

THE NATIONAL HAZARDOUS WASTE MANAGEMENT PROGRAM

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Industrial waste management is emerging as a major problem for all industrial nations. In the past, industrial wastes have been largely ignored by the public and government officials because traditionally these wastes are managed outside the municipal waste collection and disposal system. This situation is changing rapidly, however. Recent studies show that industry produces twice as much waste per year as is generated by municipal sources, and 35 times more waste than do sewage treatment plants. Industrial waste quantities destined for land disposal are expected to increase by up to 100 percent in some industries in the next decade largely due to the installation of pollution control equipment.

These industrial waste quantity and growth estimates are somewhat staggering. But, an aspect causing even greater concern is that many of these wastes are potentially hazardous.

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As a result of EPA's "Report to Congress on Disposal of Hazardous Wastes," mandated by Section 212 of the Solid Waste Disposal Act as amended by the Resource Recovery Act, a new, strong thrust to bring hazardous wastes under control is just beginning in EPA's Office of Solid Waste Management Programs (OSWMP). Whether under our current authorities or under new proposed legislation, we believe that Federal involvement in this field is necessary. As air, water, pesticides, ocean dumping and other laws are implemented, many hazardous residues, sometimes in greatly concentrated form, will be diverted to the land.

Hazardous waste includes toxic and carcinogenic chemicals, pesticides, acids, caustics, flammables, explosives, biological and radiological residuals. For our Report to Congress in 1973, we estimated the total amount of non-radioactive hazardous waste generated in the United States to be approximately 10 million tons per year. Recent information indicates that this number may be on the low side.

About 40 percent of these wastes by weight is inorganic material and 60 percent is organic; about 90 percent occurs in liquid or semiliquid form. Over 75 percent of hazardous wastes are generated in the mid-Atlantic, Great Lakes, and Gulf Coast areas and the State of California.

The Problem

Only in the last year or two have the public health and environmental effects of improper waste disposal to the land come under serious study. This problem is manifested in ground water contamination by leachate from landfills, surface water contamination via runoff, air pollution via open burning and evaporation (as was the case in a recent hexachlorobenzene (HCB) incident in Louisiana), food contamination via improper storage, and, of course, personal injury via direct contact and explosions which may result from the mixing of wastes in landfill operations.

Everyone can empathize with short-term, acute environmental problems. When a toxic chemical is dumped in a river and a massive fish kill results, everyone agrees we've got to clean up our water. When a smog alert occurs, there is a great hue and cry about cleaning up our air.

But improper land disposal of wastes often goes unnoticed because the impacts occur on a longer term and are chronic rather than acute. It takes decades, in some cases, for hazardous compounds which have been buried in the land to leach through the soil into our surface and groundwater supplies. This was amply demonstrated recently in Minnesota where several people were

hospitalized after drinking well water contaminated by arsenic wastes buried 30 years ago on nearby land.

Who, How and Why?

One could ask who causes this problem and how and why? In our studies to date, we have established that the problem is caused mostly by some waste generators who use improper disposal procedures either on-site, that is, on their property, or off-site via contract haulers, and that these improper acts are either purposeful or accidental. Also, we have found that waste haulers sometimes use improper disposal methods in an effort to reduce costs and improve their profit. Lastly, those that are in the business of treating and disposing of hazardous wastes sometimes use improper techniques.

Adverse impacts to the public health and the environment occur because of open dumping and burning of hazardous wastes or improper use of existing landfills. These actions can be either overt or covert. Also, improper use of holding ponds on industrial land and improper storage techniques cause problems.

We in OSWMP believe that the reason this situation exists is that there are no widespread economic or legislative incentives for acceptable hazardous waste management.

Technology and Economics

We in OSWMP have found that technology is adequate for the treatment of many hazardous wastes by physical, chemical, thermal or biological means. Specially designed landfills which isolate hazardous wastes from the environment via natural or artificial membranes, with gas and leachate collection where necessary, can be and have been built. There are secure storage facilities available for those few wastes to which current treatment and disposal technology does not apply.

The main problem is that the use of this technology is expensive and far exceeds the cost of current practice. For example, the incineration of hazardous wastes can run as high as \$50 per ton, whereas the current inappropriate practices of open dumping or ocean dumping cost less than \$3 per ton. So, we have a wide cost variation between acceptable hazardous waste management practices and the cheap, unacceptable practices generally used.

