward F. Harrington at the request of the EPA has filed suit against W. R. Grace & Co., charging that the disposal of hazardous waste at the firm's industrial complex in Acton, Mass., has polluted groundwater in that town and caused the closing of two public drinking water supply wells.

The civil complaint filed in U.S. District Court in Boston asks the court to enjoin W. R. Grace from disposing of any hazardous waste in the ground or groundwater at its Acton plant, and to order W. R. Grace to undertake a program approved by EPA to investigate the extent of the contamination and to clean up and remove contaminants and pollutants.

Two public drinking water wells owned and operated by the Acton Water Supply District are located between the W. R. Grace plant and the Assabet River and draw water from the aquifer. These wells were closed down in 1978 when unsafe levels of contaminants were discovered. The complaint asks the court to order W. R. Grace to investigate and monitor any health consequences to individuals who have consumed contaminated water from these wells, and to finance the acquisition of alternative sources of public drinking water.

2

REGION

Pollution Settlement

Region 2 recently reached a settlement with N.L. Industries, Inc. of Sayreville, New Jersey, on alleged air pollution violations, that requires N.L. to pay \$1.1 million dollars in civil penalties. This represents one of the largest fines ever collected under the Federal Clean Air Act.

It was the cooperative approach between EPA and the New Jersey Department of Environmental Protection that Regional Administrator Charles Warren emphasized when he stated that the execution of the N.L. consent decree "should be viewed as compelling proof that the Federal and State agencies are capable of constructive cooperation when confronting the health concerns in air pollution problems."

The pollution abatement plan is expected to reduce emissions of particulate matter from one operation alone by more than 125 tons per year.

3

REGION

PCB Fines

Region 3 has assessed fines totalling \$76,000 for the spilling of polychlorinated biphenyls (PCB's) in a Philadelphia street last May. The PCB's came from electrical transformers belonging to the bankrupt Independent Wiring Co., Inc.

Approximately 300 to 400 gallons of highly concentrated PCB's were released from the transformers into the street. Some 20 local residents, including some children, came into contact with the PCB's.

A joint cleanup effort by EPA and the city of Philadelphia removed all the PCB-contaminated pavement, soil, and water at a cost of over \$166,000.

Treatment Plant

A U.S. Magistrate recently fined the town of Ashland, Va. (Hanover County) \$2,500 and placed it on one year's probation for failure to maintain sewage treatment plant operating records. Daily operating and analysis records are required to be stored for a period of three years.

EPA and State investigators discovered the missing records while seeking information about operating violations that had occurred at Ashland's treatment plant. EPA referred the case to the Department of Justice which filed suit against the town. During negotiations, Ashland officials agreed to plead guilty to the charges and pay a fine.

4

REGION

Toxics Study

A comprehensive study of toxics in the Memphis/Shelby County, Tenn., area is underway. Investigators are examining air emissions, water discharges, and waste disposal practices of a variety of industries.

Some residents of the Frayser community in North Memphis have reported physical ailments which they believe may have been caused by chemical contamination of their environment. The ailments include allergies, rashes, and respiratory problems. Air, water, and soils samples taken earlier in the year failed to show abnormally high contaminant levels in the Frayser community.

5

REGION

Chemical Site

A regional response team from Region 5 was sent to Seymour, Ind., on March 29 to work with State and local officials responding to a reported spontaneous chemical reaction and the very serious possibility of severe contamination entering a stream adjacent to the Seymour Recycling Company, a chemical storage and recycling site some 75 miles south-southeast of Indianapolis.

EPA's On-Scene Coordinator quickly set in place a containment operation that began early on March 29 and included the digging of a 2,700-foot long ditch.

Some 48,000 55-gallon drums were found on the site, including 4,200 barrels stored outside the fenced area. While the ditch was being constructed, crews set to work clearing away empty barrels and remains of old buildings. They also began examining contents of the barrels. Within a few days they had identified nearly 50 of the priority chemicals listed on EPA's register of 299 hazardous substances. At least 25 of these chemicals had been found in the stream; results of groundwater tests were not immediately available. By April 15, nearly half of the barrels had been processed—examined and restacked by chemical "families" on freshly graveled work areas.

A dual filtration system was placed in operation to treat contaminated water before discharge into the city's treatment system.

Four barrels of nitrocellulose in liquid state were found and were disposed of by burning. Approximately 100 pounds of explosive chemicals found on the site were detonated in a nearby field by an Explosive Ordnance Demolition team from Ft. Benjamin Harrison. (See News Briefs Page 40)

Comey

David Comey, who was cited in the April issue of EPA Journal for his contribution to the environment, was an official of Citizens for a Better Environment. This is a

non-profit organization involved in environmental research, litigation, and public education. Comey was president of the group from June, 1976, until his death in January, 1979. Comey's association with the organization was inadvertently omitted from the April article.

6

REGION

Construction Grants

Regional Administrator Adlene Harrison and the Oklahoma Commissioner of Health, Dr. Joan Leavitt, recently signed an agreement delegating administration of the Construction Grants Program to the State over the next three years. The program is for construction of sewage treatment plants. The State agency was awarded a \$359,000 grant to pay administrative costs for the rest of this fiscal year.

