

HAZARDOUS WASTE MANAGEMENT
UNDER THE RESOURCE CONSERVATION
AND RECOVERY ACT

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One of the primary objectives of the Resource Conservation and Recovery Act of 1976 (RCRA) is to protect public health and the environment through the proper management of hazardous wastes. RCRA provides for the establishment of a regulatory system to control the management of hazardous wastes from "cradle-to-grave", (i.e. from the time such wastes are first generated until they are finally disposed of, including all intermediate transportation, storage and treatment steps). The first of these regulations were published in May 1980, and since then there have been many revisions, amendments and additional regulations issued. The development of the RCRA hazardous waste program has been an incredibly complex task requiring continual refinement and improvement. This process will continue for several more years as more fine-tuned and tailored standards are issued.

This paper presents a status report on the RCRA hazardous waste program along with a general overview of what has been accomplished to date and what is planned for the future. Given time and length constraints, this paper cannot provide a comprehensive or detailed description as necessary to fully understand the RCRA program. For this the reader must turn to the actual regulations themselves and the accompanying preambles. For single copies of the regulations and further information the reader can contact the RCRA hazardous waste hotline, toll free at (800) 424-9346 (382-3000 in Washington, D.C.).

IDENTIFICATION AND LISTING
OF HAZARDOUS WASTE

The EPA regulations identify hazardous waste in two ways: (1) through a list of hazardous wastes and (2) through a set of characteristics. Any solid waste that is either listed in the regulations or meets any of the characteristics is considered a hazardous waste and is subject to regulatory control. Solid waste

is defined to include garbage, refuse, sludges, or any solid, liquid, semi-solid or contained gaseous materials which are discarded or disposed of. There are a number of exclusions to those definitions, as well as special requirements for persons that generate small quantities of hazardous waste, and special requirements for hazardous waste which is used, re-used and recycled.

Several hundred specific hazardous wastes are listed in the EPA regulations. These include wastes that come from a number of different sources (such as waste solvents), wastes from particular process (such as inorganic or organic chemical production) and specific discarded chemicals and discarded products (such as benzene and chloroform).

The regulation also allows for the "delisting" of wastes from specific individual generators. To be delisted, individuals must petition EPA and demonstrate that the waste produced from a particular facility does not meet any of the criteria for which the waste was originally listed. To date EPA has received several hundred delisting petitions and has granted temporary delistings (pending the development of further information) to approximately 150 generators.

A solid waste which is not listed in the regulation is nevertheless considered a hazardous waste if it meets one of four characteristics: ignitability, corrosivity, reactivity and toxicity. The regulations provide specific tests and protocols to be used to determine whether a waste exhibits these characteristics.

SIZE OF THE REGULATED COMMUNITY

It is estimated that approximately 55 million tons of hazardous wastes are generated in the United States each year. On August 19, 1980 all persons handling hazardous wastes were required to notify EPA. By November 19, 1980 all persons that treat, store or dispose of hazardous waste were required to apply for a Federal permit. These notifications and applications were to be submitted on a site-specific basis (i.e. for establishments at specific locations). From these documents we are able to estimate the size of the regulated community (the number of individual establishments that are subject to the RCRA regulations).

Approximately 58,000 establishments notified EPA that they generate or produce hazardous wastes. About 14,000 establishments notified EPA as transporters or carriers of hazardous waste. Nearly 15,000 facilities applied for a Federal permit to treat, store or

dispose of hazardous waste. Of the permit applications received, approximately 10 to 15 percent are for disposal of hazardous waste on the land (i.e. landfills, injection wells, land treatment, etc). Approximately 6 to 8 percent are for hazardous waste incinerators. The remainder and largest fraction (75 to 85 percent) are for storage and treatment of hazardous waste in containers, tanks, piles, surface impoundments and other devices.

STANDARDS FOR GENERATORS AND TRANSPORTERS OF HAZARDOUS WASTES

The RCRA regulations begin with the generator or person who first produces a hazardous waste. The generator is responsible for determining whether his wastes are hazardous. If a generator stores wastes on-site for more than 90 days, or treats or disposes of wastes on-site, he must comply with the technical standards for treatment storage and disposal (to be described later) and is required to have a RCRA permit.

A generator that ships hazardous waste off-site must comply with certain U.S. Department of Transportation (DOT) requirements for packaging, labeling, marking and placarding of hazardous wastes. He must also comply with the requirements for the manifest system.

The manifest system is a key aspect of the "cradle-to-grave" control of hazardous wastes. The purpose of this system is to assure that hazardous wastes are only shipped to permitted treatment, storage or disposal facilities. The manifest itself is a document prepared by the generator which specifies the quantity and description of the waste and designates the facility to which it must be taken. The manifest must accompany the waste shipment through all stages of transportation. When the waste shipment arrives at the designated facility, the facility operator must compare the quantity and type of waste listed on the manifest with that actually received. If there are any discrepancies the facility operator must notify EPA.

The facility operator must also return a copy of the manifest to the generator. This is the generator's receipt indicating that the waste was actually delivered to the designated facility. If a generator does not receive the return copy of the manifest within 35 days of the initial shipment, he must take appropriate action to locate the hazardous waste and must notify EPA. When EPA is notified by either the facility operator or the generator, the Agency will investigate the manifest discrepancy or undelivered shipment, and if appropriate initiate enforcement action.

