United States Environmental Protection Agency Office of Public Awareness (A-107) Washington, D.C. 20460

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Volume 5 Number 2 February 1979



Defusing Time Bombs

n this issue, the Journal takes a look at the complex problems of preventing damage from buried hazardous wastes and from fresh flows of these pollutants being generated now and in the future.

Part of the price of our extraordinarily successful system of producing goods is the creation of waste which must be handled in a sensible fashion. Failure to do this in the past has led to burial of substantial amounts of hazardous wastes in the ground where they are ready like time bombs to erupt at some future date.

Administrator Costle has proposed extensive new regulations to deal with hazardous wastes. Yet he warns that complete control of these dangerous chemical byproducts may take several years.

Sen. Jennings Randolph, chairman of the Senate Environment and Public Works Committee, reviews various additional steps Congress may take

to tighten controls over hazardous wastes.

Louisiana Gov. Edwin Edwards, an official of the National Governors' Conference, gives his opinion on the role the States can play in carrying out the objectives of the Resource Conservation and Recovery Act in coping with hazardous wastes and other problems.

Thomas Jorling, Assistant Administrator for Water and Waste Management, and Steffen Plehn, Deputy Assistant Administrator for Solid Waste, discuss the EPA's role.

Other views on this subject include one by Dr. Charles Johnson of the National Solid Wastes Management Association on why his industry favors strong national hazardous waste regulations, a report on launching a major information program on hazardous wastes and an article on how some major industries dispose of their chemical wastes by incineration.

Articles from five EPA Regional Offices include a report on steps taken to correct conditions at a Louisiana site where hazardous waste fumes killed a young man, an account of a major conference of government officials to discuss finding suitable disposal sites, a report on action taken to remedy problems at a waste chemical dumping site in Massachusetts, a report from Kansas City about how some industrial wastes can be put to a constructive use, and an article about promising new uses of urban solid waste.

On other subjects, Deputy Administrator Barbara Blum calls for a global effort to reduce release of ozone-destroying materials into the upper atmosphere and Assistant Administrator William Drayton Jr. reports on new steps being taken to improve EPA's performance. United States Environmental Protection Agency Office of Public Awareness (A-107) Washington DC 20460 Volume 5 Number 2 February 1979



Douglas M. Costle, Administrator Joan Martin Nicholson, Director, Office of Public Awareness Charles D. Pierce, Editor Truman Temple, Associate Editor John Heritage, Chris Perham, Assistant Editors L'Tanya White, Staff Support

Articles

Taming

EPA is charged by Congress to

of national environmental laws

focused on air and water quali-

ty, solid waste management and

the control of toxic substances,

pesticides, noise and radiation,

the Agency strives to formulate

lead to a compatible balance be tween human activities and the

ability of natural systems to sup-

port and nurture life.

and implement actions which

protect the Nation's land, air and

water systems. Under a mandate

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Opposite: Barrels of hazardous wastes are buried at a dry site on the West Coast.

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Taming Chemical Wastes

By Douglas M. Costle EPA Administrator

Illegal Dumping Creates Deadly U.S. Time Bomb From Page 1

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have yet to meet anyone-government employee, businessman, member of the general public-who is not dismayed about environmental tragedies involving improper disposal of hazardous wastes at the Love Canal in New York State and at other locations across the country.

In Toone, Tenn., action has been required to correct pollution of drinking water by chemical wastes. In Seymour, Ind., a site containing thousands of leaking barrels is under court order to be cleaned up. In Akron, Ohio, operators of another site have been ordered to remove, dispose, or store all liquid waste in accordance with a State-approved plan. In New Jersey, Massachusetts, Rhode Island, North Carolina, Louisiana, and Connecticut, a number of serious cases of illicit or improper dumping have been discovered. The press is reporting new incidents almost daily.

One of EPA's regional administrators-Chris Beck of Region 2-predicted in this journal a year ago serious potential problems with chemical dumpsites. "Even though some of these landfills have been closed down," he said, "they may stand like ticking time bombs." Just months later Love Canal exploded in Region 2.

Eighty-two different compounds, 11 of them suspected carcinogens, percolated

Plaque n

up through the soil after heavy rains. The wastes leached into the backyards and basements of a hundred homes-and of a public school-built on the banks of an old canal near Niagara Falls. The canal had been used as an industrial dump until 25 years ago, and when Mr. Beck inspected the site last August, his first-hand description was like a full-blown nightmare:

"Corroding waste-disposal drums could be seen breaking up through the grounds of backyards. Trees and gardens were turning black and dying. One entire swimming pool had popped up from its foundation, afloat now on a small sea of chemicals. Puddles of noxious substances were pointed out to me by the residents.... And then there were the birth defects.... The father of one of the children with birth defects said, 'I heard someone from the press saying that there were only five cases of birth defects discovered here. When you go back to your people at EPA, please don't use the phrase "only five cases." People must realize this is a tiny community. Five birth-defect cases is terrifying."

Terrifying indeed. As Congressman Albert Gore has said, control of hazardous

Toxics 0 Rattle Vew England

From Page 1

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identified by the Environmental Protection Agency recently, w ions were conjured up of a aste F

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A \$6 Million Hassle Over Spilled Poison "It wa naterials sime nert sprile into wastes may be "the single most important environmental health issue of this decade."

The problem of hazardous wastes is really two problems:

The safe management of *new* wastes being generated as a normal by-product of America's manufacturing system.

Correction of problems such as the one at Love Canal and other abandoned sites where chemical wastes are already in the ground, disposed of for decades without adequate safeguards.

Under the Resource Conservation and Recovery Act, (RCRA), we have been developing a national hazardous waste management system. This system, described elsewhere in this issue, is designed to track the hazardous wastes being currently produced, to control their use and to ensure that they are reused or treated or disposed of in approved facilities. This system should properly ensure safe management of the more than 34.4 million metric tons of hazardous wastes generated annually in the United States.

Regarding the problem of old wastes, EPA has made a preliminary survey that indicates hundreds of potentially dangerous chemical dump sites may exist throughout this country. But EPA's authority to clean up inactive sites from the past is quite limited. We can take enforcement action against the owner of an inactive site to require cleanup, *if* we can show the site to be an imminent and substantial danger to human health or the environment. Yet such enforcement is only an effective tool where there is a current owner with the funds to remedy the problem. Cleanup costs can sometimes be in the millions.

Despite the limitations of RCRA, we have taken and will take enforcement actions. We are working closely with the States, since many have more authority than EPA to deal with abandoned waste sites. We are analyzing legislative proposals that would create some mechanism for cleaning up sites that are truly abandoned, and we will be making recommendations to the Congress.

Our Nation is concerned about hazardous wastes. Therefore, the public is concerned about EPA's performance. So far we have mixed reviews. We have been praised by many involved in the Love Canal incident for our technical assistance and support. We have been criticized in Congressional hearings for our limited data on abandoned sites and for insufficient enforcement actions. Many—including those responsible for the program at EPA—have been distressed at our failure to meet the deadline specified in the Act for proposing the hazardous waste regulatory program. However, we took only the time needed to develop sound regulations.

We are seeking to gather data on abandoned sites and to give more clout to our enforcement program. We have proposed the key elements of the new regulatory program and we will move forward with our regulations as rapidly as we can.

But we cannot change waste management practices overnight. We estimate that it will take up to five years for EPA and the States to issue permits for all known hazardous waste treatment, storage, and disposal facilities. As for wastes buried when we did not know their hazards—they cannot be regulated away. They are there. In the ground, sometimes in the water. And this problem also cannot be solved overnight. As EPA tackles the problems of old and new hazardous wastes, we will need support to help us do our job, and the scrutiny of the public to assure that we do it well. []





By Senator Jennings Randolph

Chairman, Senate Environment ar Public Works Committee

R ecent incidents have brought our attention forcefully to the public health risk of many current and past practices for managing or disposing of hazardous and toxic substances. The experience with Love Canal in Niagara Falls, N.Y., stands as a warning that many such dangerous relics of our industrial past may exist.

Hazardous chemicals from a poorly operated recent disposal operation apparently migrated into the drinking water of several homes in Toone, Tenn. Such occurrences remind us of the urgent need for regulation of disposal practices, as well as for emergency responses. Even with an effective regulatory program in place for industrial discharges into the navigable waters, there recently was another sizable discharge of carbon tetrachloride into the Kanawha River, threatening the water supply of Huntington, W.Va.

The Congress, and particularly the Senate Committee on Environment and Public Works, is greatly concerned with how to respond to the release of toxic and hazardous substances into the environment. How can the public health and safety best be protected from such materials? How should liabilities associated with potential release of such substances be managed, and how should victims of such releases be compensated and adequate cleanup resources be assured? How can we provide adequate capacity to acceptably transport, treat, store, or dispose of such materials?

A high legislative priority for the Committee on Environment and Public Works in the 96th Congress will be toxic and hazardous substances in the environment. Some of the work is obvious: the extension of authorizations and oversight for the Toxic Substances Control Act and subtitle C of the Solid Waste Disposal Act. But there will be important additional legislative activity in this area.

Committee members will explore a legislative framework for a comprehensive policy on regulating toxic and hazardous substances in the environment. In a related area, the Nuclear Regulation subcommittee will put considerable effort into standards and licensing for nuclear wastes.

In 1978 the Senate-passed version of the "superfund", or comprehensive oil spill compensation bill, provided for liability and compensation for discharges into the navigable waters of hazardous substances designated under Section 311 of the Clean Water Act. While that measure did not become law, the subject continues to be of great interest to our Committee.

Coinciding with that were efforts by the Environmental Protection Agency and the National Solid Waste Management Association to develop schemes for managing the liabilities associated with hazardous waste disposal facilities permitted under subtitle C of the Solid Waste Disposal Act.

The Committee will be active in both of these areas next year. In fact, bills dealing with toxic and hazardous substances are likely to take precedence over any proposal dealing with oil. The Committee expects to consider legislation dealing with any release of a toxic or hazardous material into the environment and with the consequences of any activity for the management or use of such materials. This would not be limited to discharges into surface waters, or to single lists of designated substances, or to activities or materials with limiting labels such as "waste".

The pattern in the Senate-passed "superfund" bill will be helpful in predicting what that legislation may be like. Such a liability and compensation bill would seek to internalize the risks associated with the management of hazardous substances by fixing liability on dischargers and by requiring contributions to a compensation fund by producers and handlers of such materials. The bill would provide ready compensation for out-of-pocket and other economic losses for damaged parties, and perhaps for personal injury as well.

Devices to promote rapid, full recovery also may be considered. One such proposal would allow liability to be established or damages to be proven where the alleged injury has simply happened with greater frequency or severity that would be statistically probable without the complained-of event. This would facilitate recovery by weakening the causal link which is often so difficult to establish. Such a modification of traditional rules of tort liability may be more appropriate for determining when a compensation fund will pay than for fixing a discharger's liability.

The compensation fund legislation would assure adequate funds to clean up or mitigate releases of such substances into the environment. A major issue, of course, will be the degree to which current contributions to a clean-up and compensation fund, or general Federal revenues, should be used to mitigate the problem of inactive or abandoned sites. We have a precedent in the Surface Mining Act where a portion of the fee on active mines goes to a fund for reclaiming abandoned mines. But the costs of dealing with inactive sites can be tremendous and it is very difficult to apportion those costs. The Carter Administration reportedly will propose that the clean-up of nuclear wastes at West Valley, N.Y., be paid in the amount of \$400 million by the Federal government, to be matched by \$400 million from the State. Five percent of the total to be contributed by the corporation originally responsible for the private sector activities at that site.

The abandoned or inactive site problem must be addressed in next year's hazardous materials clean-up and compensation legislation. It is probably impractical, however, to seek out and completely neutralize each such site.

I expect that inactive sites will have to be treated selectively, on a worst-first, emerging problem basis. The responsible entity, if it can be located and if it has assets, will have to be the first source of funds for cleanup or compensation. Beyond that, contributions from current activities through the new compensation fund and general revenues will have to share in the costs, perhaps even for compensation for personal injury.

Inactive sites where the original disposal operator or similar party is still in control should be subject to regulatory requirements. Perhaps the same performance standards as new or currently operating sites would not be appropriate, but minimal technological requirements can be imposed. These might include ground water monitoring, pumping and treatment of leachate, cover requirements, access limitations and similar approaches.

A comprehensive hazardous substance liability scheme considered by our Committee will almost certainly not supersede State liability laws, though separate State funds and duplicative State fees may no longer be needed.

Another area Committee members must address is the siting of hazardous waste disposal activities. The SCA facility at Wilsonville, III., is an example of how sensitive most communities have become to the nearby location of even well-managed hazardous waste management facilities. But we must have adequate capacity to receive these hazardous wastes. The regulation of such wastes under subtitle C cannot be allowed to squeeze out that capacity, or worst of all, to push those wastes into illicit disposal.

The Committee will search for a mechanism to site this needed waste disposal capacity. I am continually impressed by the ability of State and local officials to find ways to accommodate such needs, if they are persuaded the job must be done and that it is theirs to do. It is not politically practical to have a Federal override of the siting of hazardous waste disposal facilities. We must depend on incentives to States to locate this capacity.

Perhaps we should consider prohibiting the generation or transport in interstate commerce of hazardous wastes, or even the products associated with those wastes, for any State that has not provided adequate waste management capacity either within its borders or by agreement with another State. Exceptions to this policy *Continued to page 32*

Costle Proposes New Regulations

by Truman Temple

EPA Administrator Douglas M. Costle has proposed far-reaching new regulations to manage hazardous wastes in the United States.

Citing a series of recent episodes where such wastes were handled in a dangerous manner, the Administrator announced three major proposed regulations in December. They would define hazardous waste, fix responsibilities of those producing it, and set standards for its storage, treatment, and disposal.

Two additional regulations are scheduled to be proposed this month dealing with permits for various aspects of managing hazardous waste and with guidelines for State programs. Two others were proposed earlier last year on standards for transporters of such waste and a system for notifying authorities of hazardous waste activities.

"For years we've paid very little attention to where these wastes have gone, in part because we weren't aware, and in

Truman Temple is Associate Editor of EPA Journal.

some instances out of ignorance, and in some instances out of sheer carelessness," Costle declared at a press conference.

"We've seen examples in very recent months of the potentially tragic consequences of this neglect," he added.

The Administrator said the Nation had been shocked at the way wastes had been handled in such places as the Love Canal in Niagara Falls, where 200 families had to leave their homes because of seeping chemicals, and in North Carolina where liquids containing PCB's were sprayed along a roadway at night.

"These cases—and many others—demonstrate the critical need for the national hazardous waste management system being developed by EPA under the Resource Conservation and Recovery Act (RCRA) of 1976," he noted.

The impact of the proposals will fall on an estimated 17 industry groupings at a total annual cost of roughly \$750 million once the system is fully phased in and operational. The Administrator said the figure represents half of one percent of the annual value of the production of these industries. The industries now spend \$155 million annually for hazardous waste management.

The regulations set standards that disposal sites should adhere to, and establish a tracking system for the wastes from the point where they are generated to the point of disposal.

Thomas C. Jorling, Assistant Administrator for Water and Waste Management, explained at the press conference that one premise of the statute is that the private sector "will be able to move in and adequately respond to this system." Given good leadership, he said, the Nation can protect public health without relying on a system like the high-level radioactive waste case, which requires a Federally-conducted program.

Public hearings on the proposed regulations have been announced for February and March in various cities. In addition, the Administrator said he would meet with Governors early this year to discuss various issues "and see if there isn't a way we can responsibly begin to get adequate landfills around the country to handle this problem."

Costle explained that it is now proving almost impossible to locate new hazardous waste facilities.

"One of the reasons is just public fear of having these anywhere nearby," he said. "The fact of the matter is that you can design one of these facilities that will adequately handle these kinds of wastes, that if you're smart about what wastes you put there and how you deal with them, it is eminently doable. The public has got to be persuaded of that, because if you shut down a facility that is adequately designed to handle this stuff, where do you suppose it's going to go?"

The Administrator said hazardous wastes cannot be shrugged off by one State as the problem of other States.

"That just won't work," he emphasized. "You can't just keep shipping this around like Charley on the MTA. It's got to come to rest somewhere, and public officials are going to have to be responsible about *Continued to page 32*

The Hazardous Waste Regulations

These are the seven hazardous waste regulations EPA has proposed or was preparing to propose at press time under the Resource Conservation and Recovery Act:

• Definition of a hazardous waste and a listing of 158 specific wastes.

• Responsibilities of generators of hazardous wastes.

 Standards for transporters of hazardous waste.

 Standards for treatment, storage, and disposal facilities.

• Permits for treatment, storage, or disposal of hazardous waste.

• Guidelines for development of State hazardous waste programs.

 Rules on notifying EPA or authorized States of hazardous waste management activities.



Managing Hazardous Wastes

An Interview with Thomas C. Jorling Assistant Administrator for Water and Waste Management



In view of the Agency's recent survey estimating that there may be thousands of dangerous chemical dump sites, is EPA seeking authority or proposing legislation to address the problem?

There are several concerns regarding abandoned sites. The program of regulation that was created under the 1976 statute is directed at existing and future hazardous waste management activities. It did not anticipate or address very effectively the question of abandoned sites.

But as we review the circumstances as they are now being revealed, we find that the question is not so much one of authority, legislative or otherwise. The States have sufficient authority under their police powers to address the situation.

Instead, the question is finding the resources to provide a remedy. Let me use Love Canal in New York as an example. When the Agency studied that situation, through contract, we spent approximately \$100,000. The report gave a factual basis for the concern that many have come to express regarding Love Canal. As a result of this widespread concern, the President and the New York Governor declared an emergency and resources were made available on an ad hoc basis. This included \$2 million in Federal disaster assistance, \$4 million in EPA assistance, and \$4 million from the State of New York to remedy this problem.

But that \$10 million may be less than a quarter of the resources necessary to provide a real remedy for the Love Canal situation. This shows how great the financial needs are in such cases either at the Federal or State level.

There is just not enough money. So we are looking at various proposals to generate sufficient funds, much more than we are looking for new program authority.