Hazardous Wastes

The Region's investigations of hazardous waste sites in Arkansas, Louisiana, New Mexico, Oklahoma, and Texas are now in full swing, triggering a strong public response.

Region 6 is advising the public when sites are selected for inspection and again when EPA reaches its final disposition—letting people know what action has been taken on each site and why—and if any site is a threat to public health or the environment.

The Region plans to use emergency funds, provided for in Section 311 of the Clean Water Act, for the cleanup of the abandoned French Limited hazardous waste site near Barrett, Texas. The Coast Guard is doing the same at the Motco site in Texas City, Texas.

Conditional Okay

The EPA has conditionally approved all but two revisions of the New Mexico State Implementation Plan to bring air quality in the State up to National Air Quality Standards. The plans in all five Region 6 States have now been approved.

Regional Administrator Adlene Harrison said major improvements in the revised New Mexico plan included the sulfur dioxide control program for the Four Corners area and the regulations for the potash industry in Eddy and Lee Counties.

7

REGION

Sludge Disposal

Nearly 200 of the 500 residents of Verona, Mo., gathered recently at an EPA-sponsored town meeting to discuss the disposal of 4,300 gallons of sludge in the town.

The sludge, containing 343 parts per million of dioxin, is currently being held in a tank at a local chemical plant. Residents also discussed the testing of a farm site a few miles away where barrels of chemicals possibly containing this deadly substance were buried.

Emergency Aid

Region 7 recently responded to a request for emergency assistance from the Iowa Dept. of Environmental Quality when over 1,100 barrels, some containing potentially explosive and toxic chemicals, were discovered in an old egg processing plant at Malvern, Iowa.

EPA obtained a temporary restraining order from the U.S. District Court in Des Moines and sent members of the Region 7 Emergency Response Team to the site to direct immediate removal of the 55-gallon drums to a safer place.

EPA then requested that the U.S. Attorney file a civil complaint for injunction relief under Section 7003 of the Resource Conservation and Recovery Act.

8

REGION

Proposed Standards

The EPA recently proposed cleanup standards for open land areas and buildings contaminated with radioactive materials from inactive uranium processing mills.

Roger Williams, Regional Administrator, said the new standards concern wastes from old uranium mills that processed uranium ore several decades ago.

EPA is concerned about health hazards from the tailings. Radium in the tailings decays into radioactive radon gas. Radon and its decay products emit cancer-causing alpha particles. They also emit gamma rays which can travel through foundations slabs, footings, and walls.

9

REGION

Energy, Environment

Regional Administrator Paul DeFalco, Jr. recently addressed the annual meeting of the American Society for Public Administration. He discussed the subject, "The Convergence of Energy and Environmental Policy."

"There is a clear message that in balancing our energy and environmental needs there is truly 'no free lunch!' However, we in EPA are convinced that the country can solve its energy problems without turning back the clock on environmental progress," he said.

10

REGION

Air Plan

Region 10 has recommended that the City of Spokane promptly submit its transportation control plan to State authorities so they can begin the process to adopt it as part of the State Implementation Plan to achieve air quality standards. The Spokane plan, which seeks to bring carbon monoxide levels into compliance by December 1982, does not include provisions for a mandatory auto emission inspection program. Instead, it relies on parking bans and other measures

to attain the carbon monoxide standard by the deadline. If the Spokane plan in its present form were to be submitted to EPA after the conclusion of the State approval process, EPA would seek to approve it as long as Spokane had aggressively pursued its implementation. □

States Served by EPA Regions

Region 1 (Boston)
Connecticut, Maine
Massachusetts, New
Hampshire, Rhode Island,
Vermont
617-223 7210

Region 2 (New York City)
New Jersey, New York,
Puerto Rico, Virgin
Islands
212-264-2525

Region 3 (Philadelphia)
Delaware, Maryland,
Pennsylvania, Virginia,
West Virginia, District of
Columbia
215-597-9814

Region 4 (Atlanta)
Alabama, Georgia,
Florida, Mississippi,
North Carolina, South
Carolina, Tennessee,
Kentucky
404-881-4727

Region 5 (Chicago)
Illinois, Indiana, Ohio,
Michigan, Wisconsin,
Minnesota
312-353-2000

Region 6 (Dallas)
Arkansas, Louisiana,
Oklahoma, Texas, New
Mexico
214-767 2600

Region 7 (Kansas City)
Iowa, Kansas, Missouri,
Nebraska
816-374-5493

Region 8 (Denver)
Colorado, Utah,
Wyoming, Montana,
North Dakota, South
Dakota
303-837 3895

Region 9 (San Francisco)
Arizona, California,
Nevada, Hawaii
415-556-2320

Region 10 (Seattle)
Alaska, Idaho, Oregon,
Washington
206-442-1220

Controlling Pollution in China

By Qu Geping

China takes environmental protection seriously, for as a socialist country her highest principle is to safeguard and foster the interests of the people. Some good results have been achieved.

One of the problems that arises with widespread use of chemical insecticides is pollution of the soil, water and crops, which directly or indirectly endangers the people's health. These insecticides also kill many beneficial insects and birds, thus reducing natural preventives of plant diseases and insect pests.

