VOLUME #2 (BD-8 - BD-9)

DRAFT BACKGROUND DOCUMENTS

RESOURCE CONSERVATION AND RECOVERY ACT
SUBTITLE C - HAZARDOUS WASTE MANAGEMENT

SECTION 3002 - STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTES

BD-8 - SECTIONS 250.20 - 250.29

SECTION 3003 - STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

BD-9 - SECTIONS 250.30 - 250.38

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RESOURCE CONSERVATION AND RECOVERY ACT

SUBTITLE C - HAZARDOUS WASTE MANAGEMENT
SECTION 3002 - STANDARDS APPLICABLE TO
GENERATORS OF HAZARDOUS WASTE
SECTION 250.20 THROUGH 250.29

DRAFT

BACKGOUND DOCUMENT

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF SOLID WASTE
December 15, 1978

Headquarters/Region_____

Document Number _____

This document provides background information and support for regulations which are designed to protect human health and the environment pursuant to Section 3002 of the Resource Conservation and Recovery Act of 1976. It is being made available as a draft to support the proposed regulation. As new information is obtained, changes may be made in the regulations as well as in this background material.

This document was first drafted many months ago and has been revised to reflect information received and Agency decisions made since then. EPA made changes in the proposed Section 3002 regulations shortly before their publication in the Federal Register. We have tried to ensure that all of those decisions are reflected in this document. If there are any inconsistencies between the proposal (the preamble and the regulation) and this background document, however, the proposal is controlling.

Portions of this Background Document were written specifically addressing sections of drafts of the regulation which were current at that time. The reader is cautioned that references to section titles or topics may have changed from draft to draft. For example, the section on "Containerization and Labeling" was ultimately split into two separate sections, while sections entitled "Reporting" and "Recordkeeping" were ultimately combined into one section entitled "Reporting". Changes in the drafts of this nature, as well as additions or deletions of sections, have not changed the rationale or basis for establishing the proposed version of the regulation. Where possible, section numbers of

the proposed version of the 3002 regulations, Standards Applicable to Generators of Hazardous Waste, appear in parenthases (250.20 - 250.29).

Comments in writing may be made to:

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I. Introduction

A. RCRA Mandate for Standards

The Resource Conservation and Recovery Act (RCRA) of 1976, Pub.L. 94-580, is a multifaceted approach toward solving problems associated with discarded materials. Subtitle C of RCRA deals specifically with hazardous waste management and directs the U.S. Environmental Protection Agency (EPA) to promulgate regulations and guidelines to ensure the proper transportation, treatment, storage, and disposal of all solid waste that is hazardous. Section 3002 of RCRA requires EPA to "promulgate regulations establishing ...standards, applicable to generators of hazardous waste." These standards establish requirements respecting: (1) recordkeeping; (2) labeling; (3) containerization; (4) furnishing information; (5) a manifest system; and (6) reporting.

II. Methodology In Developing Regulation

Technical data have been gathered and developed to form the basis for the regulations of Subpart B. In addition, comments and data from the regulated community (i.e., hazardous waste generators, transporters, treatment, storage, and disposal operators), States, and the public have been utilized in the overall formulation of the regulations. In keeping with EPA's public participation plan and Section 7007(b) of RCRA, which specifically states that "public participation in the development, revision, implementation, and enforcement of any regulation, guideline, information, or program under the Act shall be provided for, encouraged, and assisted by the Administrator and the States," the Office of Solid Waste has and will continue to encourage the affected communities to comment prior to implementation of regulations and guidelines with respect to RCRA and more specifically Subpart B (Standard Applicable to Generators).

A. Public Meetings

In accordance with EPA policy, RCRA, and the Administrative Procedure Act, U.S.C. Section 553 (c), ten meetings (see Table I) were held with state and local government, private and public interest groups, and the general public (EPA policy, 2p, 2827 Section 7004(b), 3 U.S.C. Section 553(c) (1970)).

The provisions of Section 3002 (see Appendix A) were discussed at the meetings. The comments and data were summarized (see Appendix B) and used to help formulate the Subpart B regulations.

B. Meetings With Other Interest Groups

In order to ensure consideration of all viewpoints; one-to-one meetings were held with other interested parties (see Table II).

Information gathered from these meetings (see Appendix C) provided insight into current practices employed by industry and into areas where the environment and human health are being compromised.

C. Advance Notice of Proposed Rulemaking

An Advanced Notice of Proposed Rulemaking (ANPR) was published on May 2, 1977, inviting the submission of comments and data on major issues confronting EPA in the development of regulations and guidelines. The notice included a series of questions and presented two options related to Section 3002 (see Appendix D). The responses to the ANPR were reviewed (see Appendix E) by the Office of Solid Waste and utilized with other comments and data before standards for generators of hazardous waste were proposed.

D. External Review

To assist in the development of standards for generators of hazardous waste, comments were requested from more than 60 external reviewers. The sample population represented the regulated industries, Federal and State regulatory agencies, and other groups, such as environmental groups. These comments have been considered and integrated into the regulations. A summarization of the comments is presented in Appendix F.

TABLE I

Public Meetings

February 3. 1977	San Francisco, California
February 24, 1977	Washington, D.C.
March 9, 1977	Cleveland, Ohio
March 10, 1977	Minneapolis, Minnesota
April 6, 1977	Hartford, Connecticut
April 8, 1977	Atlanta, Georgia
April 13, 1977	Houston, Texas
April 27, 1977	Oklahoma City, Oklahoma
May 25-26, 1977	Seattle, Washington
May 26, 1977	Denver, Colorado

TABLE II

Meetings with other interest groups

Industry Associations

National Sold Waste Management Associations

National Tank Truck Carriers Conference

Liquid Water Control Association

Association of American Railroads

American Water Waterway Operators

National Barrel and Drum Association

Transporters

Chemical Leaman

Matlack

Bohager and Son

Chancellor & Odgen (BKK)

Missouri Pacific Railroad

Industry

Union Carbide

Environmental Group

Environmental Action

Federal Agencies

Department of Transportation

Interstate Commerce Commission

State Governments

California	Georgia
Texas	Tennessee
Illinois	West Virginia
Wisconin	

III. Identification of Program Issues and Concerns

Several major issues and concerns were raised by EPA at the meetings with various interest groups, the regulated communities, and government officials. These major issues and concerns can be categorized as follows: (1) the Manifest System; (2) Reporting; (3) Containers and Labels; and (4) Waste Information.

A. Manifest System (250.22)

1. How detailed should the manifest be? What kinds of descriptions and instructions should be included?

2. What format should be required for the manifest? Should there be a standard form or simply a set of data requirements?

3. What should be done in the event that the manifest is lost or a waste arrives without a proper manifest?

4. How should the manifest be circulated? Should it simply move from generator to transporter to waste management facility, or should there be more or less movement?

B. Reporting and Recordkeeping (250.23)

1. How often should reports be filed? Should this be different for generators and disposers?

2. How long should records be retained?

3. Should the waste management facility or the transporter be allowed to file reports for small generators?

4. What should be required in a report? What format?

5. Should the manifest be used for reporting and recordkeeping as well as for tracking?

6. Should a distinction be made between inter- and intra-state transport?

C. Containerization and Labeling (250.25 & 250.26)

1. What information is necessary on labels? What format should be used for labels?

2. Should vehicles be marked when transporting waste?

3. Should different classification systems be developed for labeling?

4. Should containers be reused?

5. What requirements are necessary for containers?

6. Should waste designated for on-site disposal be subjected to labeling requirements?

D. Waste Information (250.22, 250.23 & 250.29)

1. What information is necessary when handling and disposing of a hazardous waste?

2. Who should be responsible for supplying such information?

3. Should this information travel with the cargo?

4. Should low-volume generators be subject to this requirement in view of the high expense of analysis?

5. Should a form containing waste information be required?

IV. Analysis of Regulation Issues with Alternatives and Rationale

The Office of Solid Waste has received comments and data presented in the meetings and on the ANPR. These responses led to the development of several options relevant to the regulations to be promulgated under Section 3002. This section enumerates the various alternatives that were suggested and presents the rationale for each.

A. Resource Recovery (250.21)

Two objectives of the RCRA are to protect human health and the environment and to conserve valuable material and energy resources. Resource recovery is desirable for several reasons: it produces raw materials, while virgin materials are becoming scarce; it can save energy, and it reduces the volume of waste that must be disposed.

According to the legislative history, House Rep.-94-1491 at 2 (1976), "An increase in reclamation and reuse practices is a major objective of the Resource Conservation and Recovery Act." Encouraging resource recovery is within Congressional intent. However, promotion of resource recovery must be consistent with the requirements of Subtitle C of RCRA. An important requirement of Subtitle C is that all regulated hazardous wastes be designated to permitted waste management facilities. This is especially important since certain suggestion for promoting resource recovery include exempting resource recovery from the treatment, storage, or disposal facility permit requirements.

Section 3002 of RCRA requires generator regulations for six items: recordkeeping about generation and disposition of hazardous wastes, labeling of containers, use of appropriate containers, furnishing of information to transporters and disposers, use of a manifest system and submission of reports. The manifest system and reports are intended to ensure that all regulated hazardous waste is properly disposed of.

Since resource recovery is addressed under other Subtitles of RCRA, consideration under Subtitle C does not appear to be a requirement. If resource recovery is to be promoted through Subtitle C, the option selected for regulation of hazardous materials sent to resource recovery facilities must provide enough control to assure proper disposition of these wastes--which is the main purpose of Subtitle C.

In deciding whether resource recovery should be promoted through special provisions of the Section 3002 regulations, consideration should be given to the status of exclusions under Subtitle C. Resource recovery could be excluded from the definition of treatment, storage, or disposal and therefore be exempted from this part of the Act. First, the definition of resource recovery, "the recovery of material or energy from solid waste" differs from that of disposal which is, "the discharge, deposit, injection, spilling, leaking, or placing of any solid waste or hazardous waste into or onto or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment

or be emitted into the air or discharged into any waters, including ground waters." Resource recovery can be easily distinguished from disposal.

Storage is defined as "the containment of hazardous waste, either on a temporary basis or for a period of years, in such a manner as not to constitute disposal of such hazardous waste." Resource recovery involves reuse and recycling of waste and does not fall under the definition of storage.

Treatment is defined as, "any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste or so as to render such waste nonhazardous, safer for transport, amenable for recovery, amenable for storage, or reduced in volume. Such term includes any activity or processing designed to change the physical form or chemical composition of hazardous waste so as to render it nonhazardous." Most resource recovery processes do not obviously fall under this definition. More complicated recovery, such as solvent reclaiming, might change the physical form or chemical composition of the waste and could be defined as treatment. However, the phrase, "amenable for recovery" suggests that resource recovery should be considered a post-treatment process and not be subject to regulations covering treatment of hazardous wastes. This is not conclusive, and the subject is not discussed in the Act. However, the legislative history, House Rep. No. 94-1491 at 4, notes that the regulation of hazardous waste and promotion of resource recovery are separate and conflicting functions. Consequently, the promotional functions of resource

recovery technology, the development of markets, etc., are placed with EPA and Department of Commerce (especially under Subtitle E of RCRA), again suggesting that resource recovery is not considered treatment.

Another possible exclusion is the exception of material sent to resource recovery from the definition of hazardous waste. Solid waste is defined to include "discharged materials." If resource recovery becomes a significant part of the hazardous waste cycle, then this defintion of waste may not apply; the waste would become a raw material of a process. Using a test of "economic value" could also eliminate materials to be recovered from the waste definition. However, if waste is defined as "no further use in its primary production process" or similarly, then the material sent to resource recovery could be considered waste.

If material sent to resource recovery is not considered a waste, then it is not subject to any Subtitle C regulations. Generators, transporters, and resource recovery facilities would then be subject only to DOT regulations which cover interstate transportation of designated hazardous materials unless the handlers of resource recovery materials come under the regulations another way. For example, resource recovery facilities often produce hazardous residues. In this case, the facility might be considered a generator and possibly, a disposer.

Despite the desirability of promoting resource recovery, the purpose of Subtitle C is ensuring proper disposition of hazardous waste, and protecting human health and welfare; exempting materials destined for resource recovery may not allow this.

Another problem is whether resource recovery facilities should be permitted. Any waste requiring a manifest must be designated to a permitted facility. If recoverable waste requires a manifest, then the resource recovery facility must be permitted unless some exclusion from the permitting regulations can be developed. Exclusions from the Subtitle C regulations may not be permissible, though modified reporting, permitting, and manifest procedures may be. This modified permitting, reporting, and manifest might be the more suitable choice.

Even though it is not required, Section 3002 will make some provisions for resource recovery. Several possible options were considered. The options presented assume that the resource recovery facility is off-site. Also, hazardous waste sent to resource recovery facilities may be subject to DOT's hazardous materials regulations, 49 CFR Sections 170-189, if they are shipped interstate and are listed in Section 127.101. OSW is considering four options for the handling of hazardous wastes sent to resource recovery facilities.

OPTION I

(a) Under the first option, hazardous waste if sent to resource recovery facilities is not covered by the definition of "hazardous waste," and would not be subject to any Subtitle C regulations, but still would be subject to DOT hazardous material regulations, if applicable.

PRO

Option I would reduce the burden on generators who send waste to resource recovery, providing an incentive as intended by Congress. Since this can be considered reuse and not disposal, it does not violate the intent to manage the disposal all hazardous wastes. If a waste can be sent to an unregulated facility, the difference in cost between resource recovery and disposal should increase, providing an additional incentive.