The Legislative Gap

Unfortunately, the land disposal of hazardous waste is essentially unregulated at the Federal level and in most States. Only two Federal authorities deal with parts of the hazardous waste management problem. The Federal Insecticide, Fungicide and

Rodenticide Act, as amended, provides for EPA regulation of the storage and disposal of waste pesticides and containers. The Atomic Energy Act of 1954, as amended, provides for AEC regulation of radioactive wastes. Although most pesticide and radioactive wastes are certainly hazardous, in aggregate they represent only a small fraction of the total hazardous waste problem. Consequently, we have a big gap in the wall of environmental law.

At the State level, to our knowledge, only five States now have specific legislative authority regarding hazardous waste management, and a few others have issued hazardous waste regulations under broader solid waste management authorities. Many States have authorities to regulate the disposal of wastes on the land but progress in enforcement has been very slow. Several other States are developing or considering hazardous waste legislation and/or regulations, which we commend. But at best the current legislative picture is bleak, and enforcement of existing regulations is hampered by lack of personnel, funds, and acceptable facilities. Furthermore, when enforcement is exercised, the hazardous wastes often are merely transported across State lines to localities without regulatory controls on land disposal, that is, to the cheap option.

The Key: Regulation

From the above, OSWMP has reached the conclusion that environmental insult and hazard of improper waste management will continue in the absence of strong, uniform regulation of land disposal and vigorous enforcement of regulations. The longer the economic pressures tilt the balance toward improper disposal, so long as no consistent and uniform rules exist for public and private operation, and so long as offending sites cannot be closed because no alternatives exist, the necessary transition from poor waste management to optimum management will not take place. For this reason, and because jawboning alone appears insufficient to achieve acceptable standards, we believe the key to the problem solution is government regulation of all phases of hazardous waste management and enforcement of land disposal regulations for all wastes.

Since hazardous wastes pose a particularly ominous threat to public health and the environment, it is our belief that these wastes must be controlled from the cradle to the grave in order to achieve effective waste management. It is not sufficient to regulate only the land disposal phase, since many uncontrolled pathways to the environment would still exist. Consequently, our regulatory strategy includes hazardous waste generator reporting requirements and waste hauler controls in order to close the circle on hazardous wastes.

Status of Federal Legislation

Legislative hearings on several proposed solid waste management bills, most of which included hazardous waste management provisions, were conducted by the Senate Commerce Committee in December 1973, by the House Interstate and Foreign Commerce Committee in March 1974, and by the Senate Public Works Committee's Panel on Materials Policy in June and July 1974. No legislation resulted from these hearings, however. Instead, the Congress elected to defer new legislation, and passed a resolution continuing current legislation for one year, to June 1975.

The Senate Public Works Committee did, however, develop a proposed bill, called the Solid Waste Utilization Act of 1974, issued as a Staff Working Paper on October 15, 1974. This Working Paper gives us the best and latest insight into the shape of future legislation by the 94th Congress.

The proposed Solid Waste Utilization Act would amend the existing Solid Waste Disposal Act to authorize State program and implementation grants, to provide incentives for the recovery of resources from solid wastes, and to control the disposal of hazardous wastes, among other purposes.

In essence, the proposed Act would provide the hazardous waste management regulatory controls we believe are needed. The proposed Act requires that, within 18 months after passage, EPA develop and promulgate regulations which (1) designate hazardous wastes and harmful quantities of such wastes, and (2) require a permit for any person disposing of, treating, or storing any designated hazardous waste. Disposal of such wastes without a permit is prohibited not later than six months thereafter, or 24 months after passage.

Conditions for receiving a permit include, but are not limited to, (1) reporting of hazardous waste quantities transported, treated, stored, or disposed of, (2) specifying receiving sites, (3) appropriate labeling of containers, (4) compliance with management practices set by EPA, and (5) compliance with record keeping, reporting, monitoring and inspection requirements set by EPA.

Under the proposed Act, each State is required to establish a hazardous waste management program consistent with Federal regulations, and including a permit program consistent with the conditions I outlined above. EPA must review and specifically authorize each State program. Also, each State must have regulatory and enforcement authority necessary to implement the Act effectively. Although no time schedule is set for State hazardous waste management program implementation in the current

version of the proposed Act, there is an implied deadline of 36 months after passage since State solid waste management program grants cannot be provided to any State which has not implemented a hazardous waste management program within three fiscal years after passage. On the other hand, both program administration and implementation grants are authorized in the proposed Act to assist States to comply.