China's agro-scientists sought to cut down on these undesirable effects through using selective insecticides, mixtures and thinner solutions. When this did not fundamentally solve the problem they turned to biological control. Some success has been gained in employing beneficial insects and pathogenic microbes to prevent and control plant diseases and pests. Insects like trichogramma, ladybirds and green lacewings kill pests that harm grain, oil crops, cotton and trees. Microbes control the corn borer, pine moth and rice plant skipper. Antibiotics are employed to prevent rice sheath and culm blight, rice blast, millet smut and apple rot. In rice-growing areas ducks turned out into the paddy fields to eat rice hoppers get rid of 70 to 80 percent of them.

Such measures are being widely introduced throughout China. Figures for 1978 show that they were used on 6,700,000 hectares of land, counter-insects on 2,070,000 ha. and antibiotics on 2,000,000 ha. against plant diseases and 1,800,000 against pests. Ducks were used to kill hoppers on 670,000 ha. of paddy fields. Biological control networks have been set up in many regions, as well as pest forecast stations and biological breeding farms. Millions of peasants are taking part in this work and cooperating with the scientists on control.

Eighty percent of China's population lives in the countryside where brush and other vegetation is the traditional domestic

fuel. About 500 million tons a year of such fuel, the equivalent of 400 million tons of coal, is burned and thus does not return to the soil as organic matter. In the past in some places indiscriminate tree-felling for fuel aggravated soil erosion and began to affect the climate.

New Sources of Energy

New sources of energy are being promoted in the countryside to protect the natural environment and the ecological balance. Chief ones are small hydropower stations and marsh gas. China has water resources for small- or medium-sized hydropower stations capable of producing a total of 150 million kilowatts. A total of 88,000 such stations have been set up in three-fourths of China's 2,100 counties, with an installed capacity of 5,300,000 kw. These now provide an inexpensive source of power and lighting and will play a big role in modernizing agriculture.

Marsh gas is also widely used. Home garbage, night soil and vegetation are fermented in sealed methane-generating pits, each of which can serve one or several households. By 1978 China had 7,000,000 of them and they had become the main source of energy for cooking and lighting in 21 counties. Altogether 35,000,000 people throughout the country are cooking or lighting with methane.

Marsh gas does not pollute the environment and the residue after fermentation is good organic fertilizer. In addition, fermentation in the generating pits kills most bacteria in the night soil as well as eggs of parasites such as liver fluke and hookworms, thus greatly lowering the chance for spread of disease that exists with unfermented night soil.

Curbing Industrial Pollution

Pollution is in some measure cut by the policy followed since liberation of setting



An aqueduct in a Chinese countryside.



up new industries throughout the country instead of being concentrated in the coastal cities as they were before. The policy is also to build smaller, scattered industrial towns to avoid concentration of population and the pollution that accompanies it.

Many measures are taken to transform or renovate existing enterprises to cut pollution. They include comprehensive utilization of raw materials and recycling of toxic substances into some useful product. Gas from oil refining serves as raw material for synthetic fibers and rubber, plastics and chemical fertilizer. Factory and mine tailings, instead of being dumped and covering up cultivable land, are reprocessed to yield valuable industrial chemicals and chemical fertilizer, and made into cement bricks and refractory materials. Several hundred products are being recovered from water expelled from chemical, pharmaceutical and light industrial plants.

Factories contributing to inner city pollution are moved to the suburbs, and when new ones are set up they are built some distance from the city. As an initial measure, those discharging gases must be placed downwind from the cities and those expelling polluted water must lead it away from rivers or lakes.

In the atmosphere of anarchism fostered by Lin Biao and the gang of four during the cultural revolution such regulations were ignored in many factories and mines. In the past few years the authorities have reviewed existing laws on environmental protection, drafted some new ones and made efforts to put them into effect. Unfortunately, solving many of the problems takes time and money, so solutions can be reached only step by step. Starting from what is feasible in the current period, in 1978 the State set dates by which 167 industrial and mining enterprises with serious pollution problems must solve them or be closed down. Research is being done on control of city noise and air and water purification, and some measures have been taken.

Proper salvage of refuse, both from home and industry, also helps keep the environment clean. Between 1956 and 1977 the State collected 89,000,000 tons of reuseable refuse, including leftover materials, discarded equipment, glass, plastics, rubber, scrap metal, rags and paper. Because through treatment and reprocessing it could be turned into something useful, it was valued at 19.5 billion yuan, (more than \$13 billion at the official exchange rate—Ed.). In some cities refuse like vegetable leaves and fruit peels is taken to the suburbs for composting as fertilizer.

Saving a Lake

A general survey of river, lake and coastal pollution near cities has been made in the

past few years. Cleaning up the Guanting reservoir, Baiyangdian Lake, Jiyun Canal and the Zibo industrial district has been some of the initial work.

Ya'er Lake in Hubei province on the middle reaches of the Changjiang (Yangtze) River is a shallow freshwater system consisting of 13 small lakes which used to teem with fish, shrimp and lotus. Three chemical plants built around the lake caused serious pollution and were slowly poisoning all life in them. One of them, Yanjia Lake, became a "death lake," its water instantly lethal to all marine life.