CON

Much of this incentive for resource recovery may be illusory, since many wastes will also be subject to DOT regulations and therefore subject to labeling, containing, and shipping paper, etc., requirements. Eliminating Subtitle C requirements will provide little incentive for generators to send wastes to resource recovery facilities in this case, and would remove all control over an unknown amount of hazardous waste. According to the preliminary OSW contract report, most hazardous waste is transported less than fifty miles, probably intrastate. Since DOT has only implemented

regulations for interstate shipments, and many States do not regulate at all, this would increase the possibility of improper disposal of hazardous wastes, and foster the establishment of "token" resource recovery centers for circumventing Subtitle C regulations. Since Option I would exempt resource recovery from reporting and recordkeeping requirements, it would be difficult to establish, for survey purposes, the amount and kind of material sent to resource recovery.

(b) Alternatively, if the waste is sent to resource recovery, the generator would be exempt from Subtitle C regulations, but the resource recovery facility would be issued a "special" permit.

PRO

This would control resource recovery facilities and prevent the operation of "token" facilities. The ultimate disposition of the hazardous waste would be controlled.

CON

If material sent to resource recovery is not a "hazardous waste" as designated by the generator, then the facility could not be required to have a permit. However, if the waste is considered hazardous, it might be possible to exempt the generators from some or all Subtitle C regulations.

Several questions concerning Subtitle C exemptions are pending with the Office of General Counsel. One is whether a class of persons (small generators - but perhaps also those sending wastes to resource recovery) can be exempt from certain requirements of Section 3002 (for example, the manifest and reporting requirements). Another question is whether resource recovery facilities can be exempted from the standards relating to disposal facilities. Section 3005 does not, however, prohibit the issuance of several categories of permits for different types of disposal or treatment facilities.

The answers to these questions will determine the feasibility of this option.

OPTION II

This option does not exempt waste sent to resource recovery from the definition of hazardous waste, but considers it an alternative method of treatment. Under this approach, the generator is exempt from the manifest and reporting requirements, but must maintain records. The generator must notify EPA annually that waste is being sent to resource recovery. The waste must be sent to a resource recovery facility that will receive a "special" permit. This permit will probably be less complex than a regular disposal permit.

PRO

This option is still less of a burden on generators and consequently still within the Congressional intent of providing an incentive for resource recovery. The permitting of resource recovery facilities should prevent the establishment of "token" resource recovery facilities and keep the quantity of hazardous waste sent to resource recovery under some kind of control.

CON

It may be permissible to exempt classes of persons from Section 3002 or 3005 regulations. Since the manifest and reporting requirements are contained in the law, all generators may be required to comply with them. This exemption may also violate the intent of the Act, which is to control the disposition of all hazardous wastes. The manifest and reporting systems are designed to track the waste and are essential for this purpose.

OPTION III

Generators who send hazardous waste to resource recovery must comply with all Section 3002 regulations except that there will be a modified reporting procedure, probably an annual report with a simplified listing of wastes. The resource recovery facilities will be permitted, probably with simpler reporting procedures.

PRO

Option III presents no potential legal problems with exemptions under Section 3002 or 3005. It still provides less strigent requirements for resource recovery, thus providing some incentive. Requirements of the manifest system allows tracking of waste, following the intent of Congress to manage all hazardous wastes. Since Section 3002 states that regulations must be written for the six listed items, it suggests that all wastes must follow regulations for all six items. Option III avoids this problem, by allowing less burdensome reporting. Also, the permitting of resource recovery facilities should assure generators and the general public that waste is being properly treated.

CON

Since the only concession to resource recovery is reduced reporting, there is less incentive than in Option I and II. Resource recovery facilities are often marginally profitable and too strigent permitting, recordkeeping, reporting, manifest, etc. requirements could put a marginally profitable facility out of business, and would violate Congressional intent to promote resource recovery.

OPTION IV

Under this option, generators who send waste to resource recovery facilities would be subject to all Subtitle C regulations. Resource recovery facilities will be permitted.

PRO

Option IV maximizes control over treatment of hazardous wastes. It poses no legal questions about exclusion of classes of persons from Subtitle C regulations. Incentives for resource recovery could be developed under other sections of RCRA.

CON

Option IV provides no incentive for resource recovery except its potentially lesser cost compared to that of disposal. However, Congress intended resource recovery to be promoted and this seems to violate that intent, especially if sufficient control over hazardous waste could be achieved while providing some incentive.

CONCLUSION

Option I(a), I(b), and III are being considered as providing incentives for resource recovery, while still controlling hazardous wastes.

Option I(a) appears to meet all the requirements of the regulation while providing incentives for resource recovery (and industrial waste exchange). Since the definition of solid waste (of which hazardous waste is a subset) pertains to discarded material, any material going to a resource recovery facility (or for waste exchange) would not be regulated. This option has received the greatest support and was presented in the proposed regulation.

Option I(b) has the advantage of simplicity for the generator, while providing for monitoring of the resource recovery process. Since the waste is subject to Subtitle C regulations if not sent to resource recovery, actual disposal will be regulated in compliance with the requirements of the Act.

Option III provides incentive for resource recovery, but more control over hazardous waste. This option requires the manifest and reporting and provides total monitoring of the disposition of hazardous wastes. The requirements of this option are not considered a great burden since some waste is subject to DOT regulations, and normal business procedure requires recordkeeping and shipping papers. The greatest incentive is economic, and lower requirements for resource recovery will increase the difference in cost between recovery and disposal.

B. Identification of Hazardous Waste Generators (250.21 & 250.29)

RCRA defines hazardous waste generation to mean "the act or process of producing hazardous waste." Hazardous waste is a sub-category of solid waste. Solid waste by definition is not hazardous waste, but can become hazardous waste when its quantity or other characteristics cause irreversible illness or death, or present substantial present or potential harm to human health and the environment. The possibilities for mismanagement of a solid waste also play an important role in determining whether or not it is hazardous.

Regulatory control over hazardous waste produced by households and control over general municipal solid waste based on the presence of hazardous substances is not within the intent of Subtitle C of RCRA (Senate Report No. 94-988 Solid Waste Utilization Act of 1976). Consequently, household generated hazardous waste is excluded from the requirements of Subtitle C.

Excluding households, the estimated number of potential hazardous waste generators in the United States is as follows:

(1) farmers - 2.5 million;

(2) manufacturers (SIC 20-39) - 0.3 million;

(3) governmental and other services - 0.4 million.

If the intent of Congress is to be fulfilled and if EPA is to implement RCRA so as to utilitize its resources most efficientl in managing solid waste, generators must be properly identified.

The following options regarding generator identification totally exclude household waste from Section 3002 regulations.

OPTION I

Option I defines a generator as any person whose act or process produces hazardous waste as defined or listed under Section 3001. A person who meets this definition must comply with all the regulations under Subtitle C of RCRA.

PRO

Option I covers every person (except the household) producing a hazardous waste and requires them to comply with Subtitle C regulations. This leaves no loopholes in Section 3002 regulations and could bring an estimated 3.2 million generators under regulation.

CON

The task of enforcing Option I in an equitable manner would be difficult. Enforcement problems would result not only from the sheer number of potential generators, but also because some generators produce small quantities of hazardous waste or produce hazardous waste on an irregular basis. Generators producing hazardous waste having the same characteristics as some household solid waste would be difficult to detect.

Assuming that enforcement is selective, Subtitle C regulations will be directed only against certain parties. This could lead to legal challenges that EPA is acting arbitrarily and inequitably in its enforcement proceedings.

If the entire audience of hazardous waste generators is brought into the regulatory system and must comply with Section 3002 regulations, a potentially unnecessary burden on the treatment, storage, and disposal capacity could possibily be imposed on Subtitle C facilities. If generators that mix small quantities of potentially hazardous waste with large quantities of non-hazardous waste segregate their waste, this segregrative process may be more injurious to human health and environment than allowing the waste to be transported by a municipal hauler to a Subtitle D sanitary landfill. EPA does not have a substantial body of damage cases created by codisposal of small quantities of hazardous waste with municipal refuse in a properly designed landfill. Therefore, the disposal controls required by Subtitle C regulations may not be necessary for small quantities.

The paper work impact of such a large regulated community is estimated to be in the range of 9.2 to 18.3 million manifests per year. This will result in approximately 1.5 million reports per year to EPA and the States. (Appendix L)

OPTION II

This option provides for identification and classification of generators by prose definition (i.e., SIC or industrial process). A generator included in the definition would be subject to all Section 3002 regulations.

PRO

Option II would allow EPA to focus its resources on a smaller population of potential generators than Option I. This would result in better management of hazardous waste since EPA could better insure that all waste defined as hazardous would be sent to a Subtitle C facility. The capacity and paper work burden on Subtitle C treatment, storage, and disposal facilities (TSDF) and EPA, as discussed in Option I, would also be reduced proportionally.

CON

Enforcement based on definition by SIC would be difficult, since many companies have more than one SIC. Identification by industrial process also has limitations due to variation in industrial processes within a given industry and the unavailability of concise process definitions.

An inadequate definition could lead to a legal challenge that EPA acted arbitrarily or that the definition was inequitable. Areas overlooked or not covered by the definitions could allow large quantities of hazardous waste to enter the environment at an uncontrolled rate.

OPTION III

This option identifies generators based on hazardous waste production rate of 100 kilograms per month. Five States' industrial waste surveys and industrial waste data developed in the Subtitle C Environmental Impact Statement were analyzed to help determine the cut-off rate for hazardous waste production. This rate would include a maximum amount of hazardous waste, but would significantly reduce the audience to be regulated. (Appendix G)

With this exemption level cutoff, an exclusion for farmers and retailers, and the provision for an assumption of duties contract, the number of potential generators is reduced significantly from the 3.2 million under Option I. The rationale for these estimates can be found in the Reports Impact Statement. It was these numbers of generators upon which the proposed regulations were based.

Manufacturing (SIC 20-39)	166,000
Retailers (waste oil)	63,000
Farmers (pesticide applicators)	10,000
Hospitals, labs, research	16,000
Total	255,000

For manufacturers, the 100kg exemption level puts 166,000 generators in the system (Mitre data). Retailers include the 62,000 waste oil generators plus 960 haulers exercising an assumption of duties contract. Farmers still in the system would be primarily the 10,000 pesticide applicators. Hospitals account for nearly 7000 generators; there are nearly 3000 medical laboratories and almost 6000 research facilities. This accounts for the 16,000 medical facilities.

PRO

The Standard Production Rate (SPR) of 100 kilograms per month of potentially hazardous waste is based on industrial waste data and would apply to everyone except households. The SPR would allow EPA to focus its enforcement on approximately 50 percent of the generators, who produce greater than 99.5 percent of the hazardous waste. "Non-generators" would be required to dispose of their waste at a Subtitle D sanitary landfill pursuant to Section 4004 criteria at a rate less than 100 kilograms/month. The SPR would eliminate bulk shipments (tank and drums) of hazardous waste from entering a Subtitle D

sanitary landfill (which will have many of the same environmental performance features exhibited in a Subtitle C hazardous waste landfill). In the past, it has been the disposal of bulk shipments of hazardous waste and the lack of leachate collection which have been the cause of most incidents of environmental and human health damage at landfills. (Appendices G & H)

Since the regulated audience would be lessened by implementing an SPR, the capacity burden on Subtitle C TSDF may be reduced. In addition, the paper work impact on the regulated community and EPA would also be decreased.

CON

The Standard Production Rate does not distinguish the degree of hazard for different wastes. Thus, the SPR applies to any person producing any hazardous waste regardless of the hazard associated with that waste.

OPTION IV

This option uses the SPR of 100 kilograms per month and includes a "Special Chemical List" of known wastes which due to their inherent hazard or other characteristics must be controlled regardless of the quantity. (Appendix G)

PRO

Option IV includes all the advantages covered in Option III and, in addition, recognizes that some wastes require greater control because of heightened public concern for their physical and chemical properties or a documented lack of proper management in the past.

CON

If wastes which appear on the "Special Chemical List" are not unique due to their hazard, then legal challenges that EPA is being arbitrary and capricious could result.

Once a list of and/or criteria for hazardous waste is established any attempt to develop a "Special Chemical List" would require a judgement as to the relative hazard of a material in order to establish the "cut-off." This judgment may be subjective and any effort to defend it difficult.

Each TSDF will be permitted based on their ability to handle certain hazardous wastes. As long as a facility is permitted, it could be construed as arbitrary or capricious to restrict certain wastes from a properly designated and permitted facility.

CONCLUSION

Generator identification will be a difficult and critical problem when implementing Subtitle C of RCRA. Option III is believed to offer the greatest control of hazardous wastes with the least impact on the regulated community as compared to Option I, II, and IV. In addition, Option III should fulfill the mandate of RCRA to protect human health and environment. Option III allows a portion of the generators to be excluded from compliance, based on quantity limits. This would allow EPA to focus its resources and energy on the part of the generating community producing the largest amounts of waste.

Studies of past environmental damage incidents at landfills (Appendix H) have shown that it was the very large quantities of waste that caused damage in most documented incidents. Small quantities of hazardous waste appear to have no adverse effects on the environment, particularly if they are required to be disposed of at a Subtitle D facility. Another study by OSW (Appendix J) indicated that regulations covering the Subtitle D facility are in most respects as strict as those covering the Subtitle C facility.

Secondly, this option allows small quantities of waste to go to Subtitle D facilities, saving landfill space in the Subtitle C facility for the dangerous large quantities.

Option III provides discrimination between generators and non-generators without having to develop and refer to a complicated series of industrial SIC definitions. This option simply excludes all generators who produce below a certain quantity each month. This is much less complicated than exclusion by SIC definition and does not allow excluded wastes to be disposed of in any amount, as the SIC definition would.