Will you ask Congress to authorize such resources?

Yes. In the past there have been proposals to create contractual funds to deal with such problems as toxic spills and oil spills. Such funds would be managed more than likely at the Federal level or through some quasi-private type organization. We expect to make some similar proposals, asking Congress to create some pooling arrangements for funds to cover not only remedies and liabilities for abandoned sites, but some of the other costs that occur in managing hazardous and toxic materials.

How is the President's new economic policy relative to reduced spending by the Federal Government going to affect the various hazardous waste schedules?

Our expectation now is that the President's economic policy will not influence, to any great degree, the regulatory program we are creating. I say this because our regulatory concept does not require direct Federal contribution of dollars. It is premised on putting in place standards and norms. In turn, the private sector would fill in the market created by the EPA program. The private sector would provide such resources as facilities to receive hazardous wastes for transport, processing, or disposal. If we are right, there wouldn't be a need for Federal or other resources.

There is still a question as to whether the private sector can respond to provide adequate facilities to receive and manage hazardous waste. But the premise of our program and of the law is that the private sector can fill this need.

In another aspect, there will be economic effects from these regulations and requirements. Such impacts will fall unevenly in the manufacturing sector. There are cerain types of facilities, certain types of waste sources, on whom the burden falls much more heavily than others. It is not so much due to discrimination by the regulations; it is simply a function of a firm's own economic situation.

So there will be some impact and it will be considerable in some sectors. We need to review comments and information during our current rulemaking period very carefully to identify where that economic impact is going to be greatest and whether or not certain adjustments can be made to minimize any unnecessary impacts.

It's been charged that EPA knew for years of chemical contamination leaching from an industry dump site in Toone, Tenn. Would you comment on EPA's role in this case?

Yes. We were witnesses at a recent hearing by a subcommittee of the House Interstate and Foreign Commerce Committee. Many charges were made about EPA's parformance in the area of protection of public health and welfare from the results of various types of hazardous waste dumping. As I pointed out during these hearings, the Agency has not been

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

Assistant Administrator Thomas C. Jorling makes a point at the press conference announcing the proposed hazardous waste regulations, while Administrator Costle looks on. as aggressive as it should be in certain situations. But against that statement, we also have to balance the fact that we have very few resources to do anything and we certainly have been focusing our program and its performance on getting a regulatory structure in place.

In the Tennessee case specifically, imputing knowledge to the Agency is always a hard thing to assess. There were many Federal agencies such as the U.S. Geological Survey and EPA, as well as officials of State and local governments, who beginning in the early 1970's were aware of the dimensions of the disposal practices of the Velsicol Chemical Corp. at Toone.

There were very serious questions as to whether or not the dumping of Velsicol's pesticide residuals was causing any contamination of groundwater. The first scientic report, by the Geological Survey, indicated that it was not and that if it were, the slope of the groundwater movement was away from the areas where people were drawing their water.

Subsequently, families drawing water out of private wells in the area began to complain of the quality or taste and notified Tennessee officials. (Those wells aren't under the regulatory influence of the Safe Drinking Water Act administered by EPA.) Tennessee performed tests on that water and concluded that it was safe. In retrospect, the reason that they did was that they sampled the water for pathogens, not for organic chemicals.

When the water was sampled last summer and fall for organic composition, it had extremely high levels of many synthetic, organic compounds, many of which are known carcinogens and acutely toxic. In the end, while EPA's performance was not as good as we would like, it was better than any of the other agencies involved, Federal, State, or local. The thing that was distressing to me is that the levels of government which had clear authority, levels closest to the people, local and State governments, were the most unresponsive.

The EPA has acted as a catalyst to solve the problem in Toone and I think after the passage of some time, and as people reflect on the situation, EPA will be the only Agency to which credit is due.

Are any parts of the hazardous waste problem entirely out of EPA's control? For example, do States have the authority in some key areas?

Under our Federal system, the States have the residual police power. Whenever the Federal Government acts, it is under authority granted by Congress and that authority is circumscribed by the Constitution. The police powers of the States are much more readily available than the authority under Federal legislation.

But the question is not so much the authority, as I mentioned earlier. It is in the ability of the government to provide enough resources to create safe situations, which prevent the release of these dangerous materials into the environment, whatever pathway they are taking.

The greatest difficulty that we have to face as government, State and Federal, is to deal with sites that were once owned by a manufacturer or someone engaged in the business of chemical disposal. Such a site has now changed hands and may either be owned by an innocent person, such as a farmer, or a public body, such as a town government or charitable organization. Such owners don't have the resources to remedy the problem. Ultimately, such sites can only be dealt with if we develop a mechanism to create a pool of funds, perhaps with some pay-back provisions, so that the communities, States, and Federal Government have resources to provide responses.

Would you say that because of lack of attention, the management of hazardous wastes is now at the crisis point in terms of public dangers they pose and society's ability to deal with them?

I would rather choose a different word than crisis. I would say that it is *compelling* that we act regarding both present and future activities, but also to remedy some of the problems from the past.

We are seeing here another manifestation of the chemical revolution that began at the end of World War II. If you look at chemical production around that time, and compare it to the present, you see exponential growth. Those chemicals are moving through the commercial system and they are winding up in various places and are often improperly managed. As a result, we have releases in the air and water and onto the land.

It is necessary to implement our regulatory programs to close the cycle and stop the releases into the environment. It is a very urgent problem. It is not a crisis in the sense that unless singular action is taken today, very serious results will occur. We do have very serious problems but they are more chronic than acute.

But to show the tremendous growth in the production of chemicals (and I'm sure the Journal has reported on this),* just consider chlorobenzene.

* See EPA Journal, Sept. 1978, "Toxics." One half to one billion pounds a year of this compound are now manufactured. It is a base chemical for many different industrial processes and products. It moves very widely through the society and then winds up either disposed of in landfills or released in air or water emissions. Because of this and other comparable chemicals, we have a very substantial management and regulatory job in front of us.

Does this explain why the U.S. is seemingly deluged with dangerous wastes? Is it partly due to some long run trends in consumer demands and industry practices?

Certainly the use of chemicals in our society is a marketplace phenomenon. The chemical industry over the last several years has been the most innovative sector in our economy and therefore it is generating new and larger amounts of chemicals each year. So the industry is responding. The fact that we must deal with is that these chemicals are being produced in large volumes and being used in large volumes and they have a tendency to be released into the environment in large volumes.

There is a trend I would like to see regarding the Nation's wastes. I would like to see us move away from the archaic notion that you can take a resource out of the earth, use it, and replace it or store it back into the environment in whatever form it happens to occur after use. That is a fundamentally unsound idea.

We hope our regulatory program in clean air, clean water, and hazardous waste management will lead to a different notion of the use of chemicals in our society and ultimately in all societies. Namely, we need carefully managed use so chemicals are not lost from custody. We need production methods that recycle the chemical, or contain

EPA JOURNAL

A Hopeful Sign

State/Federal Consultation In Solid and Hazardous Waste Regulatory Development

By Edwin Edwards

Governor, State of Louisiana, and Chairman, National Governors' Association Subcommittee on Waste Management

The enactment of the Resource Conservation and Recovery Act (RCRA) may have established a new trend in the implementation and administration of Federal environmental legislation. Previously, the Federal Water Pollution Control Act and the Clean Air Act set forth national standards to control water effluents and air emission levels. From the States' perspective, RCRA is a landmark in that the statute

 establishes a Federal/ State partnership in developing rules, regulations and guidelines in a consultative versus advisory role;

• emphasizes the States' continuing primacy in solid waste management, while allowing a State's solid waste management program to be based on minimum Federal criteria for solid waste disposal facilities, yet maintains the integrity of the State's permit and enforcement programs; and

In these respects, RCRA is consistent with long-standing policy positions of the National Governors' Association. Shortly after RCRA's enactment, therefore, Governor Julian M. Carroll as chairman of the Association's Committee on Natural **Resources and Environmental** Management, called for the establishment of the Subcommittee on Waste Management to facilitate consultation by the States in RCRA's implementation, as well as the exchange of technical assistance and information among the States.

The Subcommittee undertook a two-year effort to accomplish this program. As a functioning arm of the association, it is perhaps unique in two respects: its membership and responsibilities. The Subcommittee is presently comprised of twenty-three governors, and is served by four technical task forces composed of over sixty State technical and administrative officials involved with RCRA's implementation. In addition, several work groups



were established to focus on specific technical questions related to Subtitle C and D programs under RCRA.

We believe that the States possess great resources of technical and administrative expertise in the fields of solid and hazardous waste management. The principal charges of the Subcommittee on Waste Management have been (1) to analyze and bring to the attention of the governors policy issues concerned with RCRA's appropriate implementation; (2) to respond to and comment upon Federal initiatives in development of rules, regulations and guidelines; and (3) to initiate recommendations to EPA and other interested Federal agencies.

We have also recognized the diversities among the States, which call for considerable flexibility in the implementation of RCRA. We have consistently recommended the establishment of performance standards as necessary to meet the differences in climate, geology, population density, and other variables among the States.

EPA's response to and support of the consultative process is commendable and should be continued. I believe that the degree of open communications between the States and EPA in the critical period of RCRA's regulatory implementation far exceeds any similar efforts in the past. This does not mean that the States and EPA are always in agreement. On the contrary, there has been a free and healthy debate about many issues which, if it has not always led to agreement, serves to clarify issues in particular need of further study.

Under Subtitle D, EPA is charged with publishing a list of open dumps, as defined under the law. We believe that existing State regulatory programs provide a solid foundation for necessary compliance and enforcement activities. Through the State consultative process, a method to develop the list was outlined. A State can agree to conduct the open dump inventory and evaluate the sites in accordance with the criteria for classification of solid waste facilities, Section 4004. The Subcommittee concurs with the Federal assistance plan whereby conduct of the inventory would be Federally funded.

We emphasize, however, that State follow-up to the inventory will require significant State commitment of fiscal and technical resources in addition to the on-going State solid waste program costs. Based on the difference between authorized funding levels for Subtitle D and the actual FY 78 and FY 79 appropriations, the States can clearly discern the impacts on State allocations for this effort. The reason is simple: major costs relate, not to the inventory per se, but to the followon responsibilities of the States for upgrading or closing unsatisfactory disposal facilities.

In response to this point EPA has, with the States' support, established a process through which the State will "prioritize" the class of facilities to be inventoried. Abandoned sites may or may not be included, based upon the State's priorities and recognition by the State that, if the site is listed, the State must assure its closing or upgrading in accordance with Federal criteria in order to achieve approval of the State solid waste plan under Section 4002. In phasing the inventory and the regulatory follow-up activities, the State will be attentive to the needs of communities and industries for available and acceptable disposal alternatives.

This is an example of how a complex issue, involving consideration of procedures mandated by the Act in the context of our need to allocate limited resources most effectively, can benefit from mutual analysis at an early stage.

The Subcommittee has advocated maximum use of State standards to the degree that they are substantially equivalent to the Federal criteria to be set forth under Section

4004. However, the development of a procedure for the application of each criterion and each step in the regulatory process is critical. Our work group on the application of the criteria, the agency, and its contractors are working closely toward the development of these procedures. In addition, we must work closely to determine technical assistance and training program needs. All of this, we agree, must result in an approach that is cost-effective and is technically and administratively sound.

As chairman of the Subcommittee and governor of a State in which hazardous waste legislation has recently been enacted, I am acutely aware of the constraints placed on those States attempting to initiate hazardous waste programs and move toward authorization under Section 3006 that have been caused by EPA's failure to meet Congressionally mandated deadlines.

We understand the complexity of EPA's responsibilities and feel that the delay may have been helpful to the overall development of regulations under Subtitle C, especially the 3001 regulations. If the only alternative is between hasty but bad regulations, or late but sound regulations, we must support the latter.

But I must urge the Agency to meet its own proposed deadlines with appropriate and workable regulations, so that we can all get about our business. In the meantime, my own State, like others, is moving forward. We hope to implement our own Act 334, the Louisiana Hazardous Waste Act of 1978, in a useful and effective way during this year, and feel that we can make considerable progress even without the Federal regulations.

The States' interests and initiatives were evident during the International Conference on Hazardous Materials Management co-sponsored by the National Governors' Association and the State of Michigan, December 4-5, 1978. I concur with my colleague, Governor William G. Milliken, that the States must address the issues of siting hazardous waste and solid waste disposal facilities, and develop interstate cooperation in tracking and managing hazardous wastes. Further, I can affirm the States' responsibilities to support and work toward appropriate and effective implementation of Subtitle C and D. The States, through the National Governors' Association, will continue to propose to the agency initiatives, policies, and programs for this purpose.

In closing, I note that the upcoming fiscal year will certainly require all governmental agencies to scrutinize regulatory programs—and, probably, especially environmental requirements—to evaluate specific and combined impacts placed upon the business and industrial communities, and to look for problem-solving management approaches based on well-defined priorities and allocations of resources.

These steps should encourage and lend support to Federal/State cooperation and consultation processes not unlike, I believe, the processes the States and EPA have been mutually exploring in the implementation of RCRA.

A Look Ahead

Interview with Steffen W. Plehn, Deputy Assistant Administrator for Solid Waste



How soon will the hazardous waste regulatory program be in operation?

The regulatory program includes seven separate regulations. Five of these regulations have now been proposed and the other two will be proposed very shortly. We have ahead of us a process of receiving comments from the public on these regulations, analyzing those comments, and coming to final decisions about shaping the program for final promulgation. Our best estimate as to when we might promulgate this program is December, 1979. The law provides that the program take full effect six months after promulgation. That would mean that the program will take effect in May or June, 1980.

I've heard that the regulations are extremely voluminous. Is that correct?

That's correct.

Is there no way around that?

It's an extremely complicated and complex program. We must provide rules for industries and others producing wastes. We have to establish rules and standards for storage, treatment, and disposal facilities. We have to determine how permits will be issued and how to establish rules under which States will seek assumption of the program. Given the fact that this is a new policy area, I think that it's likely the regulations will be rather involved and complex.

What do you anticipate will be the economic impact of these regulations?

We have studied 17 manufacturing sectors quite intensively. Our best estimate of the cost for those industries is approximately \$750 million a year. To put that into perspective, that amount represents about a third of one percent of the gross sales of those industrial sectors.

What is happening now at Love Canal?

With State and Federal money, the State is constructing drainage ditches on both sides of the disposal site so as to lower the water table and draw off many of the chemicals that had invaded the basements of the houses on each side of the canal.

In your opinion, are there any other Love Canals around the country?

We have no hard data on that question, but all evidence indicates that there probably are several hundred other sites where chemicals and other hazardous wastes have been disposed of improperly.

What can be done to prevent environmental and public health disasters over the period until new regulations become final?

Several things. First, EPA will be pursuing, with the States, an aggressive enforcement posture over this period to prevent cases of imminent hazard to public health and the environment. Second, a number of States have operational hazardous waste programs, which will be in effect over that period. Third, we think that the existence of our proposed standards for storage, treatment, and disposal facilities will provide a measuring rod against which existing hazardous waste facilities can be evaluated.

What is EPA doing now about abandoned sites?

The problem of abandoned sites was not really anticipated in the enactment of the Resource Conservation and Recovery Act. The only tool that the Act provides us is the imminent hazard authority, and that tool can only be used if there is a third party, which is responsible for the site, and that third party is solvent. We are working on legislative proposals to the Congress that can provide us with additional tools and resources to deal with the abandoned site problem.

Is EPA doing an inventory of abandoned sites?

There are three activities under way by EPA and the States, which together should move us in the direction of developing an inventory of abandoned sites. First, we have encouraged the States to use a portion of our hazardous waste grants, and a number of States are conducting inventories with those funds. Second, we expect that the inventory of open dumps under Section 4004 of the Act will identify additional abandoned sites. Finally, under the Safe Water Drinking Act, the States are conducting a \$5 million assessment of industrial pits, ponds, and lagoons.

What can citizens do about hazardous wastes?

As with other environmental problems, citizens can become most effective by becoming involved. First, they can learn more about the hazardous waste problem. Second, they can join with environmental groups or other organizations that are concerned about the problem. Third, they can actively insist on safe management of these wastes.

When a proposal is made to locate a chemical waste landfill in a community, and the residents don't like it, what can they do?

Under the Act there is a very strong requirement for public participation in all activities. That will help ensure that citizens have an opportunity to make their views known. Obviously, if we are to be successful in managing hazardous wastes, we will need sites to store or treat these wastes safely. Our goal is to earn the confidence of the public that our standards and our enforcement program will ensure that such facilities can be sited and operated safely.

Are there other methods of disposing of these wastes that are safer or better?

Oh yes. We believe that land disposal of hazardous wastes is the last resort. We prefer—and believe our program will encourage—process changes so that wastes are not created in the first instance; reuse and recovery of waste, so that wastes are used as a raw material; and treatment approaches, such

sites. First, we have encouraged as incineration or detoxification, the States to use a portion of our hazardous waste grants, of the wastes.

So in some respect, there might be a direct link between hazardous waste regulations and increased resource recovery.

That's correct. Once industry is faced with the full costs of adequately disposing of these wastes, we believe that a variety of opportunities for reuse and/or recovery will open up.

Can you predict the number of States which will be running their own hazardous waste program when EPA regulations become effective?

Our best current estimate is that 41 States will assume responsibility for this program.

What is the procedure for making input to the proposed regulations?

We have scheduled hearings in all parts of the country on all regulations. Citizens can learn of the dates and times by contacting the Office of Solid Waste or one of our Regional Offices. We welcome citizen participation in these hearings.

These sources will also have copies of the proposed regulations?

Yes, they will.

What do you see as the most difficult problem for controlling hazardous wastes?

We believe the most difficult long-term problem will be obtaining sites for the proper management of these wastes. Most individuals in this country carry two ideas in their minds simultaneously; on the one hand, they are insistent that these wastes be managed safely; on the other hand, they tend to be opposed to the siting of hazardous wastes in their communities. If the new Act is to be a success, citizens will have to accept the fact that since we all benefit from the production of our economy, we must accept the need for sites at which wastes can be managed safely.