After the fall of the gang of four a big army of government workers, technical personnel and 20,000 rural commune members began a battle to purify the lake. Over two years they built four sets of connecting pools covering a total of 200 hectares into which the chemical-laden water is drained and purified through the use of algae. Gradually Ya'er Lake has resumed its purity. Last year it yielded 2,500 tons of fish, more than in any previous year.

Many new measures are being utilized to prevent pollution or cut it down to a minimum. They include the use of mercuryless instruments, electroplating without cyanides, recycling of waste water from oil fields, ferment molting treatment for leather and paper manufacture with ammonium nitrite.

The Environmental Protection Law of the People's Republic of China, issued by the Standing Committee of the Fifth National People's Congress in September 1979, will give us a firmer ground for the continuing battle against pollution. □

Qu Geping is Vice-Chairman of the Environmental Protection Office under the State Council. This article and the extracts following it are from China Reconstructs, a magazine published by the People's Republic of China. EPA Administrator Douglas Costle met with Qu Geping during a recent visit to China for the signing of a protocol between China and the U.S. for environmental protection. An interview with Costle on the trip was printed in the April EPA Journal.

Extracts of China's Environmental Protection Law

- China's environmental protection law is designed to guarantee a rational utilization of natural resources in socialist modernization, to prevent environmental pollution and violation of ecologic balance, so as to create a clean living and work environment for the people, protect their health and promote production.
- Guiding principles for environmental protection are a rational distribution of industries, comprehensive utilization of products and materials, changing of wastes into useful things and mobilizing and relying on the people to control pollution.
- When a project is built, enlarged or reconstructed, measures protecting the environment must be designed, constructed and put into operation at the same time as the main body of the project, otherwise the project may not go into production. Those which are already causing pollution must take effective measures to eliminate it within a specified time limit, or else stop production, switch to making other products or move away.
- Forest resources must be protected and developed and great efforts made to making the country green. Natural flora and fauna must be protected, developed and rationally used.
- Measures must be taken to control and eliminate factors that pollute cities and industrial and mining areas. These include waste gas, liquids and solids, dust, garbage, radioactive materials, noise, vibration and foul smells.
- Foreign travelers or foreign planes, ships, motor vehicles, materials, plants and animals that enter or pass through China are subject to her environmental protection laws and regulations.
- Units and persons who make outstanding contributions to environmental protection are to be commended and rewarded. Products made from waste are wholly or partially exempt from taxation. Profits of factories making these products are not handed over to the state, but may be used for dealing with pollution and bettering the environment. Units that cause pollution are subject to criticism, warnings or fines, or being closed down until corrective measures are taken. Leaders of units as well as individuals responsible for serious pollution that have led to loss of life or serious damage to agriculture, forests, animal husbandry, sideline occupations or fishing will be held to account both administratively and financially and may be punished by law. Every citizen has the right to report and file charges in court against violations of environmental protection regulations. □



Drawing by Francis Lee Jaques

Surgery in the Park

A wood thrush high in a towering elm tree begins its sad sweet singing while far away the wail of an ambulance siren gives the song special poignancy.

A young couple with their arms wrapped around each other stroll along the woodland path between the thick clumps of rhododendron and mountain laurel.

An orchestra begins playing at the open-air amphitheater and the strains of Mozart are heard as fireflies begin to flash their signals in the gathering dusk.

These are sights and sounds on a summer evening in a lovely park in Arlington, Va., which will soon undergo a major operation that could change it dramatically.

Ironically, the gash that will be cut through the approximately 20-acre park is needed for a new sewer designed to provide better environmental protection.

The Lubber Run Park, Arlington's oldest, is located in a ravine in a well-established neighborhood between major highways that carry thousands of commuter cars daily.

Yet most of the noise from the almost ceaseless rumble of traffic passes over the park which is protected on three sides by sharply rising wooded hillsides. On these banks and the ravine floor grow mature elm, oak, and beech trees, some rising 75 feet high, which also help screen out the hub-bub of the busy world above.

The park gives a congested neighborhood a leafy oasis where young children can splash their bikes through the shallow stream as it crosses a

ford in the bike path, where scarlet tanagers, warblers and woodpeckers dart through thick green foliage, where spring beauty, violets and other wildflowers bloom, and where frogs croak in the night as the stream that gives the park its name gurgles and splashes over huge boulders.

Yet like many stream parks it is also the site of a sewer line which follows a descending route to the treatment plant and the river. The reason for building a sewer along a stream is that the downward pathway of the pipe permits the sewage to be carried by gravity alone.

Because of the construction of high rise apartments, town houses and office buildings around Lubber Run Park the flow of sewage now sometimes exceeds the capacity of the sewer line built in the park 40 years ago.

As a result, sewage sometimes leaks into Lubber Run, creating foul and unhealthy conditions. When the flow in the present sewer line is at peak capacity it sometimes backs up into the homes of nearby residents.

To correct these conditions, the Arlington Department of Public Works proposed building of a parallel supplementary sewer line to handle the mounting volume of wastes.

Replacement of the existing sewer line was ruled out because of the substantial number of large trees that have grown over the pipe route. Also, if the existing line were to be replaced, a complicated

and expensive system would have to be set up to bypass the sewage during construction of the new line.

Another alternative which would have provided for building the relief sewer outside the park and under a nearby residential street was rejected by the Arlington County government because it would have required pumping the sewage, a process that would depend on the costly use of electricity for years to come.