While Option III excludes generators from reporting, recordkeeping, manifest, etc., disposal at a properly designed facility is still required. Highly toxic wastes would still be managed properly, and as a result of the ratio at which they might be mixed with municipal waste their potential hazard reduced.

A more detailed discussion of the data used to support option III is presented in Appendix G.

Several other options were considered prior to proposing this section of the regulations. Comments were solicited on some of these options since insufficient data were available. Some options were based on economic impact, and on this point the Act was silent, making any decision difficult in view of uncertain legal ramifications.

Raising the exemption level to a SPR of 1000 kg was considere based on its lesser economic impact. Proper disposal would still be required for all wastes. No final conclusion was made on this option due to insufficient data on the number of generators affect or the quantities of waste which they produced.

Another option which was considered, would allow each state that undertook the Federal program to set its own small generator SPR exemption level based on specific conditions of that state's industry. Additional data are required before this option can be considered viable.

Still another option would reduce administrative and technic requirements without removing them all together. For example, each generator of a small amount of hazardous waste would be required to prepare a manifest for shipment with the waste but he would not he would not be required to comply with the reportin or recordkeeping requirements. Similarly, the technical requirements associated with the treatment, storage, or disposal of his waste could be reduced or waived. Again, additional data are needed to support consideration of this option before it can be considered acceptable.

Finally, a phased implementation option was discussed. By phasing the degree of SPR exemption level, a gradual implementation could occur. One method of achieving his transition would be to establish the initial SPR exemption at a higher level, thus impacting fewer industries. After a period of time, three years for example, the SPR allowable would be lowered to a level which would fully meet the requirements of the Act. This would allow both industry and the state or Federal programs to adjust. Insufficient data are available inorder to establish how many steps there should be in any phased implementation of the regulation or how much time should be allowed for each step. Supportive data must be supplied or compiled before this option can be considered viable.

C. Manifest System (250.22)

RCRA requires the use of a manifest system to assure that all regulated hazardous waste is designated for treatment, storage, or disposal at a facility permitted under Section 3005.

The manifest (see Appendix K) is a tracking document used to certify the movement of a waste. The manifest originates with the generator who supplies the necessary information and signs the document. The generator gives the manifest to the transporter who certifies receipt of the shipment. The transporter gives one copy to the generator prior to removing the hazardous waste from the generator's property. The transporter takes the manifest to the receiving personnel at the TSDF. The TSDF receiving personnel sign the manifest, verifying receipt

of the hazardous waste. The transporter retains one of the signed copies to verify delivery. The TSDF retains one copy for its own records and forwards the signed original to the generator to vertify receipt.

For the manifest system to work effectively as a tracking device, it must circulate in a closed system; to remove the certification of any one actor (i.e., generator, transporter, TSDF) would open one link in the chain. In an open system, information necessary for tracking the waste would not be available, since the parties involved in its transfer are not actively tied to one another via a formal document.

So that the manifest may be consistent with common transportation practices, provide for safe shipment and tracking, and conform to the Congressional definition given it within RCRA Subtitle A, Section 1004(12), the document has taken on the appearance of the Department of Transportation (DOT) shipping paper (see Appendix K). The manifest has a specific order of entries which includes emergency information to assist in safe handling and transportation.

D. Reporting and Recordkeeping (250.23)

RCRA requires the establishment of recordkeeping practices and of reporting to the Regional Administrator setting out the quantities of hazardous waste generated and the disposition of each waste. The criteria used in the selection of a reporting scheme were as follows:

(1) provide necessary after-the-fact information for environmental management purposes; and

(2) minimize the paper work burden.

The use of the manifest as the report and the use of a periodic, summary report (see Appendix K), formulated from data contained in the manifest, were considered as providing the most detailed after-the-fact information. Since the manifest provides more information than would be needed for management purposes, a periodic summary report (see Appendix L) was considered with respect to criteria 1. It was further determined (see Appendix L) that a monthly summary report would decrease the paper in commercial and Federal channels by 66.7 percent if used instead of the manifest as the report. If a quarterly summary report were used, a decrease of paper in commercial and Federal channels of 88.9 percent over the manifest being used as the report and 66.7 percent with respect to a monthly summary report would be expected. For summary reporting periods greater than quarterly, effective monitoring of hazardous waste becomes increasingly difficult with only a 5.5 percent decrease in the reduction of paper flow to Federal Agencies, when compared to quarterly reporting and compared to using the manifest as the report.

Quarterly exceptions reports would decrease the paper work burden even more. Under this scheme, generators would be required to file a report to the Regional Administrator only when the generator did not receive the signed original of the manifest (or

delivery document) within four weeks of the closing date of the reporting quarter. The reasoning behind this reporting method was to provide enough information to meet the first criterion without requiring reports on properly disposed wastes, thus reducing paper work and satisfying the second criterion. This was the option chosen for the proposed regulation.

Since the manifest is the generator's certification that the waste was properly treated, stored, or disposed of, a 3 year recordkeeping requirement is placed on the manifest so that monitoring or tracking of hazardous waste will occur while the manifest is still in existence.

The manifest verifies the hazardous waste shipment by tracking the movement of the waste from the generator, to the transporter, to the TSDF. The annual reports filed by the generat and the TSDF are developed from the information on the manifest and submitted to the Regional Administrator at the same time.

If a transporter or a TSDF wish to file reports for a generator of waste oil he may do so but only if the generator executes an assumption of duties contract with the transporter or TSDF. Otherwise, a transporter or TSDF may prepare a manifest for a generator, but the generator must sign it.

For shipments of hazardous waste which move interstate, a copy of the annual report must be sent by both the generator and the TSDF to both the Regional Administrator with regulatory authority over the TSDF and the Regional Administrator with regulatory authority over the generator.

E. Containerization and Labeling (250.25 & 250.26)

The use of appropriate containers and labeling practices to sufficiently confine and accurately identify hazardous waste for shipment, storage, treatment, or disposal are mandates of RCRA. The options available in the selection of appropriate containers and labeling practices become apparent when reviewing RCRA, Subtitle C, Section 3003(b), which requires the regulations promulgated under this subtitle to be consistent with the Hazardous Materials Transportation Act (88 Stat. 2156; 49 U.S.C. 1801 and following).

In those areas where the U.S. Department of Transportation (DOT), Hazardous Materials Regulations (49 CFR 100-189) criteria or list are in agreement with the criteria or list developed under the authority of RCRA, Subtitle C, Section 3001 for hazardous wastes, the DOT labels will be used to relay acute hazards to persons handling, transporting, treating, storing, or disposing of the waste. In areas were DOT is silent and EPA criteria or list identifies a waste as hazardous, an EPA marking will be specified.

DOT containers will be used in all cases pertaining to movement of wastes. Provision are presently being made by DOT for the use of one-way, unreconditioned containers for disposal. Containers used for storage of hazardous waste must be in accordance with Section 3004 of the Act (Part 250.44-2 of the proposed regulation).

F. Waste Information (250.22 & 250.23)

RCRA mandates the furnishing of information on the general chemical composition of hazardous waste to persons transporting, treating, storing, or disposing of the waste.

Persons handling and transporting hazardous waste need general information as to the chemical composition of the waste and its acute hazard. This information will be supplied on the manifest. Further information as to the hazard of the waste will also be displayed on the container via a DOT label or EPA marking. Persons treating, storing, or disposing of hazardous waste may require more specific information as to the specific chemical composition of the waste. It is the responsibility of the person operating the TSDF to acquire this information from the generator prior to treatment, storage, or disposal of the waste as may be appropriate to assure that the requirements of the permit (issued under RCRA, Subtitle C, Section 3005) are met.

G. Other Topics

Definitions: It was necessary in some cases to expand on some of the definitions provided in the Act. Other words or terms also needed to be clarified as the regulation developed.

Although very few changes occurred in the definitions, one term was extensively defined. One of the first definitions of a generator was "any person whose act or process produces solid waste composed in whole or in part of hazardous waste." This definition stayed basically unchanged with the exception of three exclusions for volume generated, generation from farmers, and generation from retailers. Within these exceptions there was much debate. The Standard Production Rate (SPR) exemption level is discussed elsewhere in this background document.

Several comments suggested that by using the word "solely" to describe farmers' and retailers' activities that many of them may have a small unrelated business and would not be included in the definition. The intent initially was to exclude anyone who was not exclusively involved in the business of farming or retailing. This, it was felt, would control those "farmers" who also ran aerial applicator businesses or pesticide warehouses or co-ops. Likewise, there would be greater control of retailers also involved in wholesale or formulation of chemicals and pesticides.

The draft was changed such that a farmer now needs only to have his "principal business" be farming. It was felt that the number of farmers whose principal business was farming would not have a substantial aerial application, warehouse or co-op business. The same argument, however, was not made for retailers.

Assumption of Duties Contract: Another provision in the regulation which would allow a transporter or a facility to accept the duties of a generator of waste automotive oil (later changed to waste oil in general) was made. The addition of this contractual agreement will significantly reduce the number of generators required to report, without affecting the amount of hazardous waste being treated, stored, or disposed. It may in fact encourage waste oil rerefining and reuse by taking the requirement of recordkeeping and reporting off the small generator, increasing his incentive to seek a willing hauler or rerefiner.

Certification: Some comments received pointed out that other EPA offices were using a certification of information which was considered to be more binding than the one used in the October 11th draft. The Justice Department had been instrumental in helping to develop appropriate language in the suggested example. It was explained, however, that the language chosen was used extensively by the transportation industry and in developing a manifest system, every effort was made to create the least impact possible. Therefore, it was decided to leave the certification wording unchanged on the manifest prepared by the generator but use the new wording for the certification required on the quarterly exceptions and annual reports.

A few comments were received regarding the personnel level of responsibility that should be required to sign the manifest and report certifications. It was felt by some that the signatur of any "authorized representative" of the generator could be used

to hold the generator in violation as a result of a conviction. Others felt that generators as a whole would be more attentive to good hazardous waste management if they found themselves more directly involved. The solution to the debate was to leave the wording unchanged since it would be unreasonable to require a high level executive to be on the loading dock just to sign manifests. Although the same argument cannot be made for the signing of the certification on reports, no justification was made for requiring differing levels of "authorized representative" for the signing of reports and manifests.

Notification of Foreign Governments: An additional change was requested that would require generators to notify foreign governments of shipments of hazardous waste. Although this issue may not be totally resolved, the additional provision was placed on generators of shipments outside the jurisdiction of the United States; namely, they are required to send a copy of the manifest within one week of the shipment to the foreign agency having jurisdiction over the designated TSDF.

Single Manifests: Several questions were raised regarding the need for a single manifest for multiple shipments. This provision was made to simplify recordkeeping for generators and transporters involved in moving several loads of the same hazardous waste in any one day to the same permitted disposal facility.

APPENDIX A

RESOURCE CONSERVATION AND RECOVERY ACT

SECTION 3002

Resource Conservation and Recovery Act

PUBLIC LAW 94-580

SUBTITLE C, SECTION 3002

"Sec. 3002. Not later than eighteen months after the date of the enactment of this section, and after notice and opportunity for public hearings and after consultation with appropriate Federal and State agencies, the Administrator shall promulgate regulations establishing such standards, applicable to generators of hazardous waste identified or listed under this subtitle, as may be necessary to protect human health and the environment. Such standards shall establish requirements respecting--

"(1) recordkeeping practices that accurately identify the quantities of such hazardous waste generated, the constituents thereof which are significant in quantity or in potential harm to human health or the environment, and the disposition of such wastes;

"(2) labeling practices for any containers used for the storage, transport, or disposal of such hazardous waste such as will identify accurately such waste;

"(3) use of appropriate containers for such hazardous waste;

"(4) furnishing of information on the general chemical composition of such hazardous waste to persons transporting, treating, storing, or disposing of such wastes;

"(5) use of a manifest system to assure that all such hazardous waste generated is designated for treatment, storage, or disposal in treatment, storage, or disposal facilities (other than facilities on the premises where the waste is generated) for which a permit has been issued as provided in this subtitle; and

"(6) submission of reports to the Administrator (or the State agency in any case in which such agency carries out an authorized permit program pursuant to this subtitle at such times as the Administrator (or the State agency if appropriate) deems necessary, setting out--

"(A) the quantities of hazardous waste identified or listed under this subtitle that he has generated during a particular time period; and

"(B) the disposition of all hazardous waste reported under subparagraph (A).

APPENDIX B

SUMMARY OF COMMENTS FROM INVITATIONAL WORKSHOPS (TYPE II)

CITIES IN WHICH WORKSHOPS WERE HELD

San Francisco, California	February 3, 1977
Cleveland, Ohio	March 9, 1977
Minneapolis, Minnesota	March 10, 1077
Hartford, Connecticut	April 6, 1977
Atlanta, Georgia	April 8, 1977
Houston, Texas	April 13, 1977
Oklahoma City, Oklahoma	April 27, 1977
Seattle, Washington	May 25-26, 1977
Denver, Colorado	May 26, 1977

Manifest System

The type of information on the manifest and the degree of detail were commented upon by those in attendance at the meeting. There was a widespread difference of opinion as to what should be included in the description. Some of the data listed as important information was: emergency response procedures, generic name of waste, hazard class, quantity, general type of waste, phone number of the generator and transport company, physical state of the waste, chemical composition, and the process from which the waste was derived. Some groups complained that the chemical composition was of little value, since most drivers would not be able to understand it in an emergency. Trade names were also to be avoided for the same reasons.