What is EPA's position on State-approved disposal sites that are closed by local jurisdictions? Such as the site at Wilsonville, III?

EPA intervened in that particuar case. We analyzed the site with reference to our polychlorinated biphenyls (PCB's) disposal regulations. We found it was a safe and satisfactory disposal site. We believe hazardous wastes can be handled safely at carefully designed and managed facilities, and we cannot let our fears blind us to the need for such sites.

How is regulation of hazardous wastes related to EPA's other pollution control programs?

Our programs in air pollution and water pollution are concerned with removing toxic materials before they enter the environment. Once these materials are removed, we must find safe ways of containing or destroying them, and that is EPA's responsibility, under the Resource Conservation and Recovery Act.

Is there any further message that you would like to give the public on the hazardous waste program?

I think one important point is to recognize that we will not be able to change hazardous waste management practices overnight. The problem is large---some 275,000 generators of hazardous wastes will be involved. Some 30,000 permits will have to be issued for storage, treatment, and disposal facilities. A national hazardous waste regulatory program, as required by the Resource Conservation and Recovery Act, is an extremely complicated, complex, and crucial environmental and health matter, which deals with 10 to 15 percent of our annual production of 344 million tons of industrial wastes. The public is coming to understand the critical need for safely managing these wastes. That's essential for success.

This interview was conducted by Charles Pierce, Editor, EPA Journal.

Quantities of Hazardous Wastes

EPA estimates that 10 to 15 percent of the annual production of about 344 million metric tons (wet) of industrial waste is hazardous. Quantities of hazardous waste are expected to increase by 3 percent annually.

EPA estimates that 90 percent of hazardous waste is managed by practices that will not meet new Federal standards.

Major hazardous waste generators, among 17 industries EPA has studied in detail, are:

Million Metric Tons (Wet Basi	s)
Organic Chemicals	117
Brimphy Metals	0.0
	9.0
Electroplating	4.1
Inorganic Chemicals	4.0
Textiles	1.9
Petroleum Refining	1.8
Rubber & Plastics	1.0
Misc. (7 Sectors)	1.0
Total	34.5

70 to 80 percent of these industries' hazardous waste is disposed of on the generator's property:

- 80 percent is disposed of in nonsecure ponds, lagoons, or landfills
- 10 percent is incinerated without proper controls
- 10 percent is managed acceptably as compared to proposed Federal standards, i.e., by controlled incineration, secure landfills, and recovery

About 60 percent of hazardous waste is in the form of liquid or sludge.

Ten States generate 65 percent of all hazardous waste. The States are: Texas, Ohio, Pennsylvania, Louisiana, Michigan, Indiana, Illinois, Tennessee, West Virginia, California.

Federal Regulations

Seven sets of regulations and guidelines have been proposed and/or are being developed by EPA under Subtitle C of the Resource Conservation and Recovery Act:

Subtitle Section	Title of Regulation	Federal Register
3001	ldentification and Listing of Hazard- ous Waste	December 1978
3002	Standards Appli- cable to Generators of Hazardous Waste ¹	December 1978
3003	Standards Appli- cable to Transport- ers of Hazardous Waste ¹	April 1978
3004	Standards Appli- cable to Hazardous Waste Facilities	December 1978
3005	Permits for Treat- ment, Storage or Disposal of Hazard- ous Waste ²	February 1979 (tentative)
3006	Guidelines for De- velopment of State Hazardous Waste Programs ²	February 1978 (to be repro- posed in February 1979 (tentative)
3010	Notification System	July 1978

Control via manifests and reporting is the keystone of the program; only sites with permits may treat, store, or dispose of hazardous waste.

The 17 industries EPA has studied in detail now spend \$155 million annually for hazardous waste management; this will increase to an estimated \$750 million a year under proposed regulations, according to EPA estimates. Cost of proper hazardous waste management will be about 0.28 percent of annual value of production (approximately \$267 billion) for the 17 industries.

¹ The Department of Transportation also proposed regulations pursuant to the Hazardous Materials Transportation Act pertaining to transportation of hazardous waste, which were published in the Federal Register, May 25, 1978.

² Sections 3005 and 3006 will be integrated with proposed rules under the Clean Water Act and the Safe Drinking Water Act.

State Programs

- EPA anticipates that 41 States will apply for "interim authorization," which allows States to operate the program for a period of 2 years after promulgation while upgrading their programs.
- Within 2 years of promulgation, States must apply for and secure "full authorization." The three criteria for "full authorization" are: (1) equivalence to Federal program; (2) consistency with other State and Federal programs; and (3) adequacy of enforcement.
- EPA must operate a program in any State that does not choose to develop its own hazardous waste program or does not gain authorization for an existing program.
- FY 79 grants specifically for hazardous waste program development total \$15 million. The President's FY 80 budget for this program requests \$18.4 million. □

How Damage Occurs

Major routes for damage are:

- (1) direct contact with toxic wastes
- (2) fire and explosions
- (3) groundwater contamination via leachate
- (4) surface water contamination via runoff or overflow
- (5) air pollution via open burning, evaporation, and wind erosion
- (6) poison via the food chain (bioaccumulation)

EPA has documented over 400 cases of damage to health or the environment due to improper hazardous waste management.



A major program to inform the public about solid and hazardous wastes and to involve citizens in planning and decision-making at the local and State levels has been launched by the Environmental Protection Agency.

The program, titled *Waste Alertl*, will extend over the next several years and will involve citizens in all 50 States.

EPA is being helped in the task by four nationally known organizations: The American Public Health Association, the Environmental Action Foundation, the League of Women Voters Education Fund, and the National Wildlife Federation. Under grants from the Agency, they will be holding conferences, workshops, and training sessions across the country to help achieve the objectives of the Resource Conservation and Recovery Act (RCRA).

Organized Effort

From the time of the original solid waste legislation in 1965, EPA's Office of Solid Waste and its predecessors have devoted substantial effort and resources to information programs directed to technical audiences and the general public. Since 1972 these efforts have included grants to organizations such as civic, scientific, environmental, and consumer groups and labor unions for educational activities suited to their own constituencies and solid waste problems. The objective is to help citizens develop understanding of the issues involved in implementing the solid waste legislation and thereby participate in local, State, and Federal decision-making.

To support the work technically as well as financially, the Office of Solid Waste (OSW)has provided grantees with data, references to research resources, EPA publications, and other information on solid and hazardous waste problems facing States and communities.

Needed: A Broader Program

But there are not enough people yet who understand the issues and care enough to become active in deciding them. Increasing

incidents of environmental damage and imminent public health hazards, resulting from decades of careless or ignorant disposal of wastes, have alarmed many citizens and heightened their fears of proximity to any waste facilities. The public's fear reflects a need for more public education work by OSW grantees. People must have reliable information on how to manage wastes better in their regions, counties, cities, and industries. They need to know how the provisions of RCRA are intended to deal with the problems of solid and hazardous wastes. The public also needs to be engaged in supporting the new hazardous waste and land disposal regulations on a national basis. They need to see and support the opportunities in the regulatory programs for resource reuse or recycling. As OSW was planning for the next several years, its question was: How could we make the strongest contribution to the public's need for information, making the best use of our budget for information activities?

Fortunately, EPA has the support of a number of national organizations that have become highly knowledgeable about the problems, key issues, and legislation affecting hazardous and solid waste management at all levels. This knowledge is the result of their work as grantees carrying out the public education programs described above.

The experienced staff members of the various organizations have the leverage of many volunteer members and interested citizens to disseminate technical and public information on a national scale. They can also feed back information on what the local and regional problems are. Many solid and hazardous problems are related; one community that is solving its problems can help another with similar difficulties when it joins forces with the technical specialists.

Waste Alert!

Faced with OSW's needs under the law to reach audiences on a national scale, a group of these organizations, representing as broad a spectrum of the public as can be reached within resource limits, have joined in concerted action.

With the American Public Health Association as coordinator, the Environmental Action Foundation and the National Wildlife Federation will be conducting threeday conferences across the country on issues related to the problems of abandoned waste sites, siting of new facilities, implementing the RCRA regulations and other provisions, and interrelated waste management information and data. The three organizations' efforts will be supported by communications activities to be carried out by the League of Women Voters Education Fund, (The Izaac Walton League of America and the Technical Information Project will serve as advisors). Ten regional conferences in two years will focus on identifying and training citizen leaders and reaching appropriate communications media; developing work plans for implementing RCRA at the State level; planning for State conferences; and identifying State action groups and assisting them, if they wish, in holding State conferences. Local community workshops are planned for the third and fourth years.

Goals for this program—Waste Alerti are to: (a) develop a base of informed citizens who understand solid and hazardous waste issues as related to the objectives of RCRA; (b) encourage citizen involvement in State planning for implementation of RCRA; (c) recruit citizen involvement in decision making for municipal and hazardous waste management at the local levels. These goals are to be pursued in as many States and communities as possible over a four-year period.

Waste Alert is a key activity in an Agency-wide hazardous waste information program, headed by Administrator Costle, who has asked the EPA Regional Administrators and the Office of Public Awareness to focus on this effort. OPA is giving us the full support of its Headquarters and Regional programs, as witnessed by this special issue of the EPA Journal. OPA is also enlisting the network of State environmental officers in this cooperative effort.

Steffen Plehn, EPA's Deputy Assistant Administrator for solid waste has said, "The public must understand what hazardous waste is, and how much is produced in this country. They must accept that there's going to be continued production of hazardous wastes. They must accept the idea that something must be done with wastes." We hope that all public participation leaders can become involved early in this program. We will be helping citizens to encourage State and local planning for the new hazardous waste regulatory programs, the new land disposal guidelines, and for the inventory of dumps required by RCRA. Join the WASTE ALERT program! We need your help in broadening the public's understanding of the problems related to waste management, and the opportunities therein for resource reuse. Please contact the American Public Health Association (Mark Murray), the Environmental Action Foundation (Liz Tennant), the League of Women Voters Education Fund (Scott Nessa), the National Wildlife Federation (Sandy Jerabeck), or the Environmental Protection Agency (Charles Rogers or Carol Lawson). Help us make this a truly national public information program on these important issues.

Carol Lawson is the public information officer for the Office of Solid Waste.

A Death in Louisiana

By Peyton Davis



Damaged drums were dumped into this open landfill.

The dangers of hazardous waste disposal were tragically dramatized when an accident occurred on July 25, 1978, at a site in Iberville Parish, Louisiana, operated by a private concern.

In the early hours of the morning, Kirtley Jackson, a 19-year-old truck driver, died while he was discharging waste from his truck into an open pit. The coroner's report showed he died from inhaling toxic fumes caused by a reaction of mixing liquid wastes in the open pit.

The problem arose because toxic wastes from dozens of industries in Louisiana, Texas, and elsewhere were being dumped indiscriminately with neither safety equipment, nor orderly procedures in effect at the facility. Two eyewitnesses, in the closed cab of another truck several yards away, were able to furnish details of the death.

No one is likely to wander accidentally into this swampy rural area of south Louisiana where the facility was located. Until the tragedy occurred, little attention was paid to the fact that the site was open 24 hours a day with a minimum staff—or that the area was surrounded by a river, bayou, canal, and fishing lake and had a history of flooding. In fact, high water marks on trees were at or above the tops of the open pits.

Davis is a Region 6 Public Information Specialist



The State of Louisiana had issued a permit for disposal of toxic wastes, but the permit was for injection well disposal, not dumping into open pits. The Louisiana Department of Health and Natural Resources has a small understaffed solid waste section, and it had become impossible for them to track and control the dozens of waste sites throughout the State. They were therefore unaware that this facility had developed four huge open pits for dumping of hazardous wastes.

After the death was reported by the news media, the reaction of the citizens of Iberville Parish was intense and emotional. They wanted a speedy response to the incident, and became enraged when State environmental officials reported at a public meeting that they could exercise little or no effective jurisdiction in the matter.

Dissatisfied with what the officials proposed to do, the local citizens took things into their own hands by burning the bridge that led to the site. Destroying the only entrance to the facility proved an effective, though illegal, way to stop the hazardous waste dumping.

The situation had reached explosive proportions by Aug. 1 when the Deputy Sheriff, Ralph Stassi, contacted EPA's Region 6 Enforcement attorney, Pat Hudson, with information on the death and a request for EPA assistance.

An emergency planning meeting was called for members of the Region 6 Enforcement, Surveillance and Analysis (S & A), and Air and Hazardous Materials (A & H) Division. As a result, Myron Knudson, Director of S&A, sent Inspector Ed McHam to the site that same day. A member of the Iberville Parish Sheriff's department has credited Region 6's quick response with helping avoid violence and possible bloodshed in the community.

McHam began his inspection August 1, and soon was joined by Michael Talmount of OSHA's Baton Rouge Office and Jim Sales of the Region 6 A&H Division. On August 4, local officials and McHam were denied entrance to the facility. A State court refused to issue a search warrant as requested by local officials to continue their investigation of the death.

With this double setback, EPA decided to obtain a Federal search warrant from the U.S. Magistrate in Baton Rouge. After three days (and long nights) of work by the Region 6 legal-technical team of Hudson, McHam, and Albert Hebert, as well as assistant U.S. Attorney Stan Lamelle, a warrant of entry and inspection was obtained.

Because of the uncertainty of the situation, the U.S. Marshall's office accompanied Region 6 inspectors each day until





emple ee Albert Hebert takes sample fron pen wastent or atory analysis

the inspection was completed. Records were copied, photographs and samples of the toxic wastes were taken and sent to the Region 6 laboratory in Houston, Texas. Dr. William Langley and his laboratory staff responded quickly and worked intensively to complete the analysis and reports.

On August 10, a coroner's inquest into the death was held in Plaquemine. At the inquest, the coroner was unable to obtain two important log books from the site officials. The EPA inspector and sheriff's department also were unable to get the logs. The logs contained such things as records of the hazardous wastes, contributing industries, times of disposal etc., and specifically a record of disposal activities at the time of the youth's death at the site.

They were important not only legally but also technically. After negotiations with the legal representatives of the site, the logs were released to Region 6.

Also on August 10, Hudson contacted an official of the Louisiana Health and Human Resources Department in New Orleans, expressing EPA's desire to assist the State in settling the situation. Hudson explained that EPA would act under the imminent hazard provisions of the Resource, Conservation and Recovery Act, as well as provisions of other statutes, but that the Region 6 Enforcement Division would prefer to support a State legal action.

Later, the State technical staff consulted with their Office of General Counsel, and as a result, the State decided to take immediate Court action. Region 6 supported the State's decision by providing both witnesses, and evidence. Assistant District Attorney Houston Gascon, III, of Plaquemine filed suit for the State.

On August 25, the 18th Judicial District Court in Plaquemine ordered the site operators "to remove, clean, and eliminate all existing health hazards... under the supervision and guidelines and regulations of the Department of Health and Human Resources... within 60 days." The Court declined the State's request to require a bond be posted and interim dates of progress were not set out in the Court Order. As the 60-day period was passing, it became apparent to the Region 6 staff that very little progress was being made at the site and that the final date for "clean up" would be missed.

The slow progress was discussed with State officials in Baton Rouge on October 16, and immediate remedial action was urged. The two agencies remained united in dealing with the problem and at a subsequent meeting with the site operators in Baton Rouge that same day, a commitment

This is the waste pit where a young truck driver was asphyxiated by chemical fumes while dumping he ardous wastes.

was obtained from the company to clean up "without further delay."

Simultaneously, Governor Edwin Edwards issued a temporary ban on all new waste facilities in Louisiana and put his personal support behind a comprehensive plan to address hazardous waste problems in the State.

A coroner's jury determined that Jackson died of asphyxiation from hydrogen sulfide poisoning, but many have worked to see that his death was not in vain. The situation now appears to be under control, and there has been a dramatic change in the attitude of Louisiana citizens towards the dumping of hazardous wastes in their state. What was apathetic acceptance has turned to determination that these hazardous materials will be handled as carefully and safely as the state of the art allows.

Nevertheless, the question remains to plague not only the citizens of Louisiana, but also every citizen of this country. As long as Americans enjoy the hazardous products of an industrial age, we must come to terms with how we are going to dispose of them. \Box

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By Dr. Charles Johnson Technical Director National Solid Wastes Management Association

H azardous wastes have been produced in America since the beginning of the industrial era. They are being generated today and will continue to be in the future.

Producers of these wastes include not only industry but also individuals, hospitals, schools, retail business establishments, and even restaurants and gas stations. Hazardous wastes are produced by people in their day-to-day lives as they provide the product and services needed and expected by contemporary society.

To paraphrase Walt Kelly's well-known comic strip character Pogo, "We have found the source of the hazardous waste and it is us." Every person in this country should recognize his or her responsibility for the existence of such wastes.

The intent of this article is to present some thoughts on the subject from one segment of the private firms that specialize in management of waste, particularly those that we have come to know as hazardous.

Our member companies handle them every day and have long recognized the potential for harm through the improper management of this type of material. That is why the National Solid Wastes Management Association labored vigorously in the mid-Seventies for an effective national regulatory program for hazardous wastes control. That crusade led to enactment of the Resource Conservation and Recovery Act (RCRA), particularly the Subtitle C hazardous waste program. Our industry remains committed to a strong program to assure the environmentally safe disposal of hazardous wastes.

Only in recent years has the full scope and magnitude of hazardous wastes become known. The most recent estimates by EPA indicate that more than 35 million tons are produced in the United States every year, mostly by firms in the chemical, petroleum, metals, or related industries. Many of these industries have disposed of their own wastes either on-site or at other



captive facilities. Some industries rely in total or in part on independent waste management service companies for disposal of their wastes. Only recently did we learn, thanks to the work of EPA, that over 75 percent of the hazardous wastes are managed at on-site or captive facilities.

However, there is clear evidence that the independent waste management service industry dealing with hazardous materials is growing rapidly. According to a 1976 study done under contract for EPA, between 1971 and 1975 the number of hazardous waste management service companies increased from 76 to 95 and total revenues for the industry more than doubled from \$46 million to \$107 million. The study, performed by Foster D. Snell, Inc., estimated that with regulation, revenues by the year 1983 would increase to a range of \$335 million to \$350 million annually for the industry.