Reluctantly, the county government finally over-ruled the objections of many citizens concerned about damage to the park and voted to build the new line along the stream bed.

Construction scheduled to begin this fall will require the removal of 163 trees and will disrupt recreational activities in the park for at least one year.

The Arlington Public Works Department states that great efforts have been made to avoid cutting the larger trees. In addition, the department says, all trees and vegetation removed in construction will be replaced. Funds are to be provided also for trees that may die later on as a result of excavation injuries.

Consideration is also being given to the appointment of an independent arbitrator to settle disputes between park lovers and construction engineers in such matters as whether a particular tree must be destroyed.

The need for sewer improvements is developing in many

urban area stream parks where population growth makes old sewer lines inadequate. In such cases local sanitary engineers and EPA are sometimes seen as the villains who are destroying the beauty of nature.

There is no universal painless solution. While people are becoming increasingly aware of the value of parks and the natural world, the temptation to use open space for sewers and highways has always been powerful.

In addition to fiercely guarding against unnecessary intrusion in open areas, park supporters must see that when construction work is done it is carried out with minimal damage.

After the operation, tender loving care can help assure that parks recover much of their former beauty.

While change in nature may be inevitable we can often help shape it for the better. Rene Dubos, the noted environmental authority, stated in an interview in EPA Journal two years ago that "anywhere in the world, almost, an ecosystem that has been damaged can be brought back to a good condition if you help nature repair systems that exist."

Of course, this does not diminish the need to jealously guard the natural treasures which, in Shelley's phrase, give "grace and truth to life's unquiet dream."—C. D. P.

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

AIR

Ozone Protection

EPA Deputy Administrator Barbara Blum said that the United States will propose this fall limiting future domestic production of stratospheric ozone-depleting chlorofluorocarbons to 551 million pounds, the same amount manufactured in 1979. Worldwide production of the chemicals was 1,927 million pounds in 1977, according to the latest available figures.

Blum made the statement at the conclusion of a two-day meeting in Oslo, Norway recently at which seven nations and the European Commission discussed additional controls on chlorofluorocarbons. The seven nations present were the U.S., Canada, Norway, Denmark, Sweden, West Germany, and the Netherlands.

These compounds—banned for use as propellants in most aerosol sprays in this country—can destroy the stratospheric ozone layer that shields the earth from harmful ultraviolet radiation that can cause skin cancer and damage animals and plants.

Blum noted that remaining uses of the chemicals, such as the refrigerant in air conditioners, refrigerators, freezers, solvents, and the manufacture of various plastic foams, continue to threaten people and the environment. She said additional controls are needed in

the U.S. and other countries.

Late last year, the National Academy of Sciences estimated that continued global emissions of the compounds would lead to thousands of more cases of potentially fatal skin cancer, and hundreds of thousands of additionally non-fatal cases.

"Action by the U.S. or any other single country—regardless of how severe—will never eliminate the threat chlorofluorocarbons pose," said Blum. "Rapid, parallel actions by all nations producing chlorofluorocarbons are needed soon."

CEQ Report

About 14,000 lives and \$21.4 billion were saved in 1978 as a result of air quality improvements since the 1970 Clean Air Act was passed, according to a report on the benefits of pollution control released by the President's Council on Environmental Quality (CEQ).

The report, prepared by A. Myrick Freeman III, professor of economics at Bowdoin College, also translates health and other benefits of air and water pollution control into dollars.

In measuring the positive effects of air pollution control, Freeman notes improvements in human health, reduced household cleaning costs, less damages to vegetation and crops, and lower damages to materials. Some increases in property values were included.

The water pollution benefits consist mainly of improved recreational opportunities for swimmers, fishermen and boaters. Pollutant removal also reduces certain waterborne diseases, lowers municipi-

pal water treatment costs and reduces costs to households and industries.

Copies of the Freeman report, *Benefits of Air and Water Pollution Control: A Review and Synthesis of Recent Estimates*, can be obtained from the Council on Environmental Quality, 722 Jackson Place, NW, Washington, D.C. 20006. Enclose a self-addressed mailing label.

HAZARDOUS WASTES

Waste Regs

The Environmental Protection Agency has announced a national system designed to prevent future hazardous waste disasters such as the Love Canal health catastrophe and April's Chemical Control Corp. dumpsite explosion in Elizabeth, N. J.

"These new hazardous waste controls will prevent random dumping of dangerously toxic and explosive industrial waste products," said EPA Administrator Douglas M. Costle. "We know that today 90 percent of the millions of tons of hazardous waste being produced by industry each year is disposed of in ways that will not meet the new standards."

All businesses which handle hazardous wastes as defined under the new regulations must notify EPA, giving the Agency a national inventory of businesses that handle hazardous wastes and an inventory of the kinds of wastes discharged. A tracking or "manifest" system begins in November, requiring the producer to designate the approved facility to

handle his wastes, and to report to EPA if these wastes fail to arrive safely at the designated site.

Costs of compliance with these regulations for 22 major industrial sectors are estimated to be \$510 million a year, less than 0.2 percent of the \$350 billion annual gross sales for the affected industries.