The proposed format of the manifest drew varied responses. Many suggested that the manifest be incorporated into the DOT bill of lading. This could be done with modifications such as allowing additional room at the bottom of the form, so information could be included that would satisfy ICC/DOT requirements. Several in attendance recommended that a set of data requirements rather than a format be developed, allowing the use of existing shipping papers. Most groups believed that the use of a separate uniform format would be more desirable and would facilitate computerization of the manifest. This uniformity would be important in interstate transport, and it was deemed

necessary to make sure all states use the same manifest format for this reason. The State of Kansas suggested using its manifest as the model for the proposed manifest.

Most groups in attendance felt that the manifest was a tracking tool and should not be used in reporting procedures. Instead, summary reports should be issued to the agency or authority.

The circulation of the manifest was also the subject of discusssion. The majority opinion was that the manifest should follow the waste delivery from generator to transporter to waste management facility. The waste management facility should send a copy of the manifest to the generator and the generator should then report to the state. Differences arose over whether it was necessary for the disposer to report back to the generator.

Questions were raised over what to do in the event that a manifest, for one reason or another, does not accompany a waste shipment. Several groups felt that allowances should be made, such as allowing a second party (transporter or disposer) to have the option of filling out the manifest, as long as the generator has certified the waste shipment. Waste disposers had questions about using transfer points where wastes with the same manifest number may be designated for different destinations. They argued that it could be necessary for a manifest to originate from the transfer point in order to legally ship the waste material.

A plan for developing manifest numbers was proposed. The numbers could be derived by using the prefix of the company's phone number and the area code. A data bank would be established with code numbers assigned to generators, transporters, and disposers.

Reporting and Recordkeeping (250.23)

All groups represented at the meetings felt that periodic reporting by generators and disposers rather than the submittal of manifest copies was the more practical form of regulation. The frequency of reports was a subject of debate. The suggested frequency ranged from bimonthly to annually, with most of those in attendance favoring annual reporting. Those arguing for yearly filing believed that any higher frequency would burden the regulating agency with too much paper-work, causing unacceptable delays. They felt that a yearly report by both generator and disposer would be reasonable and realistic.

A second suggestion was that reporting frequency be based on volume, with those generating or disposing of large quantities having to file more often. Another suggestion involved not requiring generators to report, since their records are open and can readily be inspected. Waste management facilities should be required to report, however, perhaps monthly or quarterly. It was recommended that the periodic report by the generator and disposer include the manifest number, quantity, and the destination of the waste being transported. A set format for reports should be developed by EPA.

There were a number of recommendations made concerning the recordkeeping system. The majority of those present believed that the record should be a copy of the manifest plus any analytical data available on the waste. Other groups felt that

certain data should be required rather than a specific form for recordkeeping. The length of retention of records was the subject of controversy. It was noted that pesticide producers were required to keep records for twenty years, though no one suggested a retention period this long. Several waste disposer facilities felt that six months was long enough, but most groups recommended retention times of from one to three years. Another suggestion was that retention time should coincide with the statute of limitations.

A recommendation was made with respect to small generators. It would allow the transport/waste management facility to prepare manifests and summary reports for regular route customers. This is the same concept as preparing an income tax form for someone else. The report would deal only with waste picked up and delivered to the waste facility.

It was suggested by several groups that regulations make a distinstion between inter- and intrastate transport. This is necessary because federal and state regulations apply intrastate, while only federal rules apply interstate. Another recommendation proposed that the data system utilized should identify the industrial source of the waste on the waste disposer's report. This would help check the operation with the generator's report.

Containers and Lables (250.25 & 250.26)

A number of suggestions were made concerning the information to be placed on the label and the format that should be followed. Most groups felt that DOT requirements should be followed, with some modifications pertaining directly to hazardous wastes. DOT regulations require the generator's name, the type of waste, and the chemical composition of the waste on the label. The manifest number and the environmental or occupational hazards should also be required. Others felt that the labels should be color coded and represent the highest level of hazard.

Many of those in attendance at the meeting felt that placards should follow DOT requirements, with added regulations where necessary. It was suggested that the word "waste" be included somewhere on the placard.. United Nations code numbers could also be used with DOT placards to handle the problem of multiple hazards. Some persons felt that additional information should be placed on the placard, since in the event of an accident, the manifest could be lost and the placard would be the only source of information. One group believed that no additional placarding requirements were needed for hazardous waste transport. Another felt that a limit should be imposed on the number of placards allowed on a vehicle.

Several persons suggested that labeling and placarding system other than DOT should be used for hazardous wastes. The National Fire Protection Association system was the most commonly recommended alternative. Its advantage is that it exhibits the multiple hazard of the material as well as its health effects. A disadvantage is that these labels are not recognized by all fire and emergency response personnel. Another alternative is to develop a classification system based on color or alphabetical designation where each letter or color corresponds to a particular hazard or degree of hazard. Other suggested labeling systems are the ANSI and the Material Safety Data Sheets.

The consensus opinion pertaining to container regulations was to utilize DOT container requirements as long as the wastes being stored met DOT criteria. For those which do not, performance standards must be developed which are adequate to insure proper waste storage. One group felt that container regulations were already too stringent and should not be added to. Several groups also recommended that DOT container reuse standards be modified to allow for more recycling of containers. Another group believed that no containers should be reused under any conditions.

Those participating in the meetings made it clear that they expected regulations to be written that would insure that all vehicles carrying hazardous wastes would be clearly marked as such. Transport trucks should have "Hazardous Waste"

stenciled on the side to warn the public of its contents. Placards should be placed on all waste transport vehicles, whether it is on or off-site.

Several groups felt that hazardous waste destined for on-site disposal not be subject to any special labeling or placarding requirements.

Waste Information

A number of recommendations were made as to what should be included in the waste information category. There was general agreement that it include the chemical constituents and the principal hazards. The important constitutents of a waste are those constituent that in any amount cause contamination of ground water. An atidote to the waste effects could also be included. Several groups complained that it would be difficult to provide the chemical constituents of a waste, since generators often only know the trade names of the raw materials they use and not the chemical formula.

A second point of discussion involved who should be responsible for maintaining this information. The consensus opinion was that the generator should research and supply waste data. This was thought to be the most economical method, since it would be expensive for transporters to analyze each shipment of hazardous waste from their terminal facilities. This information should be required to be provided to transporters and disposers, since in the past generators have developed techniques to protect their own employees and then not passed on this information. Some groups felt that a generator should not be required to do additional testing once a waste has been identified as hazardous. Information kept on file should be able to show why the substance was classified as hazardous.

Many persons at these meetings felt the need for the development of a classification and data retrieval system. A list of hazardous materials could be kept on file in the data bank and would result in less testing. This data would also benefit a small company that does not have the resources to do analyzes on their own waste.

Several individuals suggested using data safety sheets. National Fire Protection Association and Manufacturing Chemists Association have established standard safety sheets for commodities.

Other Coments

The status of recyclable materials was a subject of discussion. Most groups felt that these materials should be exempted from the regulations. Less restriction would have the effect of promoting the reuse of these wastes.

The State of Kansas suggested that before a waste is transported, the generator must fill out a detailed waste disposal request. The information is then used by both the transporter and disposer and parts of it appear on the manifest.

Several groups recommended that emergency response personnel and response manuals be upgraded. Truck drivers, police, and fire departments should be educated in spill response and clean-up methods. The emergency response manuals now in use are too difficult to be understood by first-line emergency units and should be rewritten.

One group wanted to know what the liability would be of the generator who declares a waste non-hazardous based on tests but later events prove it to be hazardous.

APPENDIX C

SUMMARY OF COMMENTS FROM

MEETINGS WITH POTENTIALLY AFFECTED PARTIES

(TYPE III)

The participants at these meetings had a number of suggestions about what sort of information should appear on the manifest. For the most part, the format should follow the presently utilized DOT bill of lading. The information on the bill of lading includes: shipper's name, origin and destination of the material, consignee, pick-up and delivery date, load and unload time, total round trip time, tractor and trailer number, quantity, and the commodity description. Most groups believed that the bill of lading could be adapted to hazardous waste transport with some modifications. A waste description, chemica composition and emergency response information would be necessar additions. DOT suggested that the manifest format be required under its regulations, but leave the development of the system to EPA.

Several companies recommended using manifest systems that they developed themselves. Union Carbide has designed a manife form that is attached to the bill of lading and is used for tracking the waste. The Association of American Railroads has developed a classification system called the Standard Transportation Commodity Code. This is an identification system where each commodity class has a code number. Hazardous wastes are coded 49. With this system and the waybill combined, a workable manifest system has been developed. If some minor additions are made specifically for hazardous wastes, the railro feel it will fulfill all EPA requirements. The National Solid

Waste Management Association is also drafting a model manifest. They feel that the EPA should design a uniform manifest but be flexible in the design to allow for individual state needs.

Most groups were in favor of periodic reporting with EPA enforcement by inspection of records.

Containers and Labels (250.25 & 250.26)

All groups agreed that the placards should be designed to represent that an environmental hazard exists to air, water, or land. The placard should represent the primary hazard plus the additional hazards of the material. The consensus opinion was that DOT regulations should be the basis for placard requirements with some additions and modifications where necessary. These additions should be developed in conjunction with DOT. One transporter was not in favor of the proposed "Environmentally Hazardous" placard. He suggested using the basic DOT placard plus a code indicating emergency response. DOT recommended using the U.N. classification system in addition to its regulations.

Some persons felt that DOT container regulations were not stringent enough to regulate hazardous wastes. Several felt that the DOT regulations are "impact" standards, directed towards safety only during transport. There was also concern that DOT standards were not sufficient for long term storage. Most believe that performance standards should be developed to determine the adequacy of containers.

Other Comments

Union Carbide has developed a system to mark, label, containerize, and handle waste materials that could serve as a model for EPA.

A group of transporters were interested in knowing whether the sludge formed when cleaning out the tanks of the trucks would cause them to be classified as generators.

APPENDIX D

FEDERAL REGISTER

ANPR

Federal Register

Monday, May 2, 1977

Part V

Environmental Protection Agency

OFFICE OF SOLID WASTE

Hazardous Waste Guidelines and Regulations

Advance Notice of Proposed Rulemaking

Section 3002--Standads Applicable to Generators of Hazardous Waste

Section 3002 requires EPA to develop and implement standards applicable to hazardous waste generators. These standards are to establish requirements for: (1) Recordkeeping practices respecting quantities and constituents of wastes generated; (2) labeling and other requirements for containers; (3) identification of chemical composition of wastes; (4) use of a manifest system to control waste movement, and (5) submission of reports. The Agency is considering two approaches to the manifest system which are expected also to satisfy the recordkeeping and reporting requirements. The manifest form would be the same for both options and would require substantial information from hazardous waste generators regarding principal constituents and chemical composition, together with the designation of a permitted treatment, storage or disposal site or facility. The options differ mainly with respect to the system approach used and the reporting requirements.

Option I would require the hazardous waste generator to provide the waste transporter with a manifest for each hazardous waste being shipped. Under this option, hazardous waste generators, transporters, and storage, treatment, and disposal facility operators would be required to retain copies of the manifest for three years before discarding. In this option receivers of the hazardous waste as well as generators would be required to submit a copy of the manifest to the appropriate agency. Receivers of hazardous waste also would be required to return a copy of the manifest to the waste generator.

Option II would require generators to provide transporters with a manifest for each hazardous waste. Hazardous waste receivers would be required to return copies of the manifest to the generator. Generators, transporters, and receivers of hazardous wastes would retain copies of the manifest for three years. In addition, generators would be required to submit quarterly reports to the Agency describing the types, quantities, composition, and disposition of wastes generated during that period.

The Agency is specifically interested in obtaining comments on the two basic options presented. Specially, comment is solicited on the following.

1. Sufficiency of each option to meet recordkeeping and reporting requirements.

2. Other manifest options which might satisfy the purpose and intent of the Act including forms and examples where appropriate.
3. Information needed on the manifest form particularly with regard to level of detail necessary to properly identify and described the waste.
4. Whether the same standards should be applied to generators of all wastes or whether different standards should be developed for different wastes.

With regard to the containers requirements, the Agency believes that the U.S. Department of Transportation requirements (49 CFR 173) and container specifications (49 CFR 178 and 179) offer a substantial base for developing the necessary container and labeling standards. In addition, however, the Agency is considering requirements that hazardous waste containers also carry labels which indicate the chemical composition of the contents, the type(s) of hazard, hazard emergency procedures and, if the container is used to transport the waste, the manifest number.

The Agency is seeking information, comment and data relative to such requirements including specific labeling suggestions and the advantages and alternatives for various labeling requirements. Specific comments are desired on:

1. How to best use the DOT container, labeling, and placarding requirements.
2. Identification of need and specification for other types of containers which may be necessary for contain waste classes.

APPENDIX E

SUMMARY OF ANPR COMMENTS

Manifest Section (250.22)

1. Sufficiency of each option to meet recordkeeping and reporting requirements

The consensus among those responding to this question was that Option II was preferable to Option I because it involved less paperwork. The suggested reporting intervals ranged from monthly to annually, with most groups supporting a monthly or quarterly filing period. There was substantial support for Option I, however, since many felt that summary reporting was too laborious and time-consuming. Several companies thought either option was viable, while a few supported neither since it was felt that the paperwork required for both was too large.

2. Other manifest option which might satify the purpose and intent of the Act including forms and examples where necessary.

A number of groups recommended that the presently utilized DOT bill of lading be required for hazardous waste shipment rather than developing a separate manifest form. The transporters were unanimous in the opinion that DOT regulations should be the basis for any manifest system with minor modifications made specifically for hazardous wastes. A number of waste generators were also in agreement.