Impact of Federal Legislation

Predicting impacts of Federal legislation which is not yet finalized can be "hazardous" in its own right, as you can appreciate. Nonetheless, there are some general trends which can be discussed, assuming passage of the proposed Act in close to its present form.

We foresee significant impacts on some State governments, on hazardous waste generators, and on the hazardous waste treatment and disposal industry.

State legislatures and administrations will be required to establish and implement an effective hazardous waste management program in a three-year period. Some States are already doing this, but the majority will have to focus unaccustomed attention and resources to meet the challenge. We would recommend as a minimum that planning actions begin immediately in anticipation

of this requirement since three years is a relatively short time to reach the goal from a standing start.

Generators of hazardous waste will be subject to hazardous waste reporting, container labeling, and inspection requirements which may cause significant impacts depending on the current level of practice. We suspect these requirements will lead to internal studies of methods to reduce or eliminate hazardous waste generation. Such studies in turn may lead to process changes or material substitutions. New emphasis will be placed on waste exchange and material and energy recovery systems. Some generators may elect to construct on-site hazardous waste treatment and disposal facilities, either as part of wastewater discharge pollution control systems or as separate dedicated facilities. Waste dewatering systems may be employed to reduce transportation charges if wastes are sent off-site. Another possibility is pooling of resources from several industries to support a regional treatment and disposal facility, such as the Gulf Coast Waste Disposal Authority in the Houston area.

Certainly, there will be an increased corporate awareness of the legal liability ramifications of hazardous waste management. This should lead to greater selectivity when corporations choose hauler, treatment and disposal services. This should eliminate the "midnight dumper" operations which offer cut-rate prices at the expense of potential public health and environmental damages.

Hazardous waste treatment and disposal service corporations will be subject to more stringent operating, maintenance, operator training, and fiscal responsibility standards than in the past. Performance bonding may be imposed, and monitoring and surveillance requirements may be stiffened. Marginal operations may be forced to close unless they upgrade their facilities.

On the other hand, due to pressures of a permit program, there should be a surge in business for service companies, and an increased opportunity for generation of capital for expansion of existing facilities. Better market conditions may also mean more competition from new companies entering the field. Lastly, the larger volumes of hazardous waste flowing to service companies should enhance material and energy recovery potential due to economies of scale.

To labor, new legislation should result in more jobs at higher skill levels. However, more training will be required to qualify for these jobs. There should be less safety risk associated with hazardous waste management jobs as better operating standards are enforced.

To the consumer, new legislation means slightly higher costs for products of industries which generate hazardous waste, and possibly higher taxes to support governmental enforcement and implementation programs. Neither is particularly good news in

today's economic climate. However, I'm convinced that if citizens are made aware of the potential public health and environmental problems the legislation is designed to overcome, they will not balk at paying the price.

OSWMP Program in Hazardous Waste Management

OSWMP's hazardous waste management program thrust is aimed at three main areas. First, we are vigorously building a data base in the hazardous waste management area. This effort has three sub-elements including public health and environmental damage assessment; hazardous waste assessment, that is, a fundamental knowledge of what hazardous wastes are, how many there are, and where they are; and lastly, technology assessment attempting to define all possible treatment and disposal technologies for hazardous wastes. The damage assessment program includes case studies of documented damages, hazardous waste soil transport studies, and preparation of health effects criteria documents on 17 toxic substances. Two of these criteria documents have been drafted and the others are being developed on a phased schedule. Also, we have launched a hazardous waste leachate sampling program.

Hazardous waste assessment efforts center on 13 industry waste studies conducted by contractors. These studies will provide much needed data on the nature and quantities of

hazardous waste generated in these industries, now and in the future, and the nature and cost of the disposal technologies being applied to these wastes. Seven have been completed and are in the draft report stage, two are underway, and four more are in the contract award stage. All of the studies are scheduled for completion in 1975.

The three basic technical options for hazardous waste management are incineration, chemical or biological treatment and special landfill. We intend to study all three of these options in some depth in the coming years by demonstration grants and contracts. A full-scale hazardous waste incineration test program, involving 35 organic waste streams and eight different types of incinerators, began in November 1974. The initial competition for a full-scale chemical waste landfill project was completed in September and we are now in the final award phase. A chemical treatment project is in the bid phase and should begin in mid-1975. In addition, pilot studies of waste fixation and encapsulation techniques are now underway.