RADIATION

EPA Named

The EPA has been designated by the White House as the lead Federal agency responsible for the monitoring of off-site radiation levels around Three Mile Island, and for the implementation of a comprehensive program to keep the local elected officials and the public fully informed of near- and long-term cleanup activities.

The Agency will be kept informed of the status of the disabled reactor number two and proposed on-site cleanup actions by the Nuclear Regulatory Commission. The Commission will work with EPA to provide the public and State and local officials with all the necessary information on cleanup operations in a manner that will allow full and open discussions prior to any final action.

H. Matthew Bills, of EPA's Office of Monitoring and Technical Support in Washington, D.C., will coordinate the Agency's activities in the Three Mile Island area.

The Agency announced the establishment of an environmental radiation monitoring information office to be located in Middletown, Pa. This office will collect information on radiation levels in the environment around the plant and communicate this information directly and promptly to

the public and the news media. An extensive radiation monitoring system has been in place around Three Mile Island for the last year. Erich W. Bretthauer, Director of EPA's Nuclear Radiation Assessment Division, has been named project director for this program.

RESEARCH AND DEVELOPMENT

Research Deadline

The deadline for applying for funds under a new EPA research program is June 30. The new system makes a wider use of peer panel review to determine the scientific merit of aid requests and will involve a more active solicitation of proposals.

Under the existing system, EPA receives most applications for funding assistance on an unsolicited basis and conducts a mail review to evaluate their scientific merit. The Office of Research and Development (ORD) currently awards about \$70 million annually in research grants and cooperative agreements.

Proposals now being sought by EPA include those involving environmental pollutants, environmental chemistry and physics, environmental biology, control technology and source characterizations studies.

Inquiries about the new process as well as requests to receive solicitation should be forwarded to Dr. Richard Marland (RD-675), U.S. Environmental Protection Agency, 401 M Street, SW, Washington, D.C. 20460, or phone (202) 426-2355 (FTS 426-2355).

WATER

Environmental Strategy

EPA Assistant Administrator for Water and Waste Management Eckardt C. Beck called recently for "administrative creativity" to solve environmental and public health problems facing the Nation during the 1980's.

Beck contrasted accomplishments during the '70s with emerging problems of the '80s in a luncheon address before the Government Affairs Seminar of the Water Pollution Control Federation held in Washington, D.C.

Terming the 1970's "a tough environmental act to follow," he said the decade "will be remembered as the definite benchmark of environmental accomplishment."

"The goals of the coming decade can best be attained through four fundamental initiatives: a construction grants strategy geared to meet the needs of the next decade; the institutionalizing of methods for properly controlling hazardous wastes; a plan of attack for 'going after' the next generation of toxic substances, and finally, a comprehensive ground water strategy," said Beck.

Beck noted that while these initiatives were not all-inclusive, they constituted new areas whose total development over time is inevitable.

Women-owned Firms

As part of a design to stimulate the participation of women's businesses in its Construction Grants Program, the EPA has established a Task Force to identify women-owned firms that can provide services in the planning, design and construction of waste-

water treatment works. The Task Force is conducting a survey that will directly benefit women-owned businesses in two ways: (1) by providing a list of Women's Business Enterprises (WBE) from which bids may be solicited on EPA projects, and (2) by establishing a percentage goal for participation by women-owned businesses.

The Task Force is seeking information from persons and organizations who know of or qualify as women-owned firms. (In order to qualify as a firm under this EPA program, the firm must be at least 51 percent owned by a woman or women who also control or operate the firm.) Interested persons are invited to write or call: Ms. Joan Arnold, or Michelle Weiss WBE Survey Staff (A-105), U.S. EPA, 401 M Street, S.W., Washington, D.C. 20460, telephone 202/755-0540.

Cleanup Fund

"The Federal government may soon lose much of its ability to protect the public from dangerous chemical and oil spills," EPA Administrator Douglas M. Costle warned recently. Costle noted that a special fund set up to pay for Federal spill cleanup is in danger of being exhausted.

Costle said that only about \$3.2 million remains in the fund to respond to environmental emergencies and that the fund could run out of money in the near future. A supplemental appropriation request of \$21.3 million was submitted by the U.S. Coast Guard to replenish the fund.

The fund—established under Section 311(k) of the Clean Water Act—provides that \$35 million be maintained for use by EPA and the Coast Guard

to respond to spills of oil and designated chemicals and other emergencies involving water pollution. Congress intended that those responsible for a spill would repay the fund, within the limits of established liability, for any money used by the Federal Government in its responses; hence, the fund is known as a revolving fund.

In practice, however, it is impossible in some cases to determine who is responsible; in other cases the responsible parties are able to tie up in court the process of recovering cleanup costs. In such cases, the costs are never recovered or, at best, are only partially recovered by the government. Such situations have reduced the amount of money available in the fund to deal with future incidents.

Congress has acted several times in recent years to replenish the fund when it was in danger of being depleted.

AGENCY WIDE

Identifying Hazards

The EPA has joined with the Consumer Product Safety Commission, the Food and Drug Administration, and the Food Safety and Quality Service—all members of the Interagency Regulatory Liaison Group—to begin a program to effect quicker identification and removal of serious public health hazards.