Another proposed change in the manifest options involved requiring only the waste disposer to turn in summary reports. Both generators and waste management facilities favored this approach. The State of Washington, Department of Ecology stated that "only notification of waste transport by the generator to an authority is necessary. Treaters and disposers of waste must be required to report..."

Several state groups suggested that a certain amount of flexibility be allowed in the manifest to accommodate state regulatory systems that are currently in use. Several transporters recommended that they not be required to report. The State of Texas Water Quality Board suggested incorporating its "Shipping Control of Industrial Waste in Texas" report into the manifest proposals.

3. Information needed on the manifest form particularly with regard to level of detail necessary to properly identify and describe the waste.

Most of the groups responding agreed that many of the proposed manifests were too detailed for their intended purpose. There was little agreement, however, on what should or should not appear on the manifest. Some felt that the chemical composition should be listed, while others argued that the information would be of little use to drivers and handlers in the event of a spill. Most agreed that emergency response

information and an emergency phone number should be included. There was also general agreement that a hazard classification or a list of the hazardous materials be placed on the manifest.

Several of those responding to this question suggested that DOT regulations governing the description of wastes were sufficient for the proposed manifest. It was also recommended that the DOT hazard classification be included.

Several groups believed that the proposed manifests were not detailed enough in their descriptions and hazard warnings.

The Velsicol Chemical Corporation recommended that the manifest include the chemical components by percentage, hazardous properties, flash point, pH, physical state, specific gravity, and the DOT classification. The Texas Water Quality Board suggested using a system with a detailed description coded according to the system developed in Texas. The State of Washington recommended using its system, and the Association of American Railroads felt the railroad system was adequate.

4. Whether the same standards should be applied to generators of all waste or whether different standards should be developed for different wastes.

About half of those responding to this question believed that the same standards should apply to all generators of waste and to all forms of hazardous waste. An equal number

of groups suggested that standards should vary with the degree of hazard. More dangerous substances should be subjected to standards of greater stringency. Several groups expressed the opinion that less stringent regulations should be enforced upon small generators. The Alabama Power Co. felt that wastes should be exempt from regulation if they are not the result of some manufacturing process.

Container and Labeling Section (250.25 & 250.26)

1. How to best use DOT container, labeling, and placarding requirements.

The consensus opinion was that the DOT requirements are sufficient to cover hazardous waste handling methods and do not need to be supplemented. Most groups felt that wastes should be treated like other hazardous materials and would thus fall under DOT regulations.

A second kind of response suggested that DOT regulations should be used as the basis for handling regulations, but that modifications and supplements may be necessary and should be developed in conjunction with DOT. Several groups suggested using additional labeling systems such as the Minnesota Pollution Control Agency if the need was warranted. Most of those responding with this opinion agreed that any modifications and additions be coordinated with DOT requirements. They also stressed that changes be made only if the changes are not covered by DOT regulations.

2. Identification of need and specification for other types of containers which may be necessary for certain waste classes.

An opinion expressed by many groups was that the DOT requirements for containers are sufficient to cover most

situations involving hazardous wastes. If any further requirements are necessary, the DOT special permits procedure could be used.

A smaller number of groups believed that the DOT requirements need to be supplemented when dealing with hazardous wastes that do not meet DOT criteria. All stressed that these additions should be made in conjunction with DOT.

Several responses involved the Other Regulated Material-Waste (ORM-W) system. Many felt that a classification system should be developed based on this since it includes provisions for environmental and health effects.

Other Comments

A matter of concern to several companies was the status of recyclable wastes. One company felt that recyclables should not be considered wastes. A governmental group believed such materials must be regulated under the manifest and reporting systems or else many could become "lost" and unaccounted for.

A number of groups had opinions on problems peculiar to their situation. The American Petroleum Institute suggested that facilities with less than a 2,000 gallon waste oil storage tank capacity not be considered generators. The Cad Nickel Plating Co. felt that regulations on the electroplating industry are unnecessary in California because state regulations are enforced.

State Agencies had a number of individual concerns. Some of these were: the exemption of households from waste regulations, the licensing of generators, the addition of carcinogens to the DOT hazardous materials list, special reporting practices for infrequent and periodic shippers, and a new definition of waste to include all materials no longer useful.

Waste generators made a number of comments not pertaining directly to the questions asked in the Federal Register. Celanese suggested that generators be required to file with an authority a one-time detailed description of a particular

waste. This information should not have to be on every manifest. The Ford Motor Co. believed that generators should furnish waste information to the receiver through contracts. The National Association of Metal Finishers recommended that the public be educated to the fact that disposal sites are safe and need not be a detriment to a community. Rollins Environmental Services felt the agency should assign identification numbers for waste streams. The Tennessee Eastman Co. suggested that in instances where a waste is generated, transported, and disposed of by the same company, that the waste not be subject to the manifest system even if limited travel is required on public roads.

APPENDIX F

SUMMARY OF COMMENTS FROM

EXTERNAL REVIEWERS

To assist in the development of standards for generators of hazardous waste, comments were required from external reviewers representing the regulated industries, Federal and State regulatory agencies and other groups, such as environmental groups. These comments have been considered and integrated into the regulations.

Manifest - Section 250.23 (11/30/77 Draft)

The external reviewers made a number of recommendations about the manifest system. Several recommendations concerned coordination with existing State and DOT regulations. These reviewers felt that felxibility in the manifest sytem was important so that it could be incorporated into present State and DOT systems. A second recommendation was that a copy of the manifest be sent to the regulatory authority by both the generator and TSDF to better insure the proper disposition of the hazardous waste and allow more immediate action if discrepancie occurred.

A number of reviewers commented on the problems caused by transfer stations; they suggested that the regulations be changed in order to accommodate these operations. Transfer stations may alter waste received, extract certain components, and then send the remainder on to other facilities. There would be difficulty in trying to keep a manifest with these wastes. The regulation solves this by requiring a new manifest if the chemical or physical properties of the waste are altered.

DOT regulations will be used whenever possible, for example, the labeling and container standards will use DOT standards. The need for flexibility in the manifest will be met requiring certain information on the manifest rather than developing a specific form. A manifest may remain with a waste so long as the waste has the same chemical and physical properties. If these properties are changed by storage or treatment before the waste reaches its final destination, the waste would require a new manifest form.

Transportation transfer points also could cause confusion in the manifest process. It would be difficult to keep a manifest with a shipment that was transported to a number of sites before final disposition. Rather than requiring a manifest to remain with a waste, it was recommended that the generator give one copy of the manifest to the transporter and send two copies to the facility of final disposition; the facility would then return one copy to the generator. Mechanisms should also be provided for exceptions that do not fit the manifest system such as pipeline transfers. One reviewers suggested that the manifest indicate the type of treatment the waste shipment should undergo.

Some comments were directed at the structure or wording of the actual regulations. Several reviewers felt that paragraphs 250.24(a) and (b) should be written more clearly. Another pointed out that the instructions in the regulations did not match the example manifest in some instances. The emergency

response phone number caused some confusion. Some were unsure whether twenty-four hour vigilance was necessary. One reviewer was confused about the meaning of "special handling instruction." A number of persons recommended that the paragraphs in the manifest section which dealt with the transport and TSDF be deleted and added to sections dealing with these operations specifically. One reviewer was concerned with the proper identification procedures when a waste shipment contains more than one waste. Concern was also voiced that subpart A does not distinguish between "Shipping Description" and "Hazard Class."

Reporting- Section 250.25 (9/14/77 Draft)

A large number of reviewers were concerned with the designation of the authority which should receive the generator's report. Most felt that provisions should be made in the regulations for a State agency to receive the report if the program has been authorized by EPA. Presently, the Regional Administrator is the only one officially designated to receive the report. Reviewers also felt that a report should not be sent both to the State and Region. These comments were incorporate into the regulation.

Section 250.25(b)(6) caused confusion. Several reviewers believed that the reporting requirements for on-site generators needed to be clarified. The term "temporary pre-transportation storage" needs defining and a reason stated for the exception

given in this paragraph (6). Also, the paragraph referring to TSDF requirements should be deleted from this section and placed in a more appropriate section.

A number of reviewers proposed changes in the reporting frequency. One groups believed that annual reports would be more suitable, citing greater expense and more paper work with quarterly reporting. Several reviewers recommended a monthly report. They felt this would enable the authorized agency to keep more current data, respond faster to possible problems, and match-up reports with greater ease while placing little additional burden on the generator. The regulations adopted quarterly reports to keep waste data current without becoming burdensome.

A question was raised concerning the amount of time allowed after the closing date to send in the required quarterly reports. Several reviewers suggested that a time limit of 30 to 45 days was necessary to compile an accurate report. This would allow time for transactions late in the reporting period to be accounted for. Other recommendations included placing the general chemical composition on the report and requiring industries to retain a copy of their report in case the authorized authority should misplace it.

Generators Section 250.22(9/14/77 Draft)

There was widespread disagreement among the reviewers over the generator classifications issue. Several groups recommended that the classification be abolished entirely, thus requiring

all hazardous waste generators to be subject to the regulations. They felt that a generation rate was an inadequate demarcation, since it established no levels for toxicity or concentration.

A number of reviewers favored an exemption for generator classification and proposed several different methods for categorizing generators. One group suggested using the system developed by the State of Texas, which divides industries into very hazardous and less hazardous waste classes. The companies who are in the less hazardous class and employ less than fifty persons would be excused from compliance. Another recommended method was to base the generator definition on "total toxicity." This would represent a combination of toxicity and quantity and would eliminate the problem of highly concentrated toxins escaping regulation. In addition, comprehensive lists could be developed that would exempt wastes which are below quantity and concentration criteria developed in Section 3001.

Several groups favored establishing a threshold quantity as the definition of generator. One reviewer suggested that each waste stream be evaluated rather than combining all wastes generated at a plant. Another recommended approach was to exempt small quantities or "batches" of waste and not exempt the generating facility itself.

Comments were also directed at the portions of the regulations that deal with generator classification. Section 250.22 (Generators) was severely criticized for encouraging

the improper disposal of hazardous wastes. Many suggested that this clause be omitted in future regulations. Criticism was also voiced concerning Appendix B, particularly the third paragraph. These guidelines need to be developed that take into account which generators are likely to follow them. These comments led to the redefinition of "generator" and the elimination of Appendix B. (This whole Section, originally 250.22, was later incorporated into Section 250.20.)

Definitions Section 250.21 (9/14/77 Draft)

The definition of "on-site" drew a great deal of comment from the outside reviewers, who believe that waste generated and treated at a facility crossed by public rights-of-way should be considered "on-site" disposal. This would allow the facility to comply with fewer of the regulations of Subpart B. The Union Carbide plant in Charleston, West Virginia was used as an example. The facilities are located on both sides of the Kennawha River, and under present regulations a waste shipment transported across the river would have to be manifested, reported, etc. It was suggested that the definition of "on-site" has been redefined not to exempt premises crossed by a public right-of-way.

Several groups recommended redefining household refuse to include farm, commercial, and retail businesses. Some also felt that gasoline stations with a waste oil capacity of less than 2,000 gallons should also be excluded. The definition of

general chemical composition drew varied comment. The definition needed greater clarification of the amount of detail required for constituents. The majority felt that the less testing required, the better. Some of these comments were incorporated. Chemical composition was changed to chemical and physical properties.

Containers and Labels - Sections 250.27, 250.28 (9/14/77 Draft)

Most reviewers commenting on this subject believed that the DOT regulations for containers were sufficient and that new standards could be developed jointly by EPA and DOT if needed. One group criticized DOT standards for containers on the grounds that they were designed to safeguard materials only during transport and not for long periods of storage. Another reviewer felt container regulations under DOT were too confusing and should be substituted. Several person recommended that container specifications be required for the railroads also. EPA agrees that the DOT regulations are generally suitable, will adopt DOT standards, and will recommend container standards only as necessary.

The labeling requirements under Subpart B received much criticism. A number of reviewers suggested that the EPA label be used only when the DOT label was not applicable, instead of allowing either one to be used. One group felt that if the DOT poison label were used, there might be confusion as to whether the hazard was specific to DOT criteria or simply a

general environmental hazard. They suggested using ANSI as well as DOT labels. Another reviewer pointed out that using an EPA label and/or a DOT label may violate DOT transportation regulations. Several persons remarked that DOT labels were designed primarily for transportation purposes and may not be sufficient for disposal or long-term storage. All reviewers agreed that DOT and EPA label regulations should be consistent and that any new labels be developed in coordination. The regulation adopt DOT labeling requirements 40 CFR 100-189.

Other Comments

There were a number of comments concerning the status of resource recovery. Several reviewers believed that the definition of waste as "discarded materials" exempts those substances destined for resource recovery from Subtitle C regulations. Other groups opposed this view, stating that in order to have control over all hazardous waste materials, those designated for resource recovery should also be regulated. One reviewer suggested exempting particular phases of resource recovery, such as fuel recovery, from compliance with regulations.

The recordkeeping section caused a good deal of confusion. Some reviewers suggested rewriting the recordkeeping regulations for greater precision and clarity.

Other Reviewers

The small generator issue drew varied responses from the reviewers. Most opposed basing the definition on a quantity limit. They felt that the problem may not be the major dis-

charges but the smaller companies, which may discharge toxic waste without treatment. One group suggested exempting certain less toxic classes of waste. Regulation would have to include genetically active wastes, however. Other reviewers recommended basing the definition on volume and type of waste or on a combination of toxicity, concentration, and quantity. One reviewer suggested a quantity limit which excluded the lower 10% of all generators.