The basis for proper hazardous waste management is strong nationwide regulations. The need for careful hazardous waste management has been documented by a number of incidents of improper management. Wastes have been poured at times into sewers, or streams, sprayed along country roads, or abandoned in warehouses. Some of the cases of environmental insult, however, can be traced to persons acting with the best intentions, such as the solvent reprocessor whose market disappears leaving him bankrupt with an inventory of wastes.

Assuring proper management of hazardous wastes is not simply a matter of sorting out the bad guys from the good. This national problem will be resolved only by strong and equitable regulations applicable to all persons involved in the generation, transportation, storage, treatment, and disposal of these wastes.

Heretofore, regulations have been left to the individual States. Some have elected to promulgate regulations, while others have ignored the problem. However, there is a strong positive correlation between the enactment of regulations and the establishment of hazardous waste management facilities. The States that have good facilities generally are those with good regulations.

Hazardous wastes can be managed without damage to the environment. Evidence that proper management of these wastes will protect the environment is provided by the facilities being operated today in compliance with State regulations. Members of the National Solid Wastes Management Association operate more than 30 facilities capable of disposing of hazardous wastes, most of which are in States with strict regulations. There is no history of environmental damage from any of these facilities.

Proper hazardous waste management is a national concern requiring a nationwide solution. The potential for environmental damage from improper management of hazardous wastes does not end at political boundaries. There is no justification for regulations that would allow a waste to become unregulated merely because it is or is not transported across a State line. Likewise, the performance criteria for facilities that store, treat, or dispose of hazardous wastes should be consistent from State to State.

RCRA does permit the States to administer their own hazardous wastes management program provided the program is "equivalent" to the Federal program. EPA is encouraging the States to administer their own programs. Industry agrees with this position for at least two reasons. First, some States have developed effective programs. And second, individual States will thus have the means to adopt operating regulations to meet their peculiar needs, for example, in regard to local geology and climate. These should be designed to meet uniform Federal performance requirements.

Interstate movements of hazardous wastes should not be impeded. The waste service industry has taken a very strong position opposing waste import bans. Bans make for bad wastes management. It is economically and environmentally unsound for every State to attempt to provide complete self-sufficiency within its own borders. And yet this is what bans would encourage since it would be politically difficult for a State to continue to export its wastes while refusing to accept others. Our industry believes that free movement of wastes across State lines must be allowed. Each State in which hazardous wastes are produced (and that includes all 50) must be willing to accept within its borders facilities to manage hazardous wastes. Most such facilities serve a region beyond the borders of the State in which they are located. Thus, States will find that some of the wastes produced within their borders are exported for disposal while other wastes are imported, the decisions being based on economic and environmental considerations. Off-site hazardous waste management is an essential part of the national program.

Many industries rely very heavily on waste service facilities for disposal facilities. The availability of this service industry is especially important to smaller firms that cannot afford to operate individual waste disposal systems in compliance with environmental requirements. Many of the Nation's largest hazardous waste generators also use the service industry extensively, including some that also have their own in-house capabilities. They may use the service facilities for wastes generated in smaller quantities for which they cannot justify on-site disposal. Also, more importantly, industrial plant sites are seldom chosen on the basis of characteristics

needed for good waste disposal practices, such as geology, hydrology, and local climate. Therefore, industrial plants are not always able to conduct sound waste disposal operations on their own site.

Public awareness of and confidence in sound hazardous waste management is essential. The public is solidly behind the concept of sound hazardous waste management practices but the reaction by citizens is one of nearly universal fear bordering on hysteria whenever a facility is proposed in their particular area. This fear is understandable if not justified. The general press, EPA and others have seen the incidents of unsound management practices as underscoring the critical need for a hazardous waste regulatory program. But, in our opinion, they also need to publicize the successful facilities, which are part of the solution, not the problem. Adverse public reaction toward waste service companies is especially perplexing since these facilities have a history of good performance. Adverse public reaction toward these firms is often amplified because, in contrast with manufacturers who dispose of wastes onsite, this is the only business of the waste service firm. Waste disposal often goes unnoticed if performed by the manufacturer on his own property.

The very name "hazardous wastes" does little to inspire confidence or create sympathy for facilities handling these special wastes. And many of these wastes present a persistent threat to the environment unless they are properly managed. Since the alternatives for society are to accept facilities where these wastes will be properly managed or to endure the continued environmental insults of indiscriminate or inadequate disposal, society owes a special responsibility to protect those living in proximity to disposal facilities. A tough regulatory program is the first line of protection. Hopefully it alone will provide adequate protection.

The waste management industry, however, thinks another measure is needed. For more than a year, the National Solid Wastes Management Association has been developing the concept of a national liability fund which would be available to pay clean-up costs or compensate personal or property damages caused by an unanticipated problem at a facility which had been properly licensed and operated, following closure of the site. The fund would be created through a surcharge on disposal site operators, with no cost to the government.

The public benefits from the products whose production generates the wastes. The public likewise must accept the need for the existence of the facilities needed to dispose of the wastes. But the public can and should insist that every precaution be taken to assure that these facilities are safe.

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

AR

\$50 Million for **Air Cleanup Plans**

EPA Administrator Douglas M. Costle and Secretary of Transportation Brock Adams recently announced that \$50 million is being released to urban areas to aid them in developing plans to control air pollution.

The funds will be used by local agencies for planning strategies that include such measures as mass transit improvements, bus lanes, car pools, staggered work hours, and van pool programs. The planning money was authorized in the 1977 Clean Air Act Amendments and included in EPA's appropriations for fiscal year 1979.

Car Test Methods Changed

EPA has revised procedures used to test prototype and assembly line automobiles for compliance with air pollution emission standards.

The amended test procedures, originally proposed on October 21, 1977, mean EPA could test vehicles with certain tuneup settings anywhere within their adjustable range. Currently, new cars are certified as meeting air pollution standards with their tune-up adjustments set according to the manufacturers' specifications.

"In revising the test procedures," said David Hawkins, Assistant Administrator for Air, Noise, and Radiation, "we should be able to reduce the number of cars on the road that are out-oftune or misadjusted and therefore not meeting air pollution standards.

The new procedures will be phased in gradually in 1981 and 1982.

ENFORCEMENT

EPA Team Formed for Negotiations

EPA Deputy Administrator Barbara Blum recently announced the formation of an EPA Negotiation Team to work with Ohio utilities in developing alternative compliance agreements. These agreements would be aimed at reducing the local economic disruption and unemployment that may occur if Ohio utilities buy coal outside the State to meet air pollution standards.

In December, EPA announced a proposed determination that significant job losses among coal miners and economic disruption in their communities will occur if certain Ohio utilities carry out their plans to switch to out-of-State low-sulfur coal for their fuel. After public hearings and comment, this could lead to action under the law requiring utilities to use locally or regionally available coal, together with appropriate pollution controis.

"However," Blum said, "we would rather negotiate alternative compliance agreements with the utilities and save mining jobs through cooperation rather than issuing orders. That's why we have formed the EPA Negotiation Team."

Additive Sale Turned Down

EPA said recently it must Child Safety deny Petro-Tex Chemical Packaging Corp.'s request to sell a new gasoline octane booster due to insufficient information. The compound is Methyl Tertiary Butyl Ether.

But EPA says it might be able to approve a similar request by Atlantic Richfield Company if additional information is provided. Both Atlantic Rich- packaging. field and Petro-Tex have requested a waiver under the Clean Air Act to allow marketing of the chemical as a gasoline additive.

The current lack of data on the Petro-Tex request prevents EPA from assessing the impact of the chemical on auto emissions, said Marvin Durning, EPA's Assistant Administrator for Enforcement.

PESTICIDES

EPA plans to issue new rules requiring special child-resistant packaging for the most toxic household pesticide products, said Steven D. Jellinek, Assistant Administrator for Toxic Substances. Pesticide manufacturers will have up to two years to change to the new

Jellinek said the packaging requirements will affect the pesticide products that pose the greatest hazard to children when swallowed, inhaled, or spilled in their eyes or on their skin.

The EPA official also announced that 14 pesticide ingredients used in about 1,000 mostly agricultural products are being restricted for use only by trained and certified applicators. The ingredients are carbofuran, chlorfenvinphos, clonitralid, dioxathion, disulfoton, endosulfan, ethoprop, fenamiphos, fensulfothion, fonofos, monocrotophos, phorate, phosacetim, and phosphamidon.

Jellinek also noted that EPA is supporting a number of special investigations aimed at increasing the Agency's ability to predict and evaluate pesticide risks to farmers, farmworkers, and others "... who for a variety of social and economic reasons are among the least likely to seek hospital or emergency room treatment following a pesticide poisoning."

SOLID WASTE

Municipal Solid Waste

EPA and the University of Central Florida's Division of Continuing Educa- to control toxic lead and tion are sponsoring a national research symposium on municipal solid waste. The symposium will be March 26-28 at the Marriott Inn, Sand Lake Road, Orlando, Fla. Key concerns will be land

disposal and resource recovery of municipal solid waste. For further information contact the **Division of Continuing** Education, University of Central Florida, P.O. Box 25000, Orlando, Fla. 32816. Phone: 305-275-2123.

TOXICS

Voluntary Standard

EPA and two other government agencies recently set a voluntary standard cadmium metals leaching from the lip and rim of decorated drinking glasses. The other agencies were the Food and Drug Administration and **Consumer Product Safety** Commission.

The Standard says that lead leached from cartoons, drawings, or other decorations on the lip and rim of the glasses can't exceed 50 parts per million (ppm) and that cadmium leached from these decorations can't exceed 3.5 ppm.

If industry does not comply with the new standard on a voluntary basis, the agencies will consider the need for further action. Agency spokesmen saw no evidence now that a mandatory standard is needed.

Small Business Aid

EPA has announced that small businesses can now apply for special loans at the nearest Small Business Administration office vide a survey of the presto help ease any financial impact to comply with the **Toxic Substances Control** Act.

"Small businessmen and women should know that financial aid is available to meet Government regulations," said Administrator Douglas Costle, who also heads the new Federal Regulatory Council to help improve the process of dealing with regulations.

Small businesses can apply directly to SBA for these loans, rather than through the local bank. Long term repayment loans are available at 65/8 percent interest. The amount of money in the program through Sept. 30, 1978, totals \$100 million.

WATER

Water Cleanup Guide EPA Proposes

EPA recently published the first guide for the lay person on the 1977 Amendments to the Clean Water Act. The legislation provides adjustments -commonly referred to as "mid-course corrections"-to EPA's water cleanup program.

The 19-page guide includes explanations of technology-related amendments, and other changes. Copies can be gotten by writing Public Information Center (PM-215), U.S. Environmental Protection Agency, Washington, D.C. 20460.

Drinking Water Conference

EPA's Offices of Drinking Water and of Research and Development recently announced an international conference on Practical Application of Adsorption Techniques in Drinking Water. The conference will be April 30-May 2 at the Sheraton International Inn in Reston, Va., a Washington, D.C., suburb.

A primary goal is to proent application of adsorption technology in drinking water treatment, emphasizing control of trace organic contaminants. Another key aim is to report on the latest results of research and anticipated future developments in adsorption techniques such as granular activated carbon and powdered activated carbon.

The conference will be under the auspices of the NATO Committee on the Challenges of Modern Society. Further information is available from Dr. Joseph Cotruvo (WH-550), 401 M St., S.W., Washington, D.C., 20460, or 202-472-5016.

AGENCYWIDE

Cost-Cutting Approach

EPA Administrator Douglas M. Costle has recommended a new cost-cutting policy that would allow industry to propose the best way to clean up air pollution at individual plants, provided that overall clean air requirements are met.

EPA will hold a series of workshops in the near future to help the States make their decisions on carrying out the approach.

Currently, EPA and the States specify the emission rate for each smokestack, vent, or other air pollution source at a plant. The new approach would allow plants to propose innovative and more cost-effective plant-wide mixes of pollution controls than regulations now allow, as long as total environmental benefits are not reduced.

"This policy would mean less expensive pollution control," Costle said, not less pollution control. There's no point in making a company spend \$1.00 to control a pound of pollution if the same job can be done differently for \$.50 a pound. We're proposing to let industry concentrate their cleanup dollars where they will do the most good."

"For example," Costle explained, "under the new approach, if the owners of an auto paint shop decide that it's more costeffective to control hydrocarbon air pollution from the grease removal rather than the painting operations, they could apply for State approval to reduce controls at the painting end in exchange for an equal increase in controi at the degreasing end. The key consideration is that total emissions do not increase."

\$8 Million Contract with Black Firm

A black-owned business that started in 1970 with a \$20,000 computer-coding contract has signed an \$8 million computer service contract with the EPA. It is one of the largest ever awarded under the Small **Business Administration's** 8-A program to aid minority firms.

Under the two-year contract, Raven Systems and Research Inc. will provide data processing services for EPA's Office of Pesticide Programs. To do the job, Raven will double its work force to 300 people.

Regulation Need

Do not look to the new Federal Regulatory Council as the vehicle for undercutting basic social goals of the American people, said its new chairman Douglas Costle, in a speech to the Interagency Forum in Dallas, Tex.

Regulation to clean up the environment, protect health, and further social justice "is not an instrument of economic policy, but of social policy," said Costle. "And the basic test of such regulation is not how does it affect the economy, but rather, what does it do for the country.

"So, yes, there is a need to streamline and rationalize Federal regulation. ... And yes, there is a need to give coherence to the Federal regulatory structure. That is the job of the Council. But there is also a need for some regulation, and there will always be such a need." П

People

Joan Boilen

She is an attorney in EPA's Atlanta Regional Office, who has been named one of Ten Outstanding Working Women in America by *Glamour* magazine. Boilen was cited for her work in a case in Memphis, Tenn., in which the Agency sued the city for water pollution violations. The case resulted in a settlement of \$25,000, the fine imposed on the municipality, and in a limited industrial moratorium until the violations were corrected.

Boilen graduated from the University of Miami in 1970, one of the first women to get a B.S. in civil engineering there. She attended law school at night while working as a sanitary engineer for a private company in Atlanta. After passing the bar in 1974, she joined the Region 4 Enforcement Division. She is currently enrolled in the graduate engineering program at the Georgia Institute of Technology.



Dennis Carney

He is the first recipient of the newly-instituted Witmer Award for outstanding performance in Region 3. Carney, an environmental engineer, is a Team Leader in the West Virginia section of the Water Division, where he administers construction grant applications. He has been with EPA since 1974 and previously has received two outstanding performance awards. Carney earned a BS degree in 1974 from Drexel University.

The Witmer Award is a tribute by Region 3 employees to the memory of Glen F. Witmer, an outstanding regional employee who died of cancer in June, 1977, at the age of 27. Coworkers recognized his superior technical ability but were equally impressed by his approach to the importance of environmental protection. The Witmer Award, a plaque and a letter from the Regional Administrator, will be given annually and winners will be listed on a plaque displayed in the Regional Office.



Edward J. Hanley

He is the new Deputy Assistant Administrator for Management and Agency Services in the Office of Planning and Management. Since 1976 Hanley has been self-employed as a public policy consultant in the fields of health regulation and child development. From 1970 to 1976 he worked with Lewin & Associates, Inc. in positions ranging from senior consultant to Vice President. As a consultant for this firm he helped organize the Office of Child **Development at the Department** of Health, Education, and Welfare; directed an effort to improve and innovate the Head Start Program; and helped evaluate the Emergency Petroleum Allocation Act. Handley was a staff consultant at Fry Consultants from 1968 to 1970, working on projects for the Office of Economic Opportunity and the Agency for International Development. His previous government experience includes service from 1965 to 1968 with what was then the U.S. Post Office Department, where he started as a management intern and was promoted to the post of Assistant Administrative Assistant to the Postmaster General. Hanley earned a BA from Colgate University in 1963. He is the author of several articles on administrative topics.



Benjamin R. Jackson

He has been named Deputy Assistant Administrator for Mobile Source and Noise Enforcement, replacing Norman D. Shutler, who has returned to private industry. In his new position he will be responsible for providing policy direction to Agency enforcement activities in the mobile source air, and noise program areas. Jackson formerly served as the Director of the Mobile Source Enforcement Division, where he was responsible for policy and program development and implementation concerning enforcement of compliance with the provisions of the Clean Air Act relating to automobiles. Before joining the Agency in 1971, Jackson was employed by Humble Oil and Refining Co., from 1967 to 1971. He served in the U.S. Army as a Second Lieutenant from 1964-67 including one year in the Republic of Viet Nam as a Company Commander. Jackson earned a BS in mechanical engineering from Texas A&M University in 1964, and a master's degree from the University of Texas at Austin in 1968. He is a registered professional engineer in Texas.



Industrial Incineration

Some major industries dispose of dangerous industrial wastes from their manufacturing processes by hightemperature incineration. Dow Chemical Company, 3M Corporation, and Eastman Kodak Company all use this system.

Most use a combination of rotary kilns and secondary combustion chambers to oxidize materials. Rotary kilns are horizontal brick-lined furnaces that turn slowly as heat is applied to the materials introduced into them. These incinerators burn both solid and liquid chemical wastes at temperatures ranging from 1100-2200°F. The materials being treated remain in the kilns for varying periods of time depending on their composition and the level of heat. The resulting ash is chemically inert, and can be considered harmless if properly managed.

Dow Chemical Co. has been incinerating manufacturing wastes for about 40 years. The major changes in burning technology over the years, according to John Gledhill, section manager for environmental services at Dow, have been the addition of pollution control hardware, better temperature control, and increased analytical capabilities. Scrubbers and wastewater treatment facilities now prevent the escape of unwanted materials into air and water during the incineration process. The addition of supplementary fuels into incinerators improves the ability of operators to control the temperature, and this prevents unwanted chemical changes from taking place. Now that scientists are able to detect substances as minute as parts per billion, operators are better able to ensure chemical breakdown.