In the past, whenever one inspector observed a situation which seemed in violation of another agency's rules, the infor-

mation was passed along to the appropriate agencies for followup. More recently, the agencies' regional offices independently developed checklists, forms, procedural guidelines and other aids to facilitate such reporting.

The new referral program, however, establishes a formal, standardized procedure for reporting observations of suspected violations to the agency responsible. Most major industries are visited by inspectors from one or more of the Liaison Group agencies. Examples of businesses that would be affected by the cooperative inspection program include chemical manufacturing, food processing, drug production, and the manufacturing of various consumer goods.

Inspectors from each of the agencies will be trained to recognize possible violations of another agency's regulations. However, a determination that a violation exists will be made only by the agency having the legal jurisdiction over the suspected violation, and then only on the basis of the responsible agency's own followup investigation.

Examples of violations that might be referred are: foam, scum, or dead aquatic life near a waste discharge; open burning of trash piles; pesticide misuse; oil or chemical spills; or mishandling of drugs or toxic substances.

The fifth IRLG member, the Occupational Safety and Health Administration, will continue to cooperate with the other agencies on an informal basis for such referrals, but is not joining the initial stages of the more formal program pending

clarification of various legal points.

In addition, because of the complexity and scope of its field structure, the Food Safety and Quality Service does not anticipate full implementation of the program until September 1, 1980.

Regulatory Reform

In a move to keep the public informed, the EPA has issued an Agenda of 210 Regulations currently under development and invited public participation in their formation.

The Agency prepares and issues regulations to implement environmental programs in the areas of air and water pollution control, drinking water protection, noise abatement, radiation protection, solid waste management, and pesticides and toxic substances control.

The agenda includes new regulations, existing regulations which the Agency is reviewing or revising, and non-regulatory actions which the Agency believes are important. Along with each regulation is a brief description of the rule, the name of the EPA contact person and an estimated schedule for issuance. Interested persons are encouraged to get in touch with these contact people to provide or obtain information concerning the development of these regulations.

EPA will issue its next agenda in June, 1980, and thereafter in December and June on a semi-annual basis.



John C. Chamberlin

He has been appointed Deputy Director, Budget Operations Division, Office of Planning and Management at EPA Headquarters. He was most recently Chief of the Budget Review and Analysis Branch and responsible for review and analysis of program/resource issues for the entire Agency.

Prior to that, he spent three years as branch chief responsible for all regional program/budget issues and two years as the senior program analyst for Enforcement.

In these positions, Chamberlin played a major role in the transition of EPA's budget formulation process to the zero-based budgeting system. He won an EPA Special Achievement Award for his effort during the first year of transition.

Chamberlin also spent time with the Peace Corps in Peru, assigned to the Peruvian Development Corporation, and worked as an associate industrial engineer with IBM.

He received a B.S. in Industrial Engineering from Virginia Polytechnic Institute and a MBA from the University of Pittsburgh.

Gene Lucero

He has been named Deputy Regional Administrator at EPA's office in Denver. Lucero had been Deputy Director for Compliance at ACTION, the Federal agency for Volunteer Service, in Washington, D.C., a post he had held since 1978. He served as Assistant Attorney General for the Colorado Department of Law from 1975 to 1978, where he handled legal cases, including those involving air and water pollution. From 1972 through 1975 he was an attorney with the Metropolitan Denver Legal Aid Society, and previously he had been a law clerk with the Health Facilities Foundation in Berkeley, Calif. Lucero graduated with honors from Stanford University in 1970 and earned a law degree from the University of California at Berkeley in 1972. He is a member of the Colorado Trial Lawyers Association and the Colorado Chicano Bar Association.



Dr. Michael D. Waters

He has been named Director of the Genetic Toxicology Division of EPA's Health Effects Research Laboratory at Research Triangle Park, N.C. Dr. F. Gordon Hueter, laboratory director, said in announcing the appointment, "Dr. Waters will be responsible for building an existing nucleus of scientists and research activities into a major EPA program to conduct bioassay studies on potential environmental toxicants which exert their effects via genetic routes, causing such problems as mutations and cancer."

Dr. Waters had been Acting Director of the office since December. Prior to that time, he had been Chief of the laboratory's Biochemistry Branch.

A native of Charlotte, N.C., Dr. Waters joined EPA in 1971 after having served as a captain in the U.S. Army Reserve in charge of the Tissue Culture Laboratory at Edgewood Arsenal, Md. He recently was elected councilor of the Environmental Mutagen Society, and he holds an appointment as Adjunct Professor in the School of Medicine at the University of North Carolina at Chapel Hill.

Other honors include membership in the American Chemical Society, New York Academy of Science, Society of the Sigma Xi, Tissue Culture Association, Who's Who in North Carolina, and Who's Who in the South and Southwest. He was awarded an Army Commendation Medal for Biomedical Research.

He received his bachelor's degree in pre-medicine from Davidson College in 1964 and a doctorate in biochemistry from the University of North Carolina at Chapel Hill in 1969.

William J. Lacy

He has been elected to a second two-year term as a director in the Environmental Division of the American Institute of Chemical Engineers. Lacy is a member of the Board of Directors of the International Ozone Association and Vice Chairman of the American Society of Testing and Materials' Committee on Hazardous Wastes. He is the director of the Water and Hazardous Materials Monitoring Research Division, in EPA's Research and Development Program.