A number of comments were directed at the small generator guidelines presently in the regulations. It was proposed that small generators sending waste to a permitted facility should not have to report or keep records. Several groups also suggested deleting section 250.22(b) in the 9/14/77 draft (pertaining to small generator exclusion guidelines) because it discouraged proper disposal of waste. Another reviewer felt that Appendix B in the 9/14/77 draft might place small generators in a legally questionable position and also should be deleted. A suggestion was made to establish penalities for failure of small generators to triple rinse containers.

Several recommended changes were proposed with respect to the manifest system. One reviewer believed that a uniform manifest should be developed and should be required to be utilized by all States. This would eliminate confusion during interstate shipment. Another person felt that the manifest was unduly burdensome to smaller companies. He pointed out that many generators sign their wastes over to collectors "at the door" and should not have to bear responsibility for errors

made by the transporter or TSDF. It was also recommended that the transporter fill out his portion of the manifest before giving the generator his copy. This would insure tighter control over the system.

Several reviewers made comments pertaining to the reporting system. One group suggested dividing generators into two groups, large generators and moderate-size generators. Large generators would consist of the largest 10%, which create 80-90% of all hazardous wastes. Those in the large generator category would be required to report quarterly. Generators in the moderate size category would report yearly. This method would reduce paperwork significantly and still cover the vast majority of waste. As an example, EPA air emission regulations divide point sources into large and small classes and have different requirements for each. Another reviewers suggested that the report be semi-annual rather than quarterly. A recommendation was also made to require generators, transporters, and TSDF's to report to the Region with authority over their operations.

One reviewer made a number of suggestions to improve the labeling requirements. This group felt that the National Fire Protection Association labeling system should be substituted for the DOT system. It was pointed out that DOT only reports the most severe hazard while the NFPA identifies health, flammability, and reactivity hazards through diagrams. The reviewers believed it to be a much more complete system.

APPENDIX G

STANDARD PRODUCTION RATE SUMMARY

(250.29)

The use of a Standard Production Rate (SPR) to define generators was necessitated by several circumstances. Congress has mandated the EPA to develop methods and allocate resources to protect the environment from contamination by hazardous wastes. EPA faces the task of using available funds to protect the environment to the greatest extent possible.

It becomes clear that the real danger to the environment is not posed by the many small generators of hazardous waste, but by those few who produce large volumes. The large amount of time and money necessary to regulate small generators is questionable, in terms of the additional protection of the environment that would result.

The problem is to find a production rate cut-off which would exclude the small generators whose waste has an insignificant effect on the environment, while concentrating on the large producers who have proven so destructive in the past. It is a matter of balancing the cost of enforcement versus protection against damage to the environment, trying to minimize the former and maximize the latter.

In order to determine an appropriate SPR, it was necessary to gather data demonstrating the characteristics of the generator population. Data from the Environmental Impact Statement and data collected from five state hazardous waste surveys were utilized in the analysis. Methods of this analysis are detailed in Appendix I. The analysis indicated that there was a range of production rates that excluded the most significant number

of generators compared to the possible damage to the environment that could result. The range was from 75 lbs./month to 300 lbs./month.

The Office of Enforcement and OSW further restricted the range of the SPR. Both felt that the SPR must be much less than one drum (450 lbs.). The reasoning was that enforcement of the SPR would be easier if determination of generator status could be made simply by noting whether a drum of waste was on the loading dock.

It was decided that a one-half drum quantity (220 lbs.) would satisfy both OE and OSW criteria. This also worked out to 100 kgs. in the metric system. It was decided to test this value for cost reduction (percent of generators excluded) and possible environmental damage (amount of waste excluded). According to the EIS data, 40%-60% of the generators would be excluded from regulation while only .3-.4% of the hazardous waste escapes control. In the five state data, 11.3% of the generators were excluded while .0005% of the waste was excluded. These figures satisfy our desire to reduce costs significantly yet maintain control of the hazardous waste.

There is still the question of whether the unregulated disposal of these small amounts of hazardous waste could cause damage to the environment. The exempted waste would be required to be disposed in a Subtitle D sanitary landfill. It was decided to do a study of past incidents of environmental damage at sanitary landfills to see what factors contributed to the contamination. This analysis is detailed in Appendix H.

It was found that two factors were primarily responsible for past damage incidents. The first involves the quantity of hazardous waste which was dumped at the site. There were few incidents in which the quantity was documented where less than 1,000 lbs. of hazardous waste were involved. Most damages were caused by quantities in the thousands of pounds. These are well above the anticipated 220 lbs./month limit to be proposed by Section 3002.

The second important factor was related to the construction of the landfill. At the time these damage incidents took place, no regulations were in effect regarding construction and safety considerations for landfills. Environmental damage occurred because obvious errors in location, construction, and operation took place. Subtitle D of RCRA is currently writing regulations for sanitary landfills. All hazardous wastes excluded by the SPR will have to be disposed of at a Subtitle D landfill (or go to a Subtitle C facility.) In the present draft, Subtitle D regulations require damage control methods that would have prevented or reduced the impact of every case of environmental damage in the incidents outlined in Appendix H. The specific damage control methods are expanded on in Appendix J.

It was stated in the previous paragraph that Subtitle D regulations would have prevented all of the damage incidents investigated or reduced the impact. It was questioned whether a facility not designed specifically for hazardous wastes should be allowed to handle them, even in small amounts. A

comparison of a Subtitle D landfill and a Subtitle C facility, which is designed specifically to accommodate hazardous wastes was made. The study revealed that in every important facet of location, construction, and operation, the Subtitle D standard was as strict as the corresponding Subtitle C requirements (Appendix J).

From the previous discussion, it is clear that there is reason to institute the SPR, in terms of reduction of cost and effort spent in enforcing the regulations. It has also been shown that protection of the environment is not compromised by exempting smaller generators. Thus the Standard Production Rate of 220 lbs./month (100 kg.) is a reasonable and viable proposal.

APPENDIX H

SUMMARY OF DAMAGE REPORT STUDY

A study was done of hazardous waste disposal incidents in several states (Mass., N.Y., N.H., Conn., R.I., Penn., Md., Va., N.C., S.C., Ga., Fla., Tenn., Ala., Miss., Kentucky and W. Va.). The purpose was to find out what bearing these incidents had with respect to the proposed method of defining a generator using the Standard Production Rate (SPR).

If the SPR definition is used, a quantity of hazardous waste will be released from regulatory control. Some of the waste may be taken to a Subtitle C facility (specifically for hazardous wastes). The remainder of the waste will be required to be disposed of at Subtitle D facilities (sanitary landfills).

A concern of many persons is that the Subtitle D facility may not be adequately constructed to accept even these limited quantities of hazardous waste. Sanitary landfills have, in past incidents, caused damage to the environment because hazardous wastes were indiscriminately dumped into them. This paper will show that past incidents of environmental contamination and damage at sanitary landfills would have been prevented had the presently worded Section 3002 and Subtitle D landfill regulations been in effect.

There are two aspects of these incident reports which we are particularly interested in. The first is the quantity of hazardous waste which was involved in each incident. Section 3002 regulations will limit the use of a Subtitle D site (sanitary landfill) to those generators that generate and dispose of less than 100 kg/month. The second important factor concerns the method by which the environmental contamination

or damage took place (i.e.: leachate entering groundwater, explosion, production of toxic gases, etc.). Subtitle D regulations have specific requirements to control such problems.

According to the incident reports surveyed, the quantity of waste involved in every incident in which quantity was documented greatly exceeded the 100 kg/month limit that would be imposed by Section 3002 regulations. This includes open dumping incidents as well as accidents occurring at sanitary landfills. The smallest documented amount which was involved in an incident was several drums (1000 lbs.) of a flammable waste which exploded at a landfill in New Jersey. It is evident from these reports that limiting the quantities of hazardous waste that enter a sanitary landfill would greatly reduce contamination and damage incidents.

It is also clear from reviewing the damage reports that the mechanism of environmental damage, with respect to the landfill, is generally limited to five pathways: groundwater contamination, leachate infiltration, surface water runoff, explosions and fires, and the production of toxic gases. All of these possible dangers are dealt with in the Subtitle D disposal facilities criteria.

Subtitle D requires that contamination of ground water be controlled by several methods. These include: a hydrogeologically sound location, an impermeable liner, a proper distance between the water table and landfill bottom, and a monitoring system. Surface water contamination is limited by diverting and/or collecting runoff waters. Damage by leachate infiltration will be controlled by leachate collection methods. Toxic gases, ex-

plosive gases, and fires will be minimized by periodically covering active sites with dirt. A more detailed analysis of Subtitle D landfill regulations is found in Appendix J of the background document.

We have shown that in all the incident reports surveyed, environmental damage and contamination would have been eliminated if the Section 3002 and Subtitle D regulations had been in force. It can further be concluded that because of the safeguards provided by these regulations, it would be safe to dispose of limited quantities of hazardous waste at Subtitle D facilities.

1. a. Northeast Bronx, N.Y.
   b. private landfill
   c. An organic solvent was dumped at a landfill, causing bad odors to emanate from the area.

2. a. Granby, N.Y.
   b. land disposal
   c. 55 gals, drums of liquid sludges were stockpiled at a site. Subsequent leakage from the drums caused contamination of nearby streams.

3. a. New York City
   b. private dump
   c. Sludge containing chromium and zinc was disposed in a swampy area, resulting in contamination of the groundwater.

4. a. Mamaroneck Village, N.Y.
   b. surface dumping
   c. An exterminating truck filled with a low-concentrate solution of the pesticide Aldrite dumped 50 gals of the liquid into a storm sewer. This resulted in contamination of a nearby creek.

5. a. Islip, N.Y.
   b. Sanitary landfill
   c. Industrial wastes containing bicarbonate, HCT, CI, Fe, Mn were deposited in a sanitary landfill, causing contamination of groundwater.

6. a. Middleport, N.Y.
   b. land disposal
   c. Land disposal of pesticides on company property caused contamination of groundwater and surface water.

7. a. New York City
   b. surface dump
   c. A small refiner dumped wastes containing CuSo4 and NiSo4 at the back of its property. This resulted in pollution of groundwater.

8. a. West Valley, N.Y.
   b. Radioactive waste burial facility
   c. Radioactive wastes were buried in capped trenches which allowed water to infiltrate to form leachate. This leachate seeped into the soil causing contamination of ground water.

9. a. Babylon, N.Y.
   b. landfill
   c. The Babylon town landfill has 2.3 million cubic yards of garbage deposited on 25 acres of land. Since the bottom of the landfill is below the water table, leachate has entered the aquifer, causing trace amounts of arsenic, copper, lead sinc, to occur.

10. a. Foundry Cove, N.Y. - Cold Springs
    b. land dump
    c. A plant making nickel - cadmium batteries dumped alkaline wastes at the edge of a marsh that drained into the Hudson River. Contamination of the Hudson resulted.

11. a. Olean, N.Y.
    b. surface dumping
    c. A fertilizer company spilled and dumped numerous accumulations of nitrogenous wastes. These wastes were washed into the Allegheny River, causing major fish kills. Groundwater contamination was also noted.

12. a. Rensselaer, N.Y.
    b. industrial spills
    c. Waste oil from an underground tank seeped into the ground water and was subsequently transported by streams into the Hudson River.

13. a. Bergen, N.J.
    b. surface dumping
    c. An abandoned manufacturing plant used a nearby site for surface dumping of mercury wastes.

14. a. Cape May, N.J.
    b. Landfill
    c. Oil and petrochemicals spilled at a landfill site caused contamination of a nearby creek and lake. This involved 30 truckloads of waste, about 150,000 lbs.

15. a. Newark, N.J.
    b. landfill
    c. Oils and chemicals dumped at a landfill caused contamination of coastal waters. This involved about 500,000 gals.

16. a. Mantua, N.J.
    b. landfill
    c. Leachates from industrial waste deposited at a landfill caused contamination of groundwater and a creek.

17. a. Atlantic City, N.J.
    b. landfill
    c. The city landfill caused high concentrations of Fe and Pb.

18. a. South Jersey
    b. landfill
    c. Chemical wastes deposited in a company-owned landfill resulted in the contamination of nearby drinking wells.

19. a. Jamesburg, N.J.
    b. landfill
    c. Leachate from wastes disposed in a landfill caused contamination of ground water and public wells.

20. a. Deepwater, N.J.
    b. surface disposal
    c. Leachate from waste sludge accumulated over 50 yrs. has resulted in contamination over a 40 acre area.

21. a. Pine Beach, N.J.
    b. landfill
    c. 15,000 drums of hazardous waste was deposited in a small landfill in the early 60's. Ten years later, leakage from the site caused public concern.

22. a. Lebanon, Pa.
    b. landfill
    c. Untreated leachate from refuse has caused damage to ground water

23. a. Middletown, N.J.
    b. landfill
    c. 60,000 gals of liquid chemical wastes were spilled at the landfill and contaminated nearby streams.

24. a. Baltimore, Md.
    b. landfill
    c. 2,000 gals of liquid sodium sulphide disposed of in a landfill caused the release of noxious gases.

25. a. Allegheny Co, Pa.
    b. land disposal
    c. 400 tons of a pesticide waste were disposed on a site in the town of Hamilton. A bull-dozer operator became sick and leakage to groundwater has occurred.

26. a. Maxataway, Pa.
    b. land disposal-Quarry
    c. 55-gal. drums of paint solvents were disposed of in a quarry. Contamination of several private wells occurred.

27. a. East Cocolico, Pa.
    b. landfill
    c. 55 gallon drums containing nickel and beryllium wastes caused damage to nearby wells and springs.