Dow's now has two incinerators: a rotary kiln and a tar-burner situated at the company's Midland, Mich., plant. The facilities primarily handle waste from Dow's operations there, though they occasionally take materials from the company's other plants or from the State.

Chris Perham is an Assistant Editor of EPA Journal

The rotary kiln, which was upgraded in 1974, burns solid wastes or sludges fed into the kiln on a semiautomatic system. Auxiliary fuel for the kiln comes from the 15,000-20,000 cubic yards of garbage per month that the Midland complex produces. This enters the kiln separately from the chemical waste. The company uses natural gas to maintain a constant temperature in the kiln when the chemical waste is of poor burning quality. Ash from the facility is placed in landfills.

According to Gledhill, the poor burning quality of some liquid chemical wastes is becoming more of a concern to the operators of Dow's tar-burning facility. As resource recovery within the production processes improves and removes more of the useful substances from wastes, the remaining liquid waste is of lower quality and requires more fuel to burn properly. The tar-burner, which incinerates only liquids, was a pioneer facility when built in 1968. Scrubbers filter residues from incineration fumes and water from the scrubbers is processed through a water treatment plant before it is discharged.

Eastman Kodak Co. built its \$11.3 million thermal oxidation facility at Kodak Park in Rochester, N.Y. The system, which began operation in 1976, gets much of its heat from the combustion ability of some 6-7 million gallons of liquid waste solvents, oils, and watery wastes that are byproducts of Kodak's daily operations. Modified industrial oil burners feed the waste into the kiln and a secondary combustion chamber. To even out the fluctuating heat values of the chemical loads, operators use Number 6 fuel oil for auxiliary firing.

The kiln also burns, at a temperature of 1800°F, 3.4 to 4.5 million pounds of solid waste sludges, solvent-soaked filter media, and laboratory wastes that result from the manufacture of industrial chemicals, commercial reagents, and photographic film and paper.

John L. Sherman, assistant superintendent of utilities for Kodak Park, explains, "The system has been designed to operate more as a chemical process than as an *Continued to page 40*

By Chris Perham



A fter making 100,000 gallons of nail polish, a chemical company finds that it has an excess of 17,000 gallons it cannot sell.

What can you do with 17,000 gallons of leftover nail polish? You can't burn it because that would pollute the air. You can't just dump it in the river because that would pollute the water. There are certain chemicals in it that could make it hazardous to people's health if it gets into the environment. To have it transformed chemically into something easily disposable is very expensive.

What if you could sell that nail polish to someone who could use it? A lamp company needs enamel for some of its products. Nail polish with suitable pigments added could be used on the lamps.

These are the types of situations where an exchange organization could help. Many chemical companies have large amounts of industrial and hazardous wastes. They need a way to turn expensive waste disposal problems into profit-makers.

In Europe, waste "bourses" or exchanges have been doing this yor years. Company A has a certain kind of industrial waste which Company B can use. Acting as a broker, the bourse brings the two together. Money is made, raw materials are saved and less waste is fed into the environment.

Such a program was started in the United States by the St. Louis Waste Exchange in 1975. The exchange emerged from a conference sponsored by the Missouri Department of Natural Resources on hazardous waste management methods. After studying the European waste bourses, the St. Louis Regional Commerce and Growth Association (RCGA) initiated the St. Louis Waste Exchange as a possible solution to the disposal of industrial wastes. The program was modeled after the waste exchanges which have operated successfully in Germany, Italy, Switzerland, Belgium, Great Britain and the Scandinavian countries for about a decade. Chet McLaughlin, Sanitary Engineer in the Waste Management Section, Region 7, served on the task force that developed this pilot project.

The St. Louis Exchange was the first United States clearinghouse for materials which might pose difficult environmental disposal problems. The operation also served to reduce the volume of hazardous and other waste material which must either

Darby Collins is a Region 7 Public Information Specialist be disposed of in local landfills or transported to destruction or treatment facilities.

The purpose of a waste exchange is to bring buyer and seller together. When companies find buyers for their waste products they provide cheaper sources of raw materials for the buyers. Wastes that might be a liability because of high disposal costs or possible damage to the environment can give the seller additional income.

The lowa Industrial Waste Information Exchange began operating in January 1976, the second U.S. clearinghouse. It was sponsored by the Center for Industrial Research and Service at the Iowa State University Extension Service in Ames. Patterned after the St. Louis Exchange, they list approximately 150 waste products from over 110 companies in Iowa and publish a listing four times a year.

The St. Louis Exchange mailing list has expanded to over 1,000 firms from coast to coast and receives inquiries from organizations throughout the country interested in forming a waste exchange.

"Because of the Resource Conservation and Recovery Act, more and more people are becoming interested in waste exchange," Roland Marquart, Transportation Services Manager for RCGA, who was instrumental in the founding of the St. Louis Waste Exchange, said.

"More people are aware of the problem of waste disposal. We have had more inquiries from our last listing than any of the others. We are getting some 20 to 25 calls every week."

As a result of this increased interest in waste exchanges, the first National Industrial Waste Exchange Seminar was held in St. Louis in June, 1977. The seminar drew on the expertise of RCGA, Iowa State University, EPA's Office of Solid Waste, the Missouri Department of Natural Resources, industrial waste generators and treatment facility operators and Arthur D. Little, Inc. (a contractor for EPA investigating waste exchanges and clearinghouses).

The success of the St. Louis Exchange generated interest in the possibility of other waste exchange operations across the country. Waste exchanges emerged in California, Illinois, Iowa, Indiana, Georgia, Minnesota, New Jersey, New York, Ohio, Oregon, Tennessee, Texas and Washington.

In 1976, the Mid American Regional Council (MARC) in Kansas City became interested in the possibility of forming a waste exchange. A survey of the hazardous waste situation in Kansas City (funded by the EPA Solid Waste Management Program) showed significant interest in an exchange operation.

Following the seminar on waste ex-

changes, Kansas City became very interested in starting an exchange. The Kansas City Chamber of Commerce and RCGA looked into the possibility of an Exchange that could serve both Kansas City and St. Louis and, eventually, additional areas. Negotiations began in 1977. Early in 1979, the St. Louis Waste Exchange will merge with Kansas City interests to become the Mid-West Industrial Waste Exchange.

The St. Louis Exchange has already changed its name to the Mid-West Industrial Waste Exchange to avoid possible confusion. It operates on a non-profit basis charging only \$10 a listing. The name of the company offering wastes is not published, assuring anonymity. Previously, companies have been afraid to advertise their waste products or raw materials for fear of giving other firms a competitive advantage.

Two listings are published. Type A for available waste items and Type W for those items that are wanted. Each listing includes a description of the item, composition, quantity, packaging and geographic origin. The lists include only materials for which no well-established market exists.

Inquiries to the Exchange are referred to the listing firm, which then determines whether or not it will negotiate. The Exchange asks no questions concerning the dollar volume or exchanges or with whom the company has done business. Federal and State agencies have agreed to respect the anonymity of the competitors in order to encourage resource recovery and decrease the volume of industrial waste.

EPA estimates that the U. S. generates about 344 million metric tons (wet) of industrial waste each year. If only 10 percent of this waste could be utilized or recycled, the waste exchange would prove its worth.

The interest in waste exchange continues and so does the search for new and better ways to operate an exchange. EPA is currently considering the grant application of the St. Louis RCGA and the St. Louis East-West Gateway Coordinating Council to further explore possible cooperation between exchanges and the best ways to reach small and medium sized industries.

These efforts point the way to future development and cooperation between industrial waste exchanges. Although these organizations will probably never be profitable as business enterprises, they will provide a needed service to industry and definitely help to protect the environment.

Mining Urban Ore

By Thomas Nathan

he vague talk and wishful theory from enabout the energy and raw material value of garbage has caught the ear of private investors, it has sent them to the bank for loans. This spring, with the official opening in Hempstead, Long Island, of America's largest resource recovery facility, squeezing dollars from garbage will become a big business reality.

This is an extraordinary and sorely needed turnabout. As a Nation we generate approximately 130 million metric tons of garbage a year, enough to fill the New Orleans Superdome from floor to ceiling twice a day, 365 days a year. Each of us is responsible for producing about 1,300 pounds of it a year.

Traditionally the collection handling, and disposing of garbage, like fighting fires and combating crime, has been one of the nasty, necessary chores performed by local governments. Historically, there has been little incentive to deal with our wastes in an environmentally sound or energy-efficient manner. But since the offensive stuff we throw away daily is becoming regarded as a viable, valuable energy and material resource, people in the business no longer to refer to it as garbage. It's becoming "urban ore" and it's finally going to be mined in America.

Five refuse-to-energy plants processing more than 500 tons daily are currently in operation. Industry experts expect that within eight years about 17 percent of the Nation's garbage will be recovered in 20 large plants and 50 small ones (treating less than 500 tons daily).

Thomas Nathan is the editor of the Federal **Regional Council Newsletter in Region 2.**

The present value of garbage is reflected vironmentalists and government officials in the fact that the new Hempstead facility was built, financed and presently operates without the backing of a penny of the taxpayers' money. The town subsidizes the facility only by paying a standard fee for every ton of its garbage dumped at the facility.

> Similar arrangements have been made in Saugus, Mass., where Wheelabrator-Frve, Inc. has constructed and operates a refuseto-energy plant that converts 1,000 tons per day of garbage from 13 neighboring towns into steam for a nearby General Electric Co. plant. The Americology Division of the American Can Co. has assumed responsibility for Milwaukee's 250,000 tons a year of garbage, processing the waste to produce a refuse-derived fuel sold to the Wisconsin Electric Power Co., where it is mixed with powdered coal to fire boilers and generate electricity.

One of New York's largest users of power is tapping a new power source by constructing near their chemical complex in Niagara Falls a 2,200 ton per day resource recovery facility to provide electricity for plant operations.

Hempstead's \$73 million facility is owned and operated by Parsons & Whittemore, Inc., a company largely involved in the design, construction and management of pulp and paper mills. The facility can process 2,000 tons per day of unsorted garbage by mechanically separating ferrous metals, aluminum and color-sorted glass, leaving an organic fuel which is burned to generate steam and electricity. In devouring all garbage from the town's 850,000 residents, the plant recovers 90 percent of the ferrous metals (40,000 tons of iron and steel), 80 percent of the aluminum (4.600 tons), 48 percent of the glass (20,000 tons), and generates 250 million kilowatthours of electrical power per year. This is enough salable electricity to meet 20 percent of Hempstead's electrical needs,

Areas like this in the South Bronx are being considered for resource recovery plants such as the one of Hempstead.





roughly the equivalent of saving 450,000 barrels of oil per year.

The recovery process begins when Hempstead's unsorted municipal garbage is delivered to the plant, weighed and recorded at a truck scale, then dumped, and bulldozed into a conveyor pit. The conveyor automatically meters the refuse into a giant blender (called a hydrapulper) where it is mixed with water and chopped into small pieces by steel rotor blades. Pieces of metal, tin cans and other large solid objects are ejected through an opening on the side. The tin cans and ferrous metals are removed by a magnetic separation device.

The smaller solids and finely chopped waste continuously drain through a perforated plate at the bottom of the hydrapulper into a liquid cyclone where heavier materials are removed by centrifugal action. About 80 percent of this heavy material is glass.

From the liquid cyclone, the slurry is treated in a process that floats organic and sinks inorganic materials. Further separation of the inorganics provides an aluminum product sold for reuse in high grade aluminum products, and heavy non-ferrous metals are sold to scrap metal dealers.

The organic material floating on top is removed separately, pressed, fluffed and finally discharged into two high-efficiency boilers where it is completely and efficiently burned to generate steam. The exhaust gases are cleaned of particulate matter in a scrubber and discharged as a clean, non-polluting, non-odorous white plume. Steam from the boiler powers two turbines to generate electricity sold directly to the Long Island Lighting Company.

These processes reduce the amount of waste 97 percent by volume and 85 percent by weight. The remaining ash residue from the boilers is delivered to a cement company for use in their mixing process. All the garbage is thus effectively "recovered."

The facility not only recycles materials and recovers energy, but also offers a return on investment. Of the \$73 million investment, \$46 million was financed through bonds purchased by such investors as Equitable Life Insurance, Aetna, and Connecticut Mutual. The remaining \$27 million came from Parsons & Whittemore.

A series of long-term contractual arrangements with Reynolds Aluminum, ALCOA, Long Island Lighting Company, and the Glass Container Corporation for the purchase of recovered materials provided collateral for the loans. Hempstead is free of liability, and Parsons & Whittemore has only to meet plant efficiency standards to supply the proper amount of materials. Improvements in technology, more stringent environmental controls on traditional disposal methods, and the high cost of energy combined to create a market situation that made resource recovery economically feasible for Hempstead and cost-effective for Parsons & Whittemore.

Although this new technology is still in its early stage in America and without the support of forthcoming Governmental programs designed to create an economic bias for its success, Carl C. Landegger, Parsons & Whittemore's Chairman of the Board, says his company is ready to move ahead and build resource recovery plants wherever anyone might want one. The company is already under contract to build an even larger facility (\$102 million, 3000 tons per day) for Dade County, Florida.

'If there's one message I want to get across loud, clear and precisely," Landegger says, "it's that my company is prepared to own and operate any solid waste plant that anybody wants to build. I don't want a penny of municipal money, of State money, of Federal money. I don't need anything from the municipality except a site because I'm not capable of overcoming the political difficulties involved in deciding where one can be built. And they must give me a twenty-year contract to supply me with garbage at whatever the competitive dump fee is in that region. Given these, I will arrange all my financing. I'll do the whole thing. The proof of the pudding is that in Hempstead we put up every penny and the town has not put up a dime.



 any the warres from trucks, any where monicipal quickness a monicipal quickness one ray and restation

Hempstead was experiencing a problem which is plaguing more and more urban communities throughout the United States. The town was faced with vanishing landfill cavities, rising volumes of solid waste, and climbing energy costs. The solution was to supply Parsons & Whittemore with the site they requested and the twenty-year contract for garbage.

In return the town not only alleviated its disposal problems, but got a piece of the action as well: 15 percent of the proceeds

from the sale of recovered glass and metal, and about 40 percent of the proceeds from the sale of electricity. The town had been paying \$18 to \$19 a ton for disposal. It now pays \$15 a ton to dump at the resource recovery facility. After receipt of its share of the proceeds (estimated at \$4 per ton), Hempstead's net disposal costs drop to \$11 per ton.

The success of the Hempstead plant and others like it demonstrates the mutual benefits for both the public and private sector from the growth of pollution control industries. Eckardt C. Beck, EPA's Region 2 Administrator, said he foresees a future for private enterprise initiatives in this field.

"The Hempstead plant represents an important partnership between private industry and local government, and it is not an isolated event," said Beck. "EPA along with New York City is exploring the possibility of using a resource recovery plant as a method to aid the White House in its plan to revive the South Bronx. Current initiatives are directed toward development of a resource recovery industrial park in which energy and materials from refuse will feed new manufacturing industries to provide new jobs.

"This is a key reason for the renewal in environmental enthusiasm which I foresee. The myth that business cannot endure the restriction of environmental controls is being dispelled. And on top of that, we are finding that environmental programs are creating jobs by the hundreds of thousands, as well as entire new industries. The Hempstead plant is a perfect example of this, and we are likely to see a lot more of it."

More of it is likely to happen in Beck's own Region under the auspices of the Port Authority of New York and New Jersey, a public bi-State agency dedicated to the promotion and protection of commerce and transportation in the New York metropolitan area. Since the Authority does not receive tax support, it must seek financially sound investments. The Port Authority has recently received authorization from the States of New York and New Jersey to undertake the development of industrial parks, which will attract industries by creating advantageous conditions within the inner cities.

"Central cities are simply not attractive locations for industry," explained Neal R. Montanus, the Port Authority's Director of Industrial Development. "There is very little anyone can do to make Brooklyn, the South Bronx, or Newark attractive to industrial firms if all one has is, in essence, an industrial location that is like other industrial locations. We're looking to assist the marketing of these central city industrial locations, and without some kind of sub-

Siting Problem Discussed

The difficulty of finding a site for chemical landfills is becoming a major concern of officials involved in hazardous waste management, according to speakers at the recent International Conference on Hazardous Materials Management.

The spokesmen emphasized at the meeting in Detroit, Mich., that recent incidents in Michigan, New York, Louisiana, and North Carolina have increased the intensity of public feeling about hazardous waste.

"In the public's mind, the notion of a secure chemical landfill is elusive. They just don't believe in it," said Sandra Gardebring, Executive Director of the Minnesota Pollution Control Agency. She was one of many representatives from 30 States and 4 Canadian Provinces who attended the Conference, which was sponsored by the State of Michigan and the National Governors' Association. Participants came from local, State, and the Federal Government as well as industry.

Chemical wastes, which were buried years ago at Love Canal in Niagara Falls, N.Y., caused groundwater contamination, air contamination in basements, and eventually, evacuation of the area. Over 200 homes are now boarded up as cleanup efforts are underway to contain or remove the chemicals^{*}.

The residents are being studied for health effects. Some of those results are already in increased rates of birth defects, miscarriages, and liver abnormalities over the general population. Stories like this have scared many people.

"Love Canal is so much in the public mind right now. They have been given the feeling of impending danger. There is no feeling of security, that a facility will not cause pollution or health problems," said Beatrice

* See EPA Journal Jan. 1979 ''The Love Canal Tragedy.''

By Nancy McKinney

Tylutki, Director of the N.J. Solid Waste Administration and Chairman of an interstate Resource Conservation and Recovery Act (RCRA) Task Force.

The other incident that has become a major public concern is the inadvertent contamination by PBB (polybrominated biphenyl) of a cattle feed supplement and subsequent distribution of the feed to many Michigan farmers.

Because this accident was not discovered for approximately 9 months, there was extensive contamination of food products. Farms were quarantined and animals destroyed. The destruction of food products was massive—approximately 30,000 cattle, 4,500 swine, 1,500 sheep, 1.5 million chickens, 800 tons of animal feed, 18,000 pounds of cheese, 2,500 pounds of butter, and 5 million eggs.