Joseph A. Krivak

He has been appointed Director, Criteria and Standards Division, Office of Planning and Standards, Office of Water and Waste Management. He was most recently Deputy Director, Division of Water Planning. In his new position, he will supervise a staff of 50 scientific professional, technical, and administrative personnel. His principal responsibilities will include serving as an Agency spokesman on technical and scientific information on water quality and standards and as the manager of the Clean Lakes and the 404 Dredged or Fill programs.

Prior to this, he held a number of administrative positions: Chief of the Nonpoint Sources Branch at EPA, Director of the Division of Intergovernmental Coordination in the Department of the Interior's Office of Land Use and Water Planning, and Chief of the Planning and Standards Branch of the EPA.

Krivak also held several positions with the Soil Conservation Service of the U.S. Department of Agriculture, including eight years of Watershed and River Basin Planning and related construction activities.

Monitoring Coal

By Richard Wilson

Sampling and monitoring of emissions from air pollution sources are crucial aspects of EPA's air quality enforcement program. Information collected from individual plants is used in assessing the adequacy of control equipment, the continued performance of that equipment, and in defining the capabilities of certain equipment to meet "Best Technology" requirements of air quality control regulations.

A review of sampling and monitoring approaches for coal fired power plants illustrates some of the methods and procedures currently used by industry and government in meeting the requirements for attaining and maintaining a clean environment.

Coal Sampling

Coal sampling is a procedure used by most coal-fired utilities to determine the characteristics of the coal that is being purchased. Of particular interest to the utility is the amount of heat that will be released from the coal when it is burned. This is called the BTU value of the coal. Another key element of the coal is its sulfur content. This is important from a regulatory standpoint because the sulfur in the coal will be emitted as the pollutant sulfur dioxide (for every 1 ton of coal burned with 2 percent sulfur, about 80 pounds of sulfur dioxide will be emitted).

The coal analysis also checks the ash content of the coal which is the amount of noncombustible material. Ash and other noncombustible material in the coal causes substantial particulate matter emissions if control equipment is not installed and operated properly at the power plant. When something goes wrong with this equipment, a visible smoke plume can be seen from miles away.

Stack Sampling

Stack sampling is a procedure used by most regulatory agencies, including EPA, to determine the exact amount of pollutants that are being emitted from power plants. Sampling is also used to judge how effective control equipment is in removing pollutants before they are emitted to the atmosphere. Stack sampling procedures primarily consist of a probe inserted into the stack to withdraw gases (including particulates) at about the same velocity as the

exhaust gases are emitted into the atmosphere.

The pollutants in these gases are then collected for further measurement in a laboratory. These tests are usually very expensive and require substantial preparation prior to the actual sampling. One test costs between \$10,000 to \$25,000 and if all goes well can be completed in two to three days.

Although these tests are accurate, they are not generally used for determining day-to-day compliance because of the time and expense involved. Stack sampling is mainly used to determine if new pollution control equipment is capable of performing at the desired level of pollutant removal. In most cases subsequent sampling is only performed at the request of a regulatory agency. Such requests are relatively infrequent and usually are prompted by some indication of noncompliance.

Continuous Compliance Monitoring

The primary EPA enforcement emphasis in the past several years has been on assuring that air pollution sources initially achieve compliance with emission limitations. As a result, compliance monitoring was generally limited to infrequent tests such as fuel sampling or stack sampling. The Agency has recently begun to focus on the day-to-day, continuous compliance of sources. The need for this change in focus is demonstrated by recent joint field studies by EPA and the Council on Environmental Quality that found excess emissions at 70 percent of the sources studied. Emissions at these sources average 25 percent over allowed levels.

On June 11, 1979, the EPA Administrator published requirements for new electric utility steam generating units. These included for the first time in EPA's regulations a rule that each source continuously monitor its emissions and be judged for

compliance on a daily basis using the continuous monitoring data.

As implementation of this new approach begins to furnish information about continuous emissions from sources, operators of the control equipment will be able to identify periods when maintenance or adjustments in operation are necessary to reduce emissions. This new information should greatly improve industry's ability to design and operate control equipment for the constant removal of pollutants resulting in continuous compliance by sources.

Regulatory agencies realize that the sampling methods of the past were not telling the entire story about emissions from a source. The new continuous emissions data will improve the data base used by regulatory agencies in establishing reasonable emission standards. Additionally source compliance will be judged by examining emissions on a day-to-day basis. Enforcement to assure compliance each day will assure acceptable air quality at all times.

Currently EPA is evaluating several options for enforcement against sources that fail to meet the required emission levels on a daily basis. One of the more promising options is the use of an administrative penalty assessed by State and local agencies. Currently several regulatory agencies are using this type of a procedure for improving compliance.

The coming months will see a further shift of emphasis to continuous compliance monitoring. Programs are being developed that will require such monitoring by all major air pollution sources. Such monitoring should lead to the proper operation and maintenance of pollution control equipment and thus maximize the environmental benefit from existing air pollution controls. □

Wilson is EPA's Deputy Assistant Administrator for General Enforcement.



Coal sampling by Potomac Electric Power Company at its generating plant in Alexandria, Va. Sulfur, ash, and capacity to produce heat are measured.





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