28. a. Sandy Lake, Pa.
    b. land dumping-fill
    c. 30,000 gallons of alkaline wastes were dumped in a 3 acre area of a swamp. A large fish kill occurred in a nearby river.

29. a. Springfield, Pa.
    b. landfill
    c. Tank-car quantities of waste were deposited at a landfill, resulting in an explosion and fires that burned out of control for several days.

30. a. Ambler Twp., Pa.
    b. land dumping
    c. 2 million cubic yards of asbestos were deposited in several open piles, resulting in contamination of nearby land areas and degradation of a creek.

31. a. Rivera Beach
    b. landfill
    c. 3,000 gals of sodium sulfide was deposited at a landfill resulting in the formation of toxic gases and the disabling of a truck driver and five other man.

32. a. Monroeville, Pa.
    b. landfill
    c. 50,000 gals per day of leachate from the landfill contaminated groundwater and a nearby creek.

33. a. Kiskiminetas, Pa.
    b. dump pile
    c. 463 tons of acid per day were leached from mine tailings. Contamination of the Kiskiminetas River occurred.

34. a. Robinson, Pa.
    b. land dump
    c. 17 tons of sulphuric acid is leached daily from a pile of waste coal debris. This leachate contaminates nearby streams and rivers.

35. a. North Cordurus, Pa.
    b. landfill
    c. Compaction of 1300 lbs of lye waste caused personal injury to persons at the landfill.

36. a. Solon, Me.
    b. Dump
    c. Twenty cases of pesticide disposed at the dump have a potential for contaminating groundwater.

37. a. Bowdin, N.C.
    b. improper disposal
    c. 8 jugs of pesticide caused a major fish kill in the river along which they were deposited.

38. a. Toone, Tenn.
    b. land disposal
    c. Steel drums of toxic wastes were buried in lined trenches. Leaks in the drums have allowed waste to escape to the subsurface environment.

39. a. Dover, N.J.
    b. land storage
    c. Drums of various petrochemicals stored on a farm leaked and caused damage to an aquifer and creek. This involved 6,000 drums.

40. a. Pennsville, N.J.
    b. lagoons and landfills
    c. Disposal of metal wastes in an unlined landfill caused contamination of the groundwater in the area.

41. a. Bridgewater, N.J.
    b. subsurface disposal
    c. Subsurface disposal of volatile organic wastes caused pollution in a stream and seewpage into basements.

42. a. Atlantic Co., N.J.
    b. landfill
    c. Lead wastes deposited at a landfill resulted in the leaching of chemicals into the groundwater.

43. a. Middlesex, N.J.
    b. landfill
    c. Fires and explosions from known sources caused a fatality at this landfill. The source of the explosion was several drums of hazardous waste.

44. a. California
    b. industrial waste disposal
    c. Poisonous fumes from alkyl lead wastes caused illness to workers in the disposal plant.

45. a. Oregon
    b. disposal company - improper dumping
    c. A disposal company improperly disposed of hazardous waste by dropping several drums off at a local dump. The drums were later unearthed by a flood and began contaminating the groundwater and emitting toxic gases.

46. a. Perham, Minnesota
    b. burial of wastes
    c. Arsenic wastes buried 30 yrs. ago contaminated drinking water and caused several persons to be hospitalized.

47. a. Los Angeles, Cal.
    b. sanitary landfill
    c. cyanide and acid wastes were mixed together forming toxic hydrogen cyanide gas. This involved 2,000 gals of cyanide waste.

48. a.
    b. excavation
    c. Mixture of aluminum sulfate with sulfide wastes resulted in the production of H_2S gas and the death of one person.

49. a. Dundalk, Md.
    b. sanitary landfill
    c. Mixture of sulfides and organic materials caused the production of H_2S gas and resulted in the hospitalization of several persons. This involved a 2,000 gal-load.

50. a. Southern California
    b. land disposal site
    c. Unloading of waste acid into a bottomless, open tank resulted in the production of NO_2 and the evacuation of nearby areas.

51. a. Contra Costa, Calif.
    b. dump
    c. Drums of solvents reacted with mineral acids which were released by leaky containers. Since no cover was applied that day, a chemical fire resulted that dispersed beryllium into the air.

52. a. Riverside Co., Calif.
    b. dump
    c. Several drums of waste were improperly deposited at a dump. Later, during a flood the drums were unearthered, ruptured, and washed downstream. HCl gas was released.

53. a. California
    b. disposal site
    c. Dichromate salts were dumped in a pit with pesticides. The dichromate oxidized the pesticides and caused fires to ignite.

54. a. De Quincy, Louisiana
    b. disposal site
    c. A company is storing hazardous wastes at an unsuitable site. Leakage from the site is causing damage to nearby vegetation and potential damage to ground water.

55. a. Pience Co., Wash - 1971
    b. open dump
    c. Hazardous pesticide chemicals were deposited in an open dump. The material was subsequently transported elsewhere.

56. a. Steven Co., Wash.
    b. land dumping
    c. Radioactive wastes from an old uranium mine were dumped land exposed on the ground, subject to wind and water erosion.

57. a. Kitsap Co., Wash.
b. dump
c. A high explosive was washed out of shells by the Navy and resulting wash was sent to a dump. Hazardous concentrations were found in the groundwaters.

58. a. Great Britain
b. land disposal
c. A company bought a tract of land to store wastes, sludges, and containers on. Drainage from the site affected nearby streams and ponds, killing livestalk.

59. a. Great Britain
b. dump
c. Run-off from an industrial waste dump contaminated drinking water for a community.

60. a. Colorado - 1954
b. industrial waste pit
c. An industrial waste pit caused contamination of groundwater, affecting plants in the area.

61. a. Connecticut
b. land dumping
c. Public school wells were contaminated due to surface dumping of industrial wastes.

62. a. Conn.
b. land disposal
c. Byproducts from manufacturing of antibiotics were disposed of in an old sand pit and contaminated the groundwater.

63. a. Conn.
b. land dumping
c. Waste solvents were dumped by a company onto neighboring industrial land, polluting the ground water.

64. a. Delaware
b. landfill
c. Leachate from city landfill contaminated groundwater and aquifer with high metal compounds.

65. a. Delaware
b. dump
c. Leachate from abandoned municipal and industrial dump has affected groundwater and drinking water.

66. a. New Jersey
b. land disposal
c. Stored sludge is leaking organic chemicals into the local aquifer recharge area.

67. a. New York
b. land disposal
c. Chromium was leached from plating waste deposited on the land surface

68. a. New York
b. land dump
c. Leachate from film - manufacturing wastes dumped into a peat swamp have affected the groundwater.

69. a. New York
b. sanitary landfill
c. Leachate from liquid and solid waste has degraded ground water in the shallowest aquifer underneath.

70. a. Pennsylvania
b. industrial dump
c. Heavy metals were leached from a slag pile and infiltrated to the water table.

71. a. Saco, Me.
b. open dump
c. Large quantities of sludge from a treatment plant were deposited in an open dump. The groundwater supply nearby was contaminated by leachate from the waste and resulted in high levels of Fe and Mn.

72. a. Solon, Me.
b. landfill
c. 20 cases of a pesticide were dumped at a landfill, resulting in contamination of surrounding soil and a nearby aquifer.

73. a. Ashland, N.H.
b. landfill
c. Several barrels of dyes deposited in a landfill began to leak and caused contamination of a nearby aquifer.

74. a. Hudson, N.H.
b. surficial dumping
c. Surface dumping of industrail wastes in drums caused the contamination of wells used for drinking water.

75. a. Coventry, R.I.
    b. surface dump
    c. Open dumping of toxic and explosive wastes at a pig farm resulted in an explosion and possible damage to the water table.

76. a. Southern, R.I.
    b. dump
    c. An unspecified leachate from a dump contaminated a portion of an aquifer near some public wells.

77. a. Ledyard, Conn.
    b. land disposal
    c. Buried drums containing styrene contaminated six private wells.

78. a. Durham, Conn.
    b. surface disposal
    c. Two small manufacturing companies deposited solvent wastes in a surface dump, resulting in public wells being contaminated.

79. a. Wolcott, Conn.
    b. surface dumping
    c. A tool company dumped oils and organic solvents in the backyard of the business establishment. Private wells and wells of adjacent businesses were contaminated.

80. a. Milford, Conn.
    b. landfill
    c. Flyash was deposited in a landfill, causing contamination of groundwater.

81. a. Windsor, Conn.
    b. landfill
    c. 55 gallon drums of chromic acid dumped in a landfill caused contamination of nearby streams.

82. a. Olean Co.
    b. surface dumping
    c. Chromium leached from plating wastes discarded on the surface resulted in high levels of Cr in nearby wells.

APPENDIX I

SUMMARY OF GENERATOR DATA

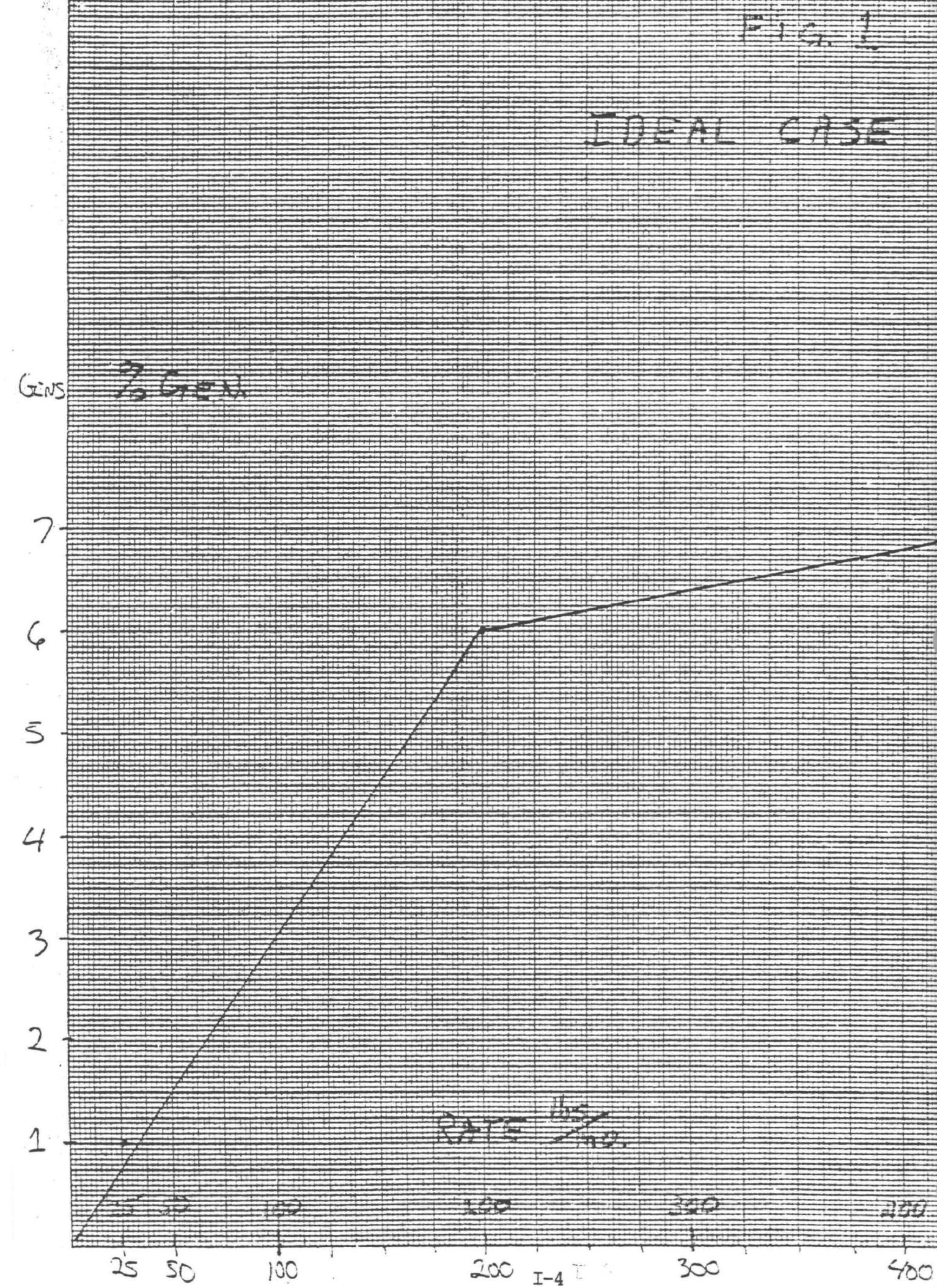
Ideal Case

Study of hazardous waste data from a number of sources reveals that a graph of number of generators versus the rate at which they produce in lbs./month has a convex shape. This shape can be approximated by two straight lines; one occupies the lower intervals and has a large slope; the second line is in the larger intervals and has a much smaller slope (fig. 1).

These shapes indicate that for small generation rates, we have large numbers of generators. For larger generation rates, fewer generators are found. At a certain rate, a noticeable break occurs. To the left of this rate, a large number of generators are excluded for each additional increment of rate. To the right, fewer generators are excluded per added increment. In choosing a Standard Production Rate, it is desirable to exclude the most significant number of generators per added increment of rate. Using this criterion, the SPR should be chosen at the rate where the break in the lines occurs.