Settlements for over \$38 million in damages and loss of animals have already been made, and many suits are unsettled. Long-term study is going on concerning health effects on the population. The total damage has been estimated in the area of \$100 to \$200 million.

A Michigan Department of Natural Resources (DNR) publication reports on public reaction. "The effects of the catastrophe have ripped through the farming community, causing bitter hard feelings among farm families," it reports. "People have become dissatisfied and frustrated. They call or write to the Health Department wanting a remedy for their poor health. People from out of State and even abroad write to the Department saying they are ill, that they passed through Michigan several years ago and wonder if PBB's are responsible for their ill health."

"The PBB incident was called 'the poisoning of Michigan' by the media. Because of it, our citizens are now afraid of any chemicals referred to by initials. It has become irrational," said William G. Turney, Chief of the Bureau of Environmental Protection, Michigan DNR.

The effects of these stories on public opinion has been so negative that the siting of any future hazardous waste disposal facility is seen as a problem of almost insurmountable dimensions.

"Not in my community; build it someplace else," is how Beatrice Tylutki characterized public opinion. She pointed out that more facilities will be needed in the near future because of increased production and the closing down of unsafe facilities.

"Regional facilities are needed, not just local ones," Tylutki continued, "but this makes siting even more difficult. Perfection of the state of the art is necessary so that people will not have the hazards in their backyards. Long-term safety is also imperative. We must provide citizens with the security of a continuous monitoring system."

Richard N. Little, Counsel for the Subcommittee on Transportation and Commerce, House Interstate and Foreign Commerce Committee, said audiences he has talked to seemed to want the Federal Government to "step in and make the hard decisions and come up with the money, but the States want control. But there simply isn't going to be a Federal bail-out or major restructuring of RCRA."

Thomas C. Jorling, EPA Assistant Administrator, Office of Water and Waste Management, said:

"Although the siting issue is a very difficult one, I do not believe our system will be very well served if we have to rely on Federal authority for siting."

"Federal imposition would be divisive," Jorling said. He called the siting issue "a crucial test for government.... Is there sufficient leadership to convince the public that we can deliver?"

Turney called Michigan citizens' attitude "the backyard syndrome. The idea of don't put it anywhere near me has become pervasive. This attitude has come to include sewage treatment facilities, recycling plants, everything. We have simply had to remove our wastes out of the State. There may be a crisis if we have to stop that."

"There's always the same deafening cry---take it somewhere else," said Turney.

"It's rather like the children's game of Old Maid—the object is to pass it off to the next guy," said Gardebring.

These statements underline the problematic nature of the hazardous waste issue and public opinion.

Communities have begun to try to close down disposal facilities in their area, and as public opinion continues against siting of new facilities —where does the material go?

"The future of RCRA will be decided by the general public," said James R. Greco, Director of Governmental Affairs, Browning-Ferris Industries. "We must assure ourselves and the public that hazardous waste can be handled safely."

William DeVille, Staff Chairman, National Governors' Association (NGA) Subcommittee on Waste Management, said:

"We need an informed and a wise public. Not just public participation, but informed and wise public participation. With darn few exceptions, public participation has become a stonewall opposition to siting. We have to deal with this issue, and soon."

Nancy McKinney is a Public Information Officer in EPA's Region 5 office.

A New England Hazard

By Paul Keough

On a 5.2 acre site in Lowell, Mass., once owned by the now bankrupt Silresim Chemical Corporation, are stacked some 20,000 barrels containing a million gallons of liquid hazardous wastes. Also in storage tanks are another 300,000 gallons of all types of toxic wastes.

Paul Keough is Region 1 Director of Public Awareness.

The barrels are rusted and leaky. Chemical odors hang in the air above the site. The ground is saturated and heavily contaminated with chemicals such as trichloroethylene, which appears on EPA's list of dangerous chemicals. Anyone having access to the site must wear protective clothing, special boots, and breathing apparatus.

The stockpile of toxic, flammable, and explosive chemicals presents an immediate hazard to residents of the City of Lowell—some of whom reside only a few hundred yards from the Silresim site.

Some of the chemical barrels sit only a few hundred feet from River Meadow Brook, which flows into the Concord River, a tributary to the Merrimack River. The Merrimack serves as a drinking water source for several communities. While testing by State and Federal authorities has shown no significant concentrations



Workman preparing drums of hazardous waste for reprocessing at Silresim sile.

of chemicals in the Merrimack, the potential for disaster is there.

Plans to abate the problem are now moving ahead. The Massachusetts State Legislature has appropriated \$1.5 million to accomplish the cleanup task. The State Division of Water Pollution Control, which has been selected to oversee the work, has signed a cleanup contract with NEWCO, Inc. of Niagara Falls, New York. The cleanup operation will take some four to six months to accomplish.

The task is a complex one. Some of the barrels have no labels. The contents will have to be analyzed. Broken and damaged barrels will have to be replaced. New England has no approved landfill site for hazardous waste disposal so most of the chemicals will have to be shipped out of the Region. Some of the waste can be reprocessed.

Ironically, the Silresim Chemical Corporation was supposed to help solve the chemical waste problem in New England. The company was founded in 1970 by Dr. John Miserlis (Silresim is his name spelled backwards), a chemical engineer and former college professor. Dr. Miserlis planned to accept hazardous wastes from area industries, and hoped to salvage and reprocess some of the chemicals that could then be sold.

Those wastes that could not be recycled would be neutralized and then discharged into the municipal sewer system.

Dr. Miserlis hoped and believed that the plant would become a model for areas all over the country to emulate.

There is no single or simple reason why the venture failed. There is a long history of problems between the company and the State. It appears that Silresim accepted more waste than it could process. It also appears that Silresim stockpiled chemicals that it didn't have the facilities to treat. In any case, almost every empty space on the 5.2 acres was covered with barrels, some piled 10 feet high.

In 1977 Silresim went into bankruptcy, and later that year the State revoked the company's license to operate.

Region I EPA Administrator, William R. Adams, Jr., points out that Silresim is an example of a good idea that went bad. Adams commented:

"It also underscores the problem we have in New England. We generate somewhere between one to three million tons of hazardous waste each year. Since we have no safe disposal sites in the Region, we know that the bulk of this waste is being disposed of improperly. Midnight dumping along roadways, into sewers, and in isolated woodland areas is taking place.

"If we had adequate storage areas, we would not have such incidents taking place. Identifying hazardous disposal areas with appropriate safeguards will be a priority of this Regional Office in 1979."

Environmental Almanac: February 1979

Glimpse of the Natural World We Help Protect

Hope in New Jersey

A goldfinch with its feathers fluffed to protect it from the damp chill nibbles at the thistle seed in a swaying feeder as a blustery wind hums through the bare branches of the trees dotting the Greenbrook Sanctuary on the New Jersey Palisades cliffs.

Some 300 feet below a huge tanker steams up the silvery Hudson River. To the south the George Washington Bridge stretches to the island of Manhattan whose great towers are wrapped in the rainy mists of a grey winter day.

Although only a cannon shot away from the heart of the Nation's biggest commercial center, this 150-acre sanctuary provides peace and the opportunity to watch the unfolding of plans nature set in motion millions of years ago.

It is one of several of the socalled postage-stamp sized wilderness areas which offer hope in New Jersey, a State sometimes better known for its high cancer rate, forests of industrial towers, and the acrid odors sniffed by the millions of motorists who use the New Jersey Turnpike.

Other larger and notable New Jersey wilderness areas include the Great Swamp, which supports deer 20 miles from New York City, and the Pine Barrens, a remarkable forest between Atlantic City and Philadelphia of stunted pine and oak trees, cedar swamps, meandering streams, cranberry bogs, blueberry fields, and a variety of rare plants and animals such as the curly grass fern and the carpenter frog. These green islands provide badly needed lungs for one of the Nation's most urban and densely populated States.

The Greenbrook sanctuary is perched high above the Hudson River, which daily receives the discharge of millions of gallons of untreated sewage.

Yet in the sometimes discouraging environmental battle, the success of this remarkable sanctuary is a heartening sign. If you look from the Palisades across the river north of Manhattan you can see another, a long low structure hugging the shore near Yonkers. This is the approximately \$100 million Yonkers waste treatment plant, one of a string of water pollution control facilities built to protect the Hudson from sewage wastes.

Meanwhile, the fact that the

sanctuary can flourish offers hope that the environment can be restored even in the New Jersey-New York area.

A visitor to the sanctuary last spring for a few hours saw a ruby-throated hummingbird sipping nectar from a Japanese honeysuckle.

Two adult Canadian geese followed by their goslings were gliding across the sanctuary pond. The sanctuary naturalist reported that two other goslings had disappeared a week earlier. He speculated that they were eaten by either a snapping turtle or a fox.

The mirror surface of the pond was suddenly broken when a frog catapulted itself from the water and landed on shore inches ahead of a pursuing water snake.

Warblers on their way to northern nesting grounds flitted through the pine and hemlock trees. Over the Jersey shore of the Hudson a large flock of blue jays flew past on their migration upriver.

Just off a path in the woods a yellow slipper orchid nodded in a breeze.

The diversity and richness of these timeless woodland scenes would be difficult to match in most rural settings. The fact that they can occur within a few miles of the roar of Broadway, the rumblings of Wall St., and the clangor of mid-Manhattan traffic is a triumph of nature.

This victory recalls what Rene Dubos, the noted scientist and author on environmental subjects, calls the resilience of ecosystems.



Blum Urges Global Ozone Protection

Deputy Administrator Barbara Blum has called for global cooperation to cut back production of chlorofluorocarbons—known as CFC's—in order to protect the stratospheric ozone layer. The ozone now acts to shield the Earth from ultraviolet radiation from the Sun.

In an address to the second International Conference on Chlorofluorocarbons in Munich last December, Blum declared:

"We believe that only one course of action is open: A unified global approach to dealing with the health and environmental risks associated with CFC production and use. Multilateral and unilateral support for worldwide reduction of aerosol emissions must come from the European communities and international organizations, as well as from those of us who have already taken some form of action on this problem." Some 20 countries now produce CFC's.

Following her address, the Conference recommended that "as a precautionary measure, there should be a global reduction in the release of CFC's," which destroy ozone. It called upon governments, industry, and other organizations to work toward such a cutback and urged industry to seek substitute products.

Scientists have become concerned in recent years at the increase in CFC gases released from aerosol cans, refrigeration, air conditioning, cleaning agents in the solvent industries, and from other minor uses. Stratospheric ozone can be depleted by CFC gases. The process comes about when these gases rise to the stratosphere and undergo photochemical decomposition and liberate atoms known as free chlorine radicals. These radicals react with ozone, reducing it to molecular oxygen.

According to scientists, the cumulative long-range effect of reducing the ozone layer 10 to 15 miles above the Earth could not only cause a rise in the incidence of skin cancer among humans but bring about other environmental problems. In 1975 a Federal task force warned that ozone depletion could also cause climate changes, disturbances in aquatic and land ecosystems, alteration of the stability and effectiveness of farm chemicals, reduced crop yields, and other adverse effects.

Blum noted in her speech to the conference that the United States has been the world's largest producer of CFC's and user of products containing these gases, "and that we, therefore, have a special responsibility to make sure that our own house is in order before urging other nations to join us in taking the necessary steps to reduce CFC-related hazards on a global scale."

She pointed out that last March EPA and the U.S. Food and Drug Administration took action to ban CFC's as aerosol propellants. The regulations took effect last December 15, and prohibited virtually all processing, including processing for export, and distribution of CFC for use in aerosol products in the U.S. Furthermore, on April 15, 1979, interstate shipments of non-essential drug and cosmetic aerosol products containing CFC's may no longer be introduced into commerce in this country. Finished products already on the market and in distribution channels may be sold until the stocks are exhausted.

(About 2 to 3 percent of total CFC aerosol uses are exempted from the ban. These include drugs for inhalation therapy for some respiratory ailments, birth-control products, some electrical cleaning sprays, aircraft maintenance products, and certain pesticides.)

In addition, warning labels have been required on most aerosol consumer products so that consumers could voluntarily avoid using such products until the ban took effect. The warning states: "Contains a chlorofluorocarbon that may harm the public health and environment by reducing ozone in the upper atmosphere." Blum also pointed out that since April, 1977, EPA has required that CFC's in pesticide aerosols be identified on the product's label.

Aerosol propellants have been used in the U.S. chiefly for such items as hairsprays, deodorants, and cosmetics, which account for more than 80 percent of all CFC aerosol products in this country. The other 20 percent have been used in household cleaners, laundry sprays, pesticides, auto cleaners, room deodorants, and some industrial products. Substitute propellants are readily available for the vast majority of these items.

"As a result of these regulatory actions, as well as the overwhelmingly positive and cooperative actions taken by U.S. industry in making voluntary cutbacks in CFC uses," Blum said, "we estimate that U.S. production of CFC's will drop from the 1973 level of about 900 million pounds to about 550 million pounds in 1979—over 85 percent of the remaining will be produced for non-aerosol uses."

However, she warned that although the U.S. action should decrease total world usage of CFC's by 25 percent, if no action is taken by other countries making and using CFC's as aerosol propellants, the reduction will be offset by a projected increase in worldwide emissions by 1985.

The Deputy Administrator said the impact of the regulations on the economy should be much less than original estimates. According to the **Chemical Specialties Manufac**turers Association, about 87 percent of products previously using CFC propellants had switched to other types of propellants or finger-activated pumps by last spring. Aerosol products have largely been converted to hydrocarbon propellants, often formulated with flame retardant to reduce fire hazard. Blum noted that the switch to such propellants "has not proven to be a safety hazard."

The economic impact of the aerosol CFC ban had been estimated to range from \$169 million to \$267 million annually for the four years following announcement of the regulations. However, the switch to other propellants could result in consumer savings from \$58 million to \$240 million annually in the same period. An estimated loss of some 2,000 jobs in the filling, valve, and container segments of the aerosol industry would occur, Blum said, "but with the exception of the filling segment, the impact on small businesses would be minimal, and there is likely to be some positive effects on small businesses that produce and market alternatives to CFC products."

Half the estimated economic impact on the U.S. market was originally calculated on the basis that marketers would not have a substitute product to sell. However, by the end of last September, aerosol shipments were running 5 percent ahead of the 1977 figures, indicating that marketers were turning to substitute propellants.

Blum noted that EPA planned to do a retrospective study later to assess the economic impact of the regulation.

The United States is now studying how to achieve further emission reductions and is looking into the use of CFC's in refrigerators, air conditioners, and other products, Blum noted, since "the CFC's used in such non-aerosol ways are emitted into the atmosphere, often after residing 20 or more years in a particular product." Results of this study will be available some time in 1979.

Also representing EPA at the Munich Conference were Alice Brandeis Popkin, Office of International Activities; Dr. Herbert L. Wiser, Principal Physical Science Advisor, Office of Research and Development; and John P. DeKany, Deputy Assistant Administrator for Chemical Control, Office of Toxic Substances.

Countries and organizations participating in the Conference were: Australia, Belgium, Canada, Denmark, France, Italy, Netherlands, Norway, Sweden, Switzerland, the United Kingdom, United States, Yugoslavia, the Organization for Economic Cooperation and Development, the United Nations Environment Program, and the Commission of the European Communities.

At press time only two countries, the United States and Sweden, had banned nonessential uses of fluorocarbons. Canada earlier had asked for a voluntary reduction in their production and use, and reported a decline between 1974 and 1977 in their use from 32 million pounds to 15 million. Canada, Norway, and most members of the European Community currently are considering some form of ban.

A Senator's View

Continued from page 5

would be made where the affected industry had itself arranged for adequate disposal.

The core problem of dealing with toxic and hazardous substances in the environment is how to establish useful standards for the management of non-threshold pollutants. The 1970 Clean Air Act established a revolutionary way of setting standards protective of public health. The national primary ambient air quality standard was to be set at the level necessary to eliminate effects on health, with an adequate margin of safety. Under the law, that standard has to be achieved, regardless of cost or ease of attainment. The current fashion with environmental regulators, where there is no statutory guidance on establishing standards, and often even where there is, is to substitute "risk assessment" for the absolute of protecting public health.

That may be dangerous, in its application to non-threshold pollutants such as carcinogens, mutagens, and radioactivity. Committee members will consider providing a legislative framework in which to make regulatory decisions on such pollutants. That will be a very difficult task but no navigator ever distinguished himself on a calm sea.

In its recently published Criteria for Radioactive Wastes, the Environmental Protection Agency says an acceptable risk for a non-threshold pollutant is one that does not pose an unreasonable risk to human health and the environment.

Although a little circular, that does not sound too bad-until you find out what it means. In a recent briefing on draft standards for high level waste repositories, EPA personnel displayed a graph summarizing their risk assessment for a model repository. The vertical axis was probability. The horizontal axis was health consequences somatic fatalities-integrated over the extended period for which the risk assessment was done. At the left axis at a probability of nearly one, there is a flat curve extending out to between 10² and 10³. In the neutral language of "risk assessment" that means it is virtually certain that between 100 and 1000 persons will lose their lives because of that repository-albeit over many years. I do not consider that a reasonable risk. The Committee may consider an alternative approach to risk assessment. One, which might be discussed, would be to allow no activity with which is associated a substantial probability of death or serious disease of any individual or any mutagenic effects.

A consequence of such a principle would be to subject activities with great risk or risks over extended periods of time, such as nuclear waste disposal facilities, to very close scrutiny and increased control.

These subjects constitute an ambitious agenda for the Committee on Environment and Public Works. Hazardous and toxic substances in the environment pose a critical challenge to the public health, however, and the Committee is determined to respond to these issues in a timely and practical way.

An important first step will be the Environmental Protection Agency's final promulgation of regulations implementing the hazardous waste control programs, under subtitle 6 (c) of the Solid Waste Disposal Act. I am not hopeful the Agency can shorten its internal review procedures and promulgate those regulations by September of 1979. Much legislative work remains to be done in the areas discussed in this article, however, and the Committee on Environment and Public Works will make that work its first order of business in the 96th Congress.

Regulations

Continued from page 6

it and just simply not duck this thing....