The second major thrust is in guidelines and standards development. As mentioned earlier, under the Federal Insecticide, Fungicide and Rodenticide Act, as amended in 1972, we already have the authority to issue procedures and regulations concerning the disposal and storage of excess pesticides and pesticide containers. The first publication on this subject,

which is a statement of EPA's recommended procedures for pesticide disposal and storage, appeared in the Federal Register on May 1, 1974. At this time we are preparing regulations which will prohibit the worst pesticide disposal and storage acts such as open dumping, open burning, etc. Proposed rulemaking on this subject was published in the Federal Register on October 15, 1974. Final rulemaking on the prohibitory regulations is scheduled for mid-1975.

Next, under the Solid Waste Disposal Act, as amended by the Resource Recovery Act of 1970, we have the authority to issue guidelines for solid waste management practices. We are developing hazardous waste guidelines similar to those for land disposal and thermal processing of municipal solid waste, which the Office of Solid Waste Management Programs has published. We have established no firm date for the publication of the hazardous waste management guidelines since they are somewhat dependent upon data base development activities. If the proposed legislation is passed, the guidelines effort will serve as the basis for standards and regulations.

Our third main thrust is in program implementation. Here we have three main sub-areas. In the policy analysis area we are looking into what the Federal, State and private sector roles should be in hazardous waste management, and other issues of this type. Next, in the State implementation area, working through

EPA's regional offices, we are attempting to aid and assist those States that already have hazardous waste programs, to spur those that don't, and in general to provide as much help to the State governments in this area as we possibly can. We are now conducting hazardous waste seminars for State solid waste personnel, providing assistance in drafting State hazardous waste legislation, and preparing Implementation Guides on hazardous waste survey techniques and hauler permit systems.

Lastly, in the area of technical assistance we have a small but competent technical staff capable of responding to requests from all sources. Currently, we have many requests for assistance on the disposal of hazardous wastes from EPA regional offices, other Federal agencies, State governments, private industry and from private individuals. We have developed a list of about 100 hazardous waste facilities which can treat or dispose of hazardous wastes, which is available to all.

An important component of our program is to generate public understanding and support of the national hazardous waste management program. We are working with industry trade associations, labor unions, and public interest groups to raise public awareness of the issues. Hazardous waste management brochures and graphics are being prepared to support this effort.

A less visible but important part of our program takes place within EPA where we are engaged in efforts to coordinate the cross-media aspects of EPA actions. Our staff participates in working groups currently developing industrial wastewater effluent limitation guidelines, toxic substance discharge standards, hazardous material spill regulations, new source performance standards for air emissions, and pesticide registration and labeling regulations. In addition, we are involved in Agency Task Forces concerned with toxic substances such as hexachlorobenzene, asbestos, and vinyl chloride. We feel such effort is well spent to provide a balanced view of residuals management to Agency decision makers.

Last, but not least, our staff has recently become involved in several multi-lateral and bi-lateral international programs. Hazardous waste management is a common problem to all industrialized nations. We want to learn how other nations have dealt with the problem, and to provide the benefit of our knowledge to them, as needed. We are now co-leader of a NATO study on hazardous waste disposal involving Belgium, Canada, Denmark, France, Germany, the Netherlands, and the United Kingdom. Also, we have bi-lateral programs underway with Japan, Germany and Russia. Finally, we are monitoring the hazardous waste management efforts of several international organizations, including the European Economic Community, the OECD, and the World Health Organization.

Let me summarize our perceptions of the hazardous waste management situation in the United States at this time. First, we now know that we have a problem, a major problem which is common to all industrial nations, and that this problem is growing due to several factors. We have found that the technology for adequate hazardous waste management exists for many hazardous wastes but that this technology is costly, approximately 10 to 20 times as expensive as current unacceptable practices, which consist mainly of landfilling or ocean disposal. Consequently, there are no economic incentives for the use of this technology and, furthermore, there are no strong regulatory incentives at either the Federal or most State levels.

Consequently, EPA has developed a regulatory strategy for the management of hazardous wastes. This program will require a joint Federal, State, and private sector response. We see a lengthy period during which legislation and regulations are developed and facilities are made available, but eventually we would foresee a regulatory program with adequate enforcement to prevent the potential public health and environmental damages which can occur from improper management of these wastes.

Thank you very much.

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