Transporters of hazardous wastes may not accept wastes without a manifest, must carry the manifest with the shipment and must deliver the shipment only to the designated facility. They must also comply with DOT requirements for hazardous waste transportation, and must take immediate action to protect human health and the environment in the case of a discharge of hazardous waste during transport.

THE RCRA PERMIT PROGRAM AND STANDARDS FOR TREATMENT, STORAGE AND DISPOSAL FACILITIES

Owners and operators of all facilities that treat, store or dispose of hazardous waste are required to have a permit. Recognizing the fact that it would take a number of years to issue permits to the nearly 15,000 existing facilities, RCRA provided for an "interim status" for such facilities. All facilities that were in existence prior to November 19, 1980 and that have notified EPA and have filed a timely permit application are in interim status. This means that the owners and operators of such facilities are treated as having been issued a permit until an actual permit is issued or their application is denied.

During the interim status period owners and operators must comply with interim status standards specified in the regulation. These interim status standards include requirements for waste analysis, security, inspections, personnel training, preparedness and prevention, emergency procedures and certain recordkeeping requirements. A very important interim status standard went into effect in November 1981 for owners and operators of land disposal facilities. Persons that dispose of hazardous waste on land must implement a ground-water monitoring program capable of determining the impact on the quality of ground-water underlying the facility.

Interim status facilities must have a plan for closing the facility in a manner that protects human health and the environment and must estimate the costs doing so. Land disposal facilities must have a plan and cost estimate for carrying out monitoring and maintenance of the facility for a period of at least 30 years after closure. Later in 1982, facility owners and operators will be required to assure that funds are available to carry out the closure and post-closure activities. Funds may be assured through the use of several mechanisms (i.e. trust funds, surety bonds, letters of credit, insurance policies or a demonstration of financial strength). EPA is also considering whether liability insurance should be required as well.

The interim status standards do not include a number of important design and operating requirements (i.e. destruction efficiency for incinerators, liner and leachate collection requirements for landfills, etc). These more detailed design and operating requirements must be developed individually for each facility and will be imposed on the facility when the RCRA permit is issued. EPA has published standards that will allow permits to be issued to storage and treatment facilities and incinerators. Regulations necessary to issue permits to land disposal facilities are still under development and are expected to be completed in early 1982.

In order to receive a RCRA permit the applicant must submit a detailed application describing the design and operation of the facility. EPA would then make a tentative decision as to whether to issue or deny the permit. The application and tentative decision are then issued for public review and comment. If requested a public hearing will be held. EPA would then consider the comments and information received and a final decision would be reached.

Existing facilities that receive a permit must operate in accordance with the terms and conditions specified therein. Existing facilities that are denied a permit cannot continue to treat, store or dispose of hazardous waste. New facilities cannot begin construction without a prior RCRA permit. (EPA is reconsidering this issue and may allow certain new facilities to begin construction, but not operation, prior to permit issuance).

THE ROLE OF THE STATES

RCRA allows EPA to authorize State hazardous waste programs to operate in lieu of the Federal program. When a State program is authorized the Federal requirements are not in effect in that State. Instead, the State laws and regulations apply exclusively and the State is responsible for administration and enforcement of the program.

RCRA provides for two types of State authorization, final and interim. In order to receive final authorization the State program (1) must be equivalent to the Federal program, (2) must be consistent with the Federal program and programs in other States and (3) must provide for adequate enforcement. Recognizing that it would take States some period of time to develop programs capable of receiving final authorization, RCRA also provides for interim authorization. States may receive interim authorization if their State program is substantially equivalent to the Federal program.

Because the Federal hazardous waste regulations have been promulgated in phases, EPA found it necessary to phase interim authorization as well. During the first phase States are authorized to define and list hazardous wastes, enforce the generator and transporter requirements including a State manifest system, and enforce State interim status standards. During the second phase States are authorized to issue RCRA permits to hazardous waste treatment, storage and disposal facilities.

To date, 28 States have received interim authorization for the first phase and 11 more have applied and are under review. Eleven States have also applied for interim authorization for the second phase and the first States are expected to receive such authorization in the next few months.

EPA strongly encourages States to apply for authorization to administer the RCRA program. This avoids duplication and overlap of the Federal and State programs and makes good use of State expertise and resources.

SUMMARY AND CONCLUSIONS

After over five years of development, the basic regulatory framework for managing hazardous wastes in an environmentally sound manner has been set in place. Accountability for hazardous waste management from cradle-to-grade is now fixed. A manifest system to assure wastes are transported to acceptable facilities is operational. Important technical standards for hazardous waste facilities have been established. State governments have significantly strengthened their authorities.

However this is just the beginning. The difficult task of implementing this program has just started. Over the past year the regulated community has for the first time faced the new requirements and installed the technologies and systems necessary to achieve compliance. EPA and State governments have conducted over 3000 compliance inspections. Where serious violations were detected appropriate enforcement action was taken. The first RCRA permits will be written in 1982. The challenge of the future is translating regulatory language into real world results.