"Better that this stuff goes to a place that's designed to handle it than that it just disappears in the night somewhere, and we have no idea where it is. That's what compelled Congress to take the approach that there should be a manifest system that tags that waste at the time it's generated and allows you to follow it to wherever it finally goes," he added.

EPA estimates that 10 to 15 percent of the annual production of 344 million metric tons of industrial waste is hazardous, and the volume of hazardous waste is expected to increase by 3 percent annually. The Agency estimates that 90 percent of such waste is now managed by practices that will not meet the new Federal standards. More than 400 cases of damage to health or the environment due to improper hazardous waste management have been documented by EPA. The proposed new system has as its keystone a control system over hazardous waste by means of manifests and reporting. Only sites that have permits may treat, store, or dispose of the material. An estimated 30,000 permits will be issued by EPA and the States over the next five to six years to those that store, treat, or dispose of such waste.

Within two years after the new regulations are promulgated, States must apply for and secure full authorization for their own hazardous waste programs. The criteria for such authorization are that they must be equivalent to the Federal program, consistent with other State and Federal programs, and must be enforced adequately.

The new system will cover more than 35 million tons of hazardous waste produced annually in the United States. About 270,000 waste-generating facilities, 10,000 transporters and 30,000 treatment, storage and disposal sites will be involved. Companies producing less than 100 kilograms (about 220 pounds) of hazardous materials per month would be exempted from the new regulations.

The proposal calls for landfills for hazardous waste to be lined with clay, plastic, or other materials to prevent the waste from moving through the soil and reaching water sources. Landfills would have to be at least 500 feet from any water source, and a site that is closed would have to be sealed with clay or other material. Constant monitoring of active sites by the operator would be required. Closed sites would have to be monitored and maintained by owners for 20 years to assure that the waste is not moving into nearby soil or water. The owner also would have to assume financial responsibility for \$5 million per damage incident during site operation and set aside funds for properly closing, monitoring, and maintaining the site for the next 20 years after closure.

Asked about complaints that EPA was behind schedule in proposing the regulatory program, Jorling said there is "immense complexity" in understanding the dimensions of this system. "We took the policy that it is better to be late and good than to be bad and issue on time," he said, adding that the Agency, like others, has been suffering from a shortage of resources and an overabundance of procedures.

"We think we have now established a program which will keep us on track and a program people will put reliance on," he emphasized.

Summing up the new system, Costle declared:

"We've had now in place a major air pollution program, a basic water pollution program, and the thing that's now being addressed is the land disposal question and the handling of hazardous wastes that normally go back to the land in some fashion....

"What we're engaged in, in effect, with air, water and solid waste, is essentially trying to get control of the whole problem and not just push pieces of it around from one sink to the other. It is a major undertaking and one that needs to be done with considerable care and thoughtful input from everybody affected."

Managing Hazardous Wastes

Continued from page 8

it, or prevent any release. Such methods are feasible from an engineering standpoint and we have to move in those directions.

How would you compare the hazardous waste problem to air and water cleanup, toxic substances, and other environmental concerns? Is it more serious, harder to solve?

 I don't believe it's any harder. It's newer, and it needs action on the part of Federal and State government. In many respects, technically, the hazardous waste problem is less complicated than, let's say, writing an effluent limitation for complicated chemical plants.

We have several basic practices for managing hazardous wastes. One is incineration high temperature incineration for the structure of organic chemicals. Another technique is reprocessing. This is the preferred policy within the Agency. Usable materials are removed from the chemical wastes, and the most toxic are taken from them, hopefully leaving only a harmless residual. Another practice is simply storage. Most people associate that with radioactive waste, but it is also a practice here. We don't know what to do with it so we in effect just store the waste until we come up with better answers in the future.

So technically, the questions of hazardous waste management aren't that great. They would be simpler if we could reduce the volume of hazardous waste by reprocessing.

What we do face though is a practice that disturbs me greatly. We are devoting more and more of the landscape to uses such as hazardous waste disposal that are incompatible with utilization of the land for more productive, humanoriented ends. We are talking now of setting aside sections of the landscape for the perpetual care of these types of materials. That is very shortsighted. Hopefully EPA's program and the society in general will move away from such an approach. When you add hazardous waste sites to nuclear generation and nuclear storage facilities, you have a very substantial acreage condemned to an exclusive use.

Is the Agency making a special effort to achieve various effective methods of handling hazardous wastes?

The incentives to develop such methods generally flow from

the regulatory requirement. As it becomes more expensive under the regulations to dispose of waste in a certain way, the industrial community tends to tell its engineers to come up with a better method to avoid that problem.

We see in water cleanup, for example, that some industries that traditionally discharged great volumes of waste have gone to recycling. The same thing will happen in the solid waste area. As certain waste-handling costs increase, industry will respond with methods such as source separation, containment, and recycling to reduce the output of this material during production. That would be the best outcome of the regulatory program.

Is there anything you would like to add to these comments?

On its face we are behind the statutory schedule and behind where most people would like us to be. But I have been very pleased and have a great deal of respect for the people within the Agency who have been working on these programs and developing these regulations. Professionally they are extremely sound, their commitment is great, and they have been working harder than it's really possible to describe in meeting the mandate of the statute.

So while our actual performance is behind, it isn't due to lack of commitment or professional conduct within the Agency. The staff is very good and I take comfort in that and I think when the regulatory program goes into effect we will be able to demonstrate something that I think the people are demanding—good government service. We will see that in this area. []

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Inside EPA

What kind of a future lies ahead for EPA? Is the Agency succeeding in its mission? Will EPA employees be laid off because of reorganizations or civil service reforms? What are the most difficult management problems facing the Agency? These are some of the questions answered in this interview.



An interview with William Drayton, Assistant Administrator for Planning and Management, about the operation of the Nation's largest regulatory agency.

This interview was conducted by Charles Pierce, Editor, Truman Temple, Associate Editor, and John Heritage, Assistant Editor, of EPA Journal.

How would you rate EPA's performance in carrying out its environmental cleanup mission?

I have done consulting work for about 15 large organizations, most of them public (including a number of Federal agencies), some of them private. EPA is the strongest of the public agencies with which I've dealt in terms of the quality, morale, and commitment of the staff.

Our Agency is also strong in terms of its extraordinary organizational framework. EPA is more trusting of its people than virtually any other public agency I've seen, and that gets good results. We have decentralized and delegated our work to the States, to the Regions, to the labs, and to the different programs—a very logical, even necessary policy given both the nature of the job and the people we have.

Still it's quite unusual. Most of the government operates on a top-down, untrusting, pyramidal model that reflects the thinking of Louis the Fourteenth, and Herbert Hoover, certainly not that of the Federalist Papers. It often doesn't work. By contrast, EPA has a healthy, pragmatic, program-solving approach to doing its business. It is a little untidy, as most democratic systems are, but it's both sensible and successful. This approach has attracted and kept good people.

Does this approach work at the regional level?

Compare our Regions with those of many of our sister agencies: it is clear that real things happen in ours. Our Regions are trusted to deal with real problems; as a result they have good people; as a result they can be trusted to act....

The Regional Office legal staff of one of our large, sister regulatory agencies spends 86 percent of its time getting clearance from Headquarters. Despite all the pulling and shoving between Regions and Headquarters at our Agency, we have a very different pattern. Decentralization alone, however, is not enough. The genius of the Federalist Papers, and I would argue of almost all good management, takes concrete form in the system of rules and incentives that allow the members of a decentralized body to reason together, to behave in a unified, responsible and purposeful way.

EPA has been developing a number of cross-cutting decision processes that help us reason together sensibly. Our regulation development process (sometimes called the "Steering Committee" or "Red Border" process) allows us to work out the policies that the decentralized parts of our organization later implement together. It ensures that no one is cut out; that our policy decisions take water impacts as well as air benefits into account, enforceability, and economics and technical competency and legal and Congressional risks as well as program strategy. It helps us ensure integrated environmental policies as well as competent, balanced policies. That's why the President's Executive Order on Regulatory Reform is patterned on this EPA process.

What role does Zero Base Budgeting play in this process?

Zero Base Budgeting covers the second key area where we must regularly make decisions together: management priority setting and resource allocation. What we're struggling to do here is to develop common, reliable data bases and then get the right combinations of people together to make the hundreds of management trade-offs we face each year. This approach is in radical contrast to the old budget office dictate.

Our personnel reforms are designed to provide a third key cross-cutting tie. By giving our managers Agency-wide careers and skills, we'll also be ensuring that they develop broad environmental perspectives and loyalties.

In sum, I think EPA's a terrific, increasingly successful institution. Both by design and historical accident it is going down a path very much at variance with a way of running the government that has failed. I believe that EPA is, in effect, becoming a model for an alternative way of organizing the Federal Government, the Federalist Papers way.

This approach is based on trusting the people, but in the context of a realistic set of incentives. It releases their energy and initiative and imagination, but in organizationally and socially responsible ways.

Is our reliance on the States a part of this pattern?

Yes. It's exactly the same principle.

We're still working it out, but we've taken the basic big leap of saying we are going to trust the States and they are going to do most of the work because they are in a better position to do it. That's a bureaucratically radical concept. But it would probably seem quite familiar to the folks who set the country up 200 years ago.

President Carter came to office with a core mandate to make the government work better. Although the antique. obsolete, worn-out ideas of Hoover centralism linger on, the real thrust is towards responsible decentralization. Topdown box shuffles and their ilk have not been big successes. The things that have worked, such as Civil Service reform, are based on the principle that over-control doesn't work. It doesn't. I rest my case with the old Civil Service System and with GSA, EPA is experimenting with, developing, and successfully demonstrating the alternative model. I think that's a very important part of our business.

Is EPA's alternative approach paying off?

As long as we have a healthy organization, with quality people who have the ability to come -up with new ideas and to try new things, we'll continue to be an exceptionally effective organization. That doesn't mean that we do everything right, but it does mean that we're solving problems, that we're adapting and experimenting, and that we're continuing to attract people who like such an environment.

We have a very good momentum going. We've not solved all of our problems. But we've done a lot more than anyone could reasonably expect. We're one of the few government agencies that can point to real accomplishments, real measurable changes. Look at the objectives we set ourselves five or six years ago: We have cut biological oxygen demand 65 percent, total suspended solids 69 percent, and airborne particulates 41 percent.

However, as we gained on these initial objectives, our Research and Development has forced us to face new problems and our objectives have changed. We haven't solved the new problems yet. But the fact that we've identified them and are coming to grips with them is another type of success we can be proud of.

The Zero Base Budget process, in which EPA is a recognized leader, seems to consume a lot of time. Is there any way to simplify this process: Do you think it will work itself out so it will be simpler in the future?

We're at the end of the first year and a half of what's probably a two to three year process of putting in place Zero Based Budgeting, the second major cross-cutting decision process of the Agency. We've moved from having a small number of people making decisions to having literally hundreds of different managers in this Agency, meaningfully and effectively involved, and in fact really making those decisions. You have to set up a reasonably complicated process, so that the information is defined in common terms and so that the right people sit down together with the right set of facts. Then a whole series of decisions flow together.

We have spent much of the last year putting the system in place and getting the Regions involved. Everyone was learning. Last year in some Regions we re-did decision units three times before they were usable. In many cases, junior managers were not given adequate guidance because senior managers had not yet figured out what to do.

Even if we did nothing to simplify the process—which together we will-next year's burden would be significantly less. Not that there won't be further problems. But a lot of the time-consuming and frustrating aspects of this year's effort are no longer going to be there. For instance, we will not have to start from scratch and write decision units. We already have done that. Instead, it will be a matter of making adjustments, modifications. We will not have to redo them once, let alone three times.

The benefits of shared decisions are really quite central to the Agency's overall management design, of being decentralized while still integrated. And we want to push both. The trick is to have a couple of key cross-cutting decision processes, such as Zero Based Budgeting, that everyone understands and knows how to work.

Do you anticipate any downgrading or reductions in force at EPA because of Civil Service Reform or other planned reorganizations?

It's useful to look at this in some perspective. The Agency is always in a state of flux. Our mission changes from year to year. New statutes are enacted, telling us new things to do. As a result we regularly reprogram (move) people from job to job much more than almost any other Federal Agency. Our level of reprogramming is going to be somewhat higher in 1979 than in 1978.

But I do not anticipate that all this reprogramming will lead to many serious problems. It's taking place in the context of growth and in an organization that's learned how to deal with growth. There are going to be some cases, especially in smaller units, where we're going to have to work out new opportunities for people in other units. We're in the process of setting up a central reference system now.

So far I've been talking about employees who are pulling their weight. But one of the purposes of the Civil Service Reform legislation is to make it easier for management to deal with the tiny, tiny, tiny proportion of employees who are not willing to pull their weight. I'm sure that our managers are going to be as vigorous in that regard as any in the government. This Agency is acutely understaffed and we can't afford to have people who are not pulling their weight. Fortunately, we have very, very few people who fit that description.

Your office seems to have a large number of natural targets for complaints from the rest of EPA. You are responsible for buildings and facilities, budget, personnel, contracts. What are you doing overall to try and improve the services of these offices?

Let's deal with each of the major areas separately. The budget area, we've discussed to some degree. We're going through a really major change. The main benefit of that, of moving the budget process out from behind closed doors to be a shared process on an agency-wide basis, is that the Agency is going to be better managed. In fact, it is easier for us to face difficult decisions and make them now than it was before.

I am very proud about what the budget shop has been doing. They've been doing it against very great odds and working extraordinarily hard. We're now getting past the worst of the transition from one system to another. During this coming year we'll focus more on issues and less on process. We'll have a lot less waste motion.

However, the complaints are not going to go away completely; the budget process is always the harbinger of bad as well as good news, and people are less likely to comment on the good news than the bad. Those that don't like the results often find it more acceptable to attack "the process" than their associates who just decided against them. But I'm very pleased with what's happening with the budget.

In another area, the Agency's reporting system, its accountability system, has been in some disarray. One of our major thrusts this year is redesigning that to fit the needs of the Agency's new management group. So that is going to be an area in the budget office where there's going to be a good deal of activity.

Now, in the area of support services, the personnel area is probably going to be under the greatest pressure. EPA's own reforms, which I mentioned earlier as one of our three basic, necessary thrusts to integrate the Agency, are going to take a lot of work. We also have the new Civil Service Reform law. Not only does it require scores of changes, all of which entail work to implement, but many of the functions that are now in the Civil Service Commission will be delegated to the Agency.

Virtually every area of personnel management will undergo fundamental change. We also have our new supergrades that we are putting into place.

But Personnel is not getting an increase in resources commensurate with its increased workload. Unfortunately, that means that with the best efforts in the world, I am skeptical that we are going to be able to have a dramatic improvement in services over the next 12 months. We are going to try. But it is clear that the workload hitting the Personnel Office in the next year is going to be stupendous and we're going to have to rely on people around the Agency to understand that.

Let me add a note about contracts. This is the area where we have the most complaints. Many people have commented favorably on the performance of Personnel. But I get a much higher ratio of complaints about contracts. We're going to have to do something about that. It is one of the areas on which I plan to work this coming year. It's a message that came through very clearly in the budget process.

However, we should all understand that this last year, the contracts people faced more than a 20 percent increase in workload with no increase in staff. That is unrealistic and irresponsible and it is unreasonable for people to expect an improvement in service when the contracts staff is faced with that reality and also pressure from Douglas Costle and me not to let our contract carryovers go up to \$80 million or \$100 million.

Because the Agency, the Office of Management and Budget, and the Congressional Appropriations Committees have all agreed, we will henceforth have a formula linking the number of personnelists and contract personnel to the size of our staff and the size of our contract budget respectively. With this step, I hope we will avoid in the future gross increases in workload without compensating staff increases.

But we are not getting resources to compensate for the workload increase of last year. So we must make up the difference with productivity gains or through reductions in service quality. Nonetheless, I think that there are a number of things we can do to improve the responsiveness and client orientation of the contracts office, and that's going to be one of the early priorities of the new **Deputy Assistant Administrator** for Management and Agency Services.

I expect the new Deputy Assistant Administrator responsible for these support services to make a difference. Furthermore, the new Associate Assistant Administrator for Management Reform will help provide leadership for the personnel and contracting reforms that are needed. Similarly, in the computer area we have to ask some very difficult questions about the management of the Agency's computer investments. Do we need this or that program? Should this data base be shared with some other program? Should they be meshed? I think we have focused too much on hardware and not enough on these sorts of management questions so far.

What do you consider the most difficult management problem that the Agency faces currently?

I'd list two. They are closely related.

The first is working out our relationships with States and local governments. We're midway through an evolution that has perhaps not received the conscious attention it should. With 85 percent of the people who do environmental regulation working as State and local employees, we cannot do our job and they cannot do their job unless we work out a fully effective relationship.

At the moment, we have very few tools for this task, and except in one or two Regions I don't think we have done the job we really should to make that relationship work. This is our toughest and most fundamental management problem.

Very closely related to this issue is that of developing the right management tools to help both our decentralization and integration thrusts. EPA is still visibly the result of a merger of different predecessor organizations. We have not really effectively integrated the pieces. Very few of the Agency's senior civil servants have had experience in both Headquarters and Regions. Very few of our senior managers or other staff have had experience across programs. We do not have integrated agency-wide career paths. We're just beginning to work out cross-cutting management tools such as ZBB. No one of these efforts to integrate the Agency will work without the others.

This Agency is in the business of giving out more "bads" to more people in our society than any other agency of the government. But we've had very strong popular support, good Congressional support, and now for the first time we have very strong support from the White House. But in the future these conditions may not always apply. And unless we succeed in integrating the Agency effectively and firmly establishing ourselves as a wellmanaged Agency that is perceived as being highly professional and whose regulatory independence people consequently agree should not be disturbed, the Agency and everything else we're doing may be in jeopardy.

It would be very easy to take us apart again—unless we succeed in finishing the integration job now. That means over the next several years. That's why the regulation development process, the budget/management process (it's really much more than a budget process), and our personnel reforms designed to integrate the Agency's managers into an environmental management corps, are so critical.

Those are the two big problems-our relationships with State and local governments and our need to finish integrating our healthfully decentralized institution. We have a clearer sense of what we're doing in terms of integrating a decentralized, trusting Agency than we do with the State-local relationship. But it's the same sort of problem. And if we can solve those two problems, we will have gone a long way toward ensuring EPA's ability to function successfully over the long term.

What future do you see for EPA? Are you optimistic about being able to achieve the goals that you just outlined?

I see no reason why we can't succeed. Just about everything is in our favor. The Agency is already moving in the right direction, our job is to help history along.

Furthermore, President Carter really wants to make the government work. He's very interested in management issues. Doug Costle is as well. So we're getting top management support. Just as important, we have a professional staff that is very good, very motivated, very used to and accepting of change. And everyone in this Agency has been used to turbulence ever since it got started. It's our normal state of affairs. Also, because everyone is so busy and we have so much more than we can possibly do, the turf consciousness that so paralyzes many of our sister agencies is not as severe a problem here.

This is not to say there are not very difficult tasks. But I can see no reason why, given reasonable flexibility and good will and some understanding, that we can't succeed. If the Federalist Papers approach to management is going to succeed anywhere in government, it will succeed here.

And if it doesn't succeed here, the government is in deep trouble.

News Briefs

EPA Proposes Chemical Rules

EPA recently proposed rules to help protect public health and the environment from the hazards of new chemicals before they are marketed. The proposed rules, issued under the Toxic Substances Control Act, would require chemical manufacturers to notify EPA of their intent to produce new chemicals before test marketing and full-scale commercial production. Chemical companies would also have to submit all information available to them about how a new chemical would affect human health and the environment. EPA will evaluate the information submitted on each chemical and, if necessary, take steps to reduce risks--weighed against benefits to society and the economy--that a chemical may present to public health and the environment.

Costle Appoints Council Director Administrator Douglas Costle recently announced the first major staff appointment to the Administration's new Regulatory Council. Costle has named Peter J. Petkas as director. Petkas, 33, has served since April, 1977, as director of the President's Reorganization Project Management Staff, in the Office of Management and Budget. He will head a staff of 16 at the Council. The Council's first responsibility will be to develop and publish a semi-annual Calendar of upcoming Federal regulations. Costle was named by President Carter to organize and chair the Council.

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

Around the Nation



R.I. To Enforce Water Act

EPA's Boston Regional Office announced recently that the State of Rhode Island has been granted primary enforcement responsibility under the Federal Safe Drinking Water Act. Before responsibility under this Act could be transferred from EPA, the State had to establish drinking water health standards at least as tough as EPA's, and had to show adequate testing and enforcement procedures. The Rhode Island plan includes State primary drinking water regulations, an inventory of public water systems, a systematic program of sanitary surveys, a State program for certification of water testing laboratories, and State laboratory facilities certified by EPA. The State also has a review program for plans, record-keeping and recording procedures, a program for issuing variances and exemptions, and a plan for providing safe drinking water under emergency conditions. All elements of this program will be carried out by the **Rhode Island Department** of Health, Water Supply Division.



Water Agreements Signed

Regional Administrator Eckardt Beck has signed two water quality agreements with the State of New York that will put new emphasis on controlling toxic wastes in the State, bring in \$2.5 billion in Federal construction aid, and create another 185,000 construction jobs within New York in the next five years. The Agreement on Water Quality Management outlines how State agencies will manage diverse water quality programs together and how New York plans to spend both State and Federal money during the next five years in addressing major water pollution problems. The major emphasis of the agreement is on the control of toxic wastes, on pretreating industrial sewage wastes, on managing solid wastes so that resources are recycled or wastes are buried in safe landfills, and on controlling polluted urban and land runoff. The New York Delegation Agreement, which was made possible by an amendment to the Clean Water Act, defines how the State Department of Environmental Conservation will take over complete management of the wastewater treatment works construction program. By signing the second agreement. New York will have available up to \$47.5 million over the next 5 years to manage its own construction grants program, thus streamlining the management, speeding up the grants to municipalities, and cutting construction costs.



1 & M Session Held The Office of Intergovern-

mental Relations and Public Awareness in Region 3 recently held a public information seminar in Trenton, N.J. on the auto emissions Inspection and Maintenance (1&M) program. More than 40 representatives of Mid-Atlantic State governments, citizen groups, auto industry and health associations attended. The seminar focused on the benefits and costs of the I&M program, which is required by the Clean Air Act Amendments of 1977 for States where other air pollution control measures will not lead to attainment of health protective ambient air quality standards by 1983. The I&M program run by the State of New Jersey was highlighted at the seminar. The mandatory New Jersey program was added to the statewide auto safety inspection program in 1974, after a two-year voluntary program was completed. It was the first statewide auto emissions program in the Nation. The group attending the seminar visited the State's diagnostic auto emissions laboratory and heard briefings from EPA staff members and representatives of the N.J. Division of Motor Vehicles, which operates the I&M program, and the N.J. Department of Environmental Protection. Region 3 is working with 5 State-level jurisdictions to implement required to be in compli-1&M programs. The Commonwealth of Pennsylvania has already agreed in a consent order to institute I&M in the Philadelphia and Pittsburgh metropolitan areas.



TVA Agreement Set The Tennessee Valley Authority has agreed to spend over \$1 billion to bring ten of its power plants into compliance with Federal air quality standards by 1982. The agreement settles a lawsuit brought several years ago by ten environmental groups, and later joined by the States of Alabama and Kentucky and EPA. Region 4's Enforcement **Division Director Paul** Traina and Air Enforcement Branch Chief James Wilburn were instrumental in working out the details of the settlement on behalf of the plaintiffs. TVA Board Chairman S. David Freeman began negotiations on behalf of TVA leading to the agreement shortly after his appointment to the Board in August, 1977. Former Chairman Aubrey Wagner had refused to sign a settlement before he retired. The third board member, William Jenkins, resigned, citing his opposition to Federal environmental regulations. Final action on the settlement was stalled until a second board member, Richard M. Freeman, took his post and gave the TVA board a quorum. The settlement calls for installation of emission control equipment to remove sulfur dioxide and particulates, the use of low sulfur coal at some plants and prewashing of some high sulfur coal. The plants are ance with Federal air quality standards by 1982.

Black News Workshop Held **Region 4 and 6 recently**

held a workshop for black newspaper editors, publishers, and owners in

Atlanta, EPA staff briefed the newspaper people on Agency programs in clean air, noise, water pollution control, and toxics. The National Newspaper Publishers Association sponsored the meeting through a grant from EPA. The workshop participants took a special bus tour of the new urban National Park along the banks of the Chattahoochee River to point up the fact that the new park is accessible to inner-city residents for a 15 cent bus fare.



Steel Co. Sued A suit filed by the U.S. Attorney for the Northern District of Indiana, at the request of Region 5, seeks a court-ordered cleanup schedule for Bethlehem Steel Corporation's mill at Burns Harbor, Ind. and fines of \$25,000 per day for noncompliance. According to Enforcement Director James O. Mc-Donald the action is directed at two coke batteries emitting over 2,200 tons of particulate matter per year. Federal air pollution regulations allow approximately 500 tons per year from such a source. The suit also cites the mill for air pollution violations at its basic oxygen facility. The particle pollution from the mill is an added problem because the surrounding area does not meet Federal air quality standards. Also the Bethlehem facility is located adjacent to the Dunes National Lakeshore Park and the particle discharges, which are very visible, damage the appearance of the Park. Bethlehem was to

have met the necessary regulations by mid-1975. Although the company is constructing some facilities to meet the regulations, it is not now on an enforceable Federal comntiance schedùle.



Fuel Switchers Fined Region 6 has fined the City of Irving, Tex., \$6,500 for using leaded gas in unleaded gas pumps at the Irving Municipal Garage. Use of leaded gas in late model cars interferes with proper operation of emission control equipment, increasing the release of gases that combine with sunlight to produce photochemical oxidants. Edward B. Finch, EPA Ad- written by Seymour ministrative Law Judge, noted that the City had not tested the lead content of its unleaded gasoline for three years before the excess was disclosed and did not start testing the gas until three months acceptable level. The Reafter the contamination was found. Finch ordered the report to help people the City be fined the full amount requested by EPA.

Water Fine Set

Hunt-Wesson, Inc., of New Orleans, La., has reached a preliminary agreement with Region 6 and the Department of Justice to pay a \$40,000 penalty for failing to meet the deadline for attaining Best Practicable Treatment of water discharges. legislation for an Inspec-The deadline was July 1, 1977. The company has also agreed to a compliance schedule to achieve the correct treatment level.

Grant Withheld **Region 6 is withholding** \$298,000 in construction grants funds from the

Trinity River Authority of **Texas because Prime** Contractor H. B. Zachry of San Antonio, Tex., has allegedly violated provisions of the Davis-Bacon Act. The Regional Office has asked the Office of Civil Rights at EPA Headquarters to request an administrative hearing through the Secretary of Labor to settle the dispute.



St. Louis Air Analyzed

Region 7 has recently released a report, "Air Pollution Over Greater St. Louis," which identifies air quality problems in the city from data provided by the States of Missouri and Illinois. The report. Shuster of the Regional Air Support Branch, discusses the nature of the air pollution over the St. Louis area and describes the methods being used to reduce the pollution to an gional Office published gain a better understanding and a greater appreciation for the difficult and complex task of cleaning up air pollution. Currently, the area only meets air quality standards for nitrogen dioxide. Particulates, carbon monoxide, and ozone still pose problems. The Missouri Department of Natural **Resources has drafted** tion and Maintenance program for automobiles. State and local authorities are working together to develop other measures to improve air quality over St. Louis.



Foothills Accord Reached

Region 8, the Denver Water Board, and the U.S. Army Corps of Engineers have reached an agreement that may clear the way for construction to begin on the Strontia Springs Dam, part of the Foothills Water Treatment Complex. The accord came after an allnight negotiating session carried out with the help of Rep. Tim Wirth (D-Colo.). Under the terms of the agreement the Denver Water Board has promised to implement a water conservation program to cut the area's per capita water use at least 5 percent by 1984 and as much as 20 percent by the erential parking for caryear 2000. The Regional Office has agreed to drop its opposition to a permit needed by the Board in order to build the Strontia Springs Dam. The Corps of Engineers was expected ease traffic flow. The two to issue a dredge and fill permit in late January. and construction should begin approximately a month after the Board is satisfied that no more legal barriers exist. EPA had opposed the construction of the dam, arguing that alternatives had not been sufficiently explored. The Agency sought a water conservation program similar to the one set by the agreement. Regional Administrator Alan Merson said, "No one got everything they wanted, but we all have something we can live with."



Air Plan Set

A draft air quality plan for southern California has been drawn up with the cooperative efforts of the South Coast Air Quality Management District and the Southern California Association of Governments. The plan, which went to the Regional Office early this year, is an effort to develop an acceptable Air Quality Management Plan for the area, as required by the Clean Air Act and California's Lewis Air Quality Management Act. The draft plan contains a "shopping list" of innovative methods to control air pollution from all sources. Some of the methods include prefpool vehicles, increased reliance on one-way streets, wider use of bicycles as alternative transportation, and modified work schedules to local government groups have actively encouraged participation by residents and local industries through a series of 15 workshops and public hearings.



Waivers Sought **Region 10 has received** more than 100 requests from communities in Washington and Alaska for waivers from the Federal requirement that all publicly-owned sewage treatment plants should provide secondary treatment. The requests were

made under section 301 of the Clean Water Act, which opened the door for publicly-owned sewage treatment works that discharge to marine waters to be excused from the secondary treatment requirement. The law set up eight statutory criteria, which must be met to EPA satisfaction before waivers can be granted.

Recycling Works

In the 15 months since the staff of EPA's Seattle Regional Office began recycling office paper, more than 24 tons have been collected and sent to paper mills for re-use in other paper products. The mills currently pay about \$110 per ton for highgrade paper, so the recycling effort is paying off. Even after the handling charges of about \$40 per ton, EPA makes about \$70. The funds, which so far total more than \$1,700, go into the U.S. Treasury.

Water Agreements Signed

Region 10 recently signed water quality management agreements with two of the four States in the region. Separate agreements with the Alaska Department of Environmental Conservation and the Oregon Department of **Environmental Quality** spell out mutual objectives that will be pursued jointly by the State agencies and EPA, In a companion action in Alaska, EPA delegated full authority for the management of the construction grants program to the State.

Mining for Urban Ore Continued from page 26

stantial advantage there can be no such thing as central city industrial development. It's simply not realistic." Garbage, as unlikely as it may seem, is the advantageous factor upon which the Port Authority's and, in some part, the White House's urban revitalization efforts are based.

"There is another important element which is crucial to the success of these industrial parks," Montanus added. "When you take recovered materials and ship them to existing plants, the recovered material has to bear the brunt of transportation costs to the plant and back. It is not possible to bear these costs and compete with virgin materials. Most plants today are located in

Industrial Incineration

Continued from page 21

incinerator. Just dumping chemicals into an incinerator is neither efficient nor is it an environmentally sound practice. Before we can dispose of semi-solid or liquid chemicals safely and efficiently, we must know more about them—their flammability rates, heat content, and hazard characteristics."

Kodak offices and labs classify all wastes that are sent to the incinerator. They use a computer hook-up to identify the make-up of the waste solvents, tars, chemical sludges, and other materials that go to the facility for disposal. Chemicals that cannot be fully identified may be turned back to the sender.

Fiber packs of semi-solid chemical wastes are introduced into the kiln at timed intervals. Operators constantly supervise the changing blends of liquid and solid wastes entering the incinerator to get maximum heat value and top efficiency from the facility. Fine tuning of the incinerator during its two years of operation has led to a significant drop in auxiliary fuel needs. The incinerator now gets less than 4 percent of its heat from fuel oil—a decrease from 13 percent when it first opened.

Combustion residues go into a quenching chamber where they are cooled to 160-180°F. This brings the vapors, which contain various chemicals, down below their dew points, so that they condense. A highly-efficient water scrubber cleans the cooled flue gases of fly ash and condensed vapors. The solution from the scrubber then goes to the wastewater treatment plant for cleansing.

Scrubbed flue gases escape through a chimney equipped with special ports to

the vicinity of primary materials. In order for recovered materials to compete with virgin materials the plant must be brought to the new source of raw materials, which happens to be the urban center. The urban center also happens to be the market. Only when you bring the plant to these locations can the recovered material compete."

The Port Authority's program envisions private developers and industrialists joining public agencies to reclaim large amounts of abandoned, dilapidated, or vacant land in central cities. This could help revitalize the urban economies in the New York City-New Jersey region. Three sites, which the Port Authority feels are prime spots for the industrial development program are Spring Creek in Brooklyn, N.Y., the Greenville Yards in Jersey City, N.J., and Doremus Avenue in Newark, N.J.

The Urban Development Corporation and private industry as well as the Port Author-

allow sampling for environmental tests. Kodak is studying ways to recycle heavy metal salts such as silver, zinc, and iron from the wastewater stream. The ash that results from the combustion process has been landfilled. Some of it is being sold to a source that recovers the silver from the residue.

The company estimates that it costs about \$1.5 million per year to run the incinerator, which operates around the clock, seven days a week.

The 3M Corporation's incineration system is located at its Chemolite plant in Cottage Grove, Minn. The facility, which began operation in 1972, is built on two levels and burns wastes from many operations. Most wastes arrive in 55-gallon drums, but the incinerator also has facilities for tank truck unloading. The company requires each operation to separate wastes and to label all drums at the source. The operations are charged a fee on each drum of wastes that they send to the incinerator for burning. This fee system helps encourage recycling and prevention of pollution at the source.

The liquid wastes are pumped into one of the five 1,000-gallon tanks at the site. A semi-automatic feed system moves each drum of oily rags and sludges directly into the kiln. If possible the drum is recovered; otherwise it burns with the wastes. Liquid wastes pumped from the tank farm keep the kiln at a minimum temperature of 1100°F. Depending on the heat content of the solid wastes being dumped into the kiln, the temperature can go as high as 2200°F.

The employees at the facility have earned one of 3M's Pollution Prevention Pays awards for increasing the efficiency of ity are vying for the rights to the New York-New Jersey region's 40,000 tons per day of garbage. New York City, under pressure because its existing landfills may have to close by 1985, is performing studies before awarding any contracts.

Much resource recovery activity has been concentrated in the New York City metropolitan area because landfills there are scarce and energy costs higher than in other parts of the country. But the appealing idea of steering municipal wastes away from incinerators, landfills, and the ocean and toward a technological process that will enable the economic system to reclaim it in the form of fuel, raw materials, jobs, and revenue will soon become practicable in urban areas across the Nation. Private industry and some public authorities are ready to assume the risks of this enterprise, and to reap its profits.

the facility's operation. They segregate the drums of hot-burning wastes from the coldburning wastes and then mix the barrels of waste to control incinerator temperature. This uses the "hot" wastes to burn "cold" wastes. The changeover has reduced 3M's fuel costs by \$150,000 per year. It also has reduced the amount of sulfur dioxide produced by burning oil. The particulate discharge from the facility has been reduced by approximately 2,000 pounds a year as a result.

inert ash and burned-out drums from the kiln drop into a quench chamber for cooling. The materials travel on conveyor belts into dump trucks, which carry them out to landfills.

A secondary combustion chamber operating at temperatures over 1600°F, oxidizes the gases and smoke that the kiln generates. A 500-horsepower fan pulls gases through a series of air pollution devices, which use up to 1,500 gallons of water per minute to scrub out impurities, and then force the air up a 200-foot stack. The gases enter the atmosphere at approximately 115°F. The dirty water produced by the scrubbing process undergoes purification at a wastewater treatment plant before it is discharged into the Mississippi River.

These companies have shown that high temperature incineration is a workable alternative for treating hazardous wastes. As controls on hazardous wastes become tighter and producers are obliged to account for the wastes they turn out, more industries may be persuaded to follow these examples.

Opposite. High temperature incinerator at 3M Corporation site in Minnesota.

Back cover: Warning signs at hazardous waste site in Lowell, Mass.



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