FIG. 1

IDEAL CASE



SUMMARY OF EIS DATA

It was necessary to convert the raw EIS data into generator and hazardous waste statistics. This was done by first choosing six rate intervals: 100, 200, 400, 800, 1200, 1600. These intervals are in lbs./month. For each SIC value, the calculated generation factor (table 1) was divided into the rate interval being studied. This value revealed the number of employees that a company at this rate interval would employ. By looking at table 2, it was possible to determine how many companies employed this number of persons and produced at this SIC. This was done for each SIC category for each rate interval. The total number of companies that fell into each rate interval, for all SICs, was divided by the total number of generators surveyed and multiplied by 100 to obtain a percentage. This was plotted versus rate interval on a graph (fig. 2). The hazardous waste curve was determined by multiplying the number of generators falling into each rate interval by the value of the particular interval. This was plotted on the same graph. An example using an interval of 100 and an SIC of 20 is shown below.

SIC = 20 Rate Interval = 100

0.544 (rate interval of 100 in metric tons per year)	+	0.1467 (generation factor from table 1)	=	3.7 (No. of employees employed by gens. producing at this interval.)

About four employees are employed by generators producing at 100 lbs./month. Looking at table 2 for this SIC, it can by seen that 8,492 companies employ this number of persons and thus produce at 100 lbs./month. This procedure is continued

for all the other SIC categories surveyed. The total number of generators is added and this represents the total number of generators, in all SIC categories, that produce at 100 lbs./month.

To obtain the hazardous waste value at 100 lbs./month, the total number of generators for all SIC categories is multiplied by 100 lbs(.544 metric tons). This is then surveyed and multiplied by 100 to obtain a percent value.

126,012 (Total number of gens. in SIC 20-39 producing 100 lbs./month) X .544 metric tons/yr.(100 lbs./mo.)=68,550 m. tons /YR

68,550 m. tons/yr. ÷ 43.4×10^6 metric tons/yr (Total amount of waste surveyed) $= 1.58 \times 10^{-3}$

2×10^{-3}

$2 \times 10^{-3} \times 100 = .2\%$

.2% of the hazardous waste is produced by generators who produce at a rate of 100 lbs./month.

The graph of the generator and hazardous waste data from the EIS can be seen in figure 2. The hazardous waste data is multiplied by a factor 10^{-1}. It can be seen that the generator curve has a large slope in the early rate intervals and then rapidly flattens out between 100 and 400. The data continues to flatten after 400, becoming very nearly flat in the intervals from 600-800.

The generator curve in fig 2 is a realistic approximation of the ideal case. The EIS data does not have a definite break point as in the ideal case. Since it is raw data, such a pronounced break would not be expected. However, a range of values

TABLE I

GENERATION FACTORS FOR THE CALCULATION OF ESTIMATED QUANTITIES OF HAZARDOUS WASTE GENERATED BY MANUFACTURING INDUSTRIES BASED ON EMPLOYMENT

Standard Industrial Classification	Calculated Generation Factor	Comparison Generation Factor*
20 Food and kindred products		
Mean value	0.1467	
High value	0.3704	0.1083
Low value	0.0237	0.0993
22 Textile mill products		
Mean value	0.4635	
High value	1.2150	(SIC 22 & 23 =0.4613)
Low value	0.0366	
23 Apparel and other textile products		
Mean value	0.1133	
High value		
Low value		
24 Lumber and wood products		
Mean value	1.1520	
High value	1.4900*	1.4900
Low value	1.0438*	1.0438
25 Furniture and Fixtures		
Mean value	0.0726†	
High value	0.1179*	0.1179
Low value	0.0272*	0.0272
26 Paper and allied products		
Mean value	1.2942	
High value	1.5478	0.3968
Low value	1.0405	0.0373
27 Printing and publishing		
Mean value	0.0987	
High value	0.2812	0.0756
Low value	0.0206	0.0324
28 Chemicals and allied products		
Mean value	37.8461	
High value	128.6484	17.1955
Low value	1.4493	12.9109
29 Petroleum and coal products		
Mean value	4.9135	
High value	8.7362	28.4675
Low value	1.2545	13.1805
30 Rubber and misc. plastics products		
Mean value	0.1588	
High value	0.3206	0.0823
Low value	0.0699	0.0320
31 Leather and leather products		
Mean value	0.3879	
High value	0.7227	109.6334
Low value	0.1189	42.2024
32 Stone, clay and glass products		
Mean value	4.1209	
High value	7.1626	0.2126
Low value	1.5366	0.0385

*Battelle Northwest Laboratories, 1977
†Arithmetic mean of the range.

TABLE 1 (CONT.)

Standard Industrial Classification	Calculated Generation Factor	Comparison Generation Factor*
33 Primary metal industries		
Mean value	1.5246	
High value	4.4008	0.0799
Low value	0.4238	
34 Fabricated metal products		
Mean value	1.7102	
High value	4.2631	16.1326
Low value	0.1674	15.9873
35 Machinery, except electrical		
Mean value	0.2331*	0.2331
High value		
Low value		
36 Electric and electronic equipment		
Mean value	0.1574	
High value	0.3847	1.1471
Low value	0.0599	1.0827
37 Transportation equipment		
Mean value	0.3451	
High value	0.4864	0.3025
Low value	0.2466	0.0462
38 Instruments and related products		
Mean value	0.0505	
High value	0.1328	0.0147
Low value	0.0150	
39 Misc. Manufacturing Industries		
Mean value	0.3300	
High value	0.8798	0.1673
Low value	0.0574	

*Battelle Northwest Laboratories, 1977.

TABLE 2

SIZE DISTRIBUTION OF MANUFACTURING FIRMS BY STANDARD INDUSTRIAL CLASSIFICATION - 1972*

Standard Industrial Classification	NUMBER OF MANUFACTURING FIRMS — Number of Employees										
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-2499	2500-	Total
20 Food and kindred products	8,492	3,543	3,825	5,294	3,128	2,611	891	303	81	17	28,185
22 Textile mill products	1,085	714	899	1,383	951	1,083	648	325	106	10	7,204
23 Apparel and other textile products	5,462	3,040	3,713	5,449	3,279	2,340	879	221	42	5	24,430
24 Lumber and wood products	17,913	5,362	3,797	3,457	1,775	1,294	259	55	19	-	33,931
25 Furniture and fixtures	2,706	1,444	1,361	1,677	885	708	246	102	27	4	9,242
26 Paper and allied products	834	548	702	1,281	920	1,194	341	160	65	2	6,047
27 Printing and publishing	21,186	6,890	5,407	4,885	1,908	1,161	391	173	83	19	42,101
28 Chemicals and allied products	3,749	1,612	1,632	1,999	1,006	761	346	184	106	35	11,430
29 Petroleum and coal products	591	442	313	316	147	155	56	36	17	5	2,080
30 Rubber and misc. plastics products	2,522	1,265	1,267	1,809	1,085	877	260	102	71	13	9,271
31 Leather and leather products	791	399	353	536	348	401	301	66	6	5	3,206
32 Stone, clay and glass products	5,113	2,750	2,833	2,952	1,086	826	259	132	46	8	16,025
33 Primary metal industries	1,258	736	901	1,347	859	863	428	212	116	75	6,795
34 Fabricated metal products	9,105	4,749	4,899	5,794	2,650	1,973	704	278	101	44	30,299
35 Machinery, except electrical	16,741	6,976	6,475	5,490	2,188	1,597	669	387	206	66	40,795
36 Electric and electronic equipment	3,536	1,544	1,458	1,966	1,230	1,211	626	372	221	104	12,268
37 Transportation equipment	2,989	1,119	1,076	1,346	795	664	331	188	132	164	8,804
38 Instruments and related products	2,178	933	805	877	430	417	171	105	59	14	5,989
39 Misc. Manufacturing Industries	6,547	2,793	2,092	1,952	876	605	220	70	28	2	15,185
TOTAL	112,900	46,859	43,810	49,810	25,546	20,741	8,026	3,471	1,534	592	313,289
PERCENT OF TOTAL	36.0	15.0	14.0	15.9	8.2	6.6	2.6	1.1	0.5	0.2	

*U.S. Department of Commerce, 1976.

80
70
60
50
40
30
20
10
I-11
E15 DAY
% Elongation x 10^1
% Elongation x 10^1

can be estimated over which this break point could occur. Looking at fig. 2, the possible range of values is from about 75 to 300. Depending on how the two lines are drawn, any value between these two limits could be a possible break point. The rate cut-off could thus fall anywhere in this range.

Placing the rate cut-off either to the right or left of this range would cause a deviation from the optimum break point. If the cut-off were moved to the left, a large number of generators that could have been excluded with only minimal increase in the SPR will remain in the system. If the rate cut-off were moved to the right of this range, few additional generators would be excluded from the system for each added unit of rate excluded. Any realistic rate cut-off must lie somewhere in this range.

DATA FROM E.I.S.

RATE IN LBS/MON	PERCENT COMP.	PERCENT * H.W. GOING TO SUB. D	PERCENT * H.W. GOING TO SUB. C
L 100	40	0.2	99.8
L 200	50	0.4	99.6
L 400	58	0.9	99.1
L 800	61	1.9	98.1
L 1200	70	3.3	96.7
L 1600	73	4.6	95.4

* Due to refinements in data as background information improved, these percentages changed slightly.

Summary of Generator Data From Five States

Generator data was obtained from five states; Illinois, Maryland, New Jersey, Tennessee, and Texas. The amount of waste produced by each generator and the identification number (or SIC) were derived from the data in the surveys.

Hazardous waste quantities have been converted into units of lbs/month using the conversions at the back of this section. A number of arbitrary rate generation cut-off values were constructed. Cut-off values were: 25, 50, 100, 200, 350, 500, 750, 1250, 1500. In each state, the number of generators producing in each rate category was calculated and divided by the total number of generators polled in that state's survey. The amount of hazardous waste produced by the generators in each rate category was likewise calculated and divided by the total amount of waste found in the paricular state survey. All of these values (both generator and hazardous waste) were multiplied by 100 to obtain a percentage. These percentages enabled us to know what portion of the generators and hazardous waste fell into each rate generation category, in each state.

A composite graph with cumulative data from all five states was developed. The number of generators in each rate interval from each state was added together and and divided by the total number of generators surveyed in all five states. The hazardous waste produced in each rate interval was added together from all of the states and divided by the total amount of hazardous waste surveyed in all five states. A graph was constructed using this data. The graph represents generator and hazardous waste percentages on the y-axis. The rate in lbs/month is on the

x-axis. A best possible curve fit was constructed for each set of points, using a French curve.

The generator curve has a characteristic convex shape which can be related to the ideal case (fig. 3). The generator curve from this data, like the EIS data, appears to have a range over which the break point can occur. As in the EIS analysis, the range is approximately from 75 to 300 lbs/month. The SPR should be chosen somewhere in this area in order to excluded the most significant number of generators compared to the amount of waste released from the manifest, reporting, and recordkeeping requirements.

40
35
30
25
20
15
10
5
I-17
Compressive Strength
Time
BEE M/M

APPENDIX J

COMPARISON OF SUBTITLE C AND SUBTITLE D FACILITIES

COMPARISON OF SUBTITLE C AND D LANDFILLS

	Subtitle D Landfill	Subtitle C Landfill
I. GROUNDWATER		
A. General Standard	1. Aquifers for human consumption not adversely affected 2. Aquifers not for human comsumption maintained at levels set by state	Facilities must not degrade aquifers beneath. Degrade means not contaminate water to the point where additional treatment is necessary in order to drink it.
B. Methods for Insuring G.W. Quality	1. Artificial liners 2. Collect leachate 3. Use natural hydrogeologic and soil conditions 4. Monitor ground water 5. Develop a contingency plan in case of contamination.	1. Monitor ground water a. grid system of vacuum lysimeters b. background wells c. monitoring wells d. sampling analyses 2. Collection of leachate, Prevention of infiltration a. natural soil liner (1.) 10 ft. thick (2.) impermeable b. leachate collection (1.) bottom liner (2.) collection sump (3.) periodic removal 3, Contingency Plan
II. Surface Water		

Comparison of Subtitle C and D Landfills (Con't)

	Subtitle D Landfill	Subtitle C Landfill
A. General Standard	1. Point source discharges conform with NPDES permits 2. Non-point sources must be minimized	1. Point sources discharge must conform with NPDES 2. Non-point sources must be minimized
B. Methods for Control	No specified methods	1. Runoff from active portions must be collected and confined to a point discharge. 2. Diversionary structures must be built 3. Runoff collected from active area will be treated as a waste
III. Cover Material		
A. Reason for regulation	For control of disease and fire	To minimize fire, infiltration, odors, vectors, and provide an acceptable appearance
B. Methods	Cover must be periodically applied	1. Daily cover applied to active area - 6 ins. 2. If cell not to be used for extended length of time - 12 ins. of earth

Comparison of Subtitle C and D Landfills (Con't)

	Subtitle D Landfill	Subtitle C Landfill
IV. Operation of Facility		
Operation requirements in regulations	None	1. No mixing of incompatible wastes 2. Position of each hazardous waste must be noted.
V. Air Quality		
A. General Standard	1. Air emissions controlled to comply with all applicable laws. 2. Open burning prohibited 3. Explosive gases must not accumulate 4. Toxic gas must not move off-site.	1. Emissions shall not exceed N.P.S.A,A.Q.S. standards and not significantly deteriorate air quality 2. hazardous air contaminants shall not exceed OSHA levels.
B. Methods	No specified methods	1. Monitoring for emissions once a year 2. gas venting installed where problems occur.
VI. Other Topics		
A. Closure	No closure requirements	Requirements 1. Financial guarantees 2. Closure and long-term care plans must be developed 3. final cover 4. Land use restrictions

	Subtitle D Landfill	Subtitle C Landfill
B. Contingency Plans	Only a general requirement to develop a plan	Requirements 1. Procedures to notify public, emergency response 2. Designate responsible persons 3. List of equipment to combat spill 4. Filed with Regional Admin.
C. Location	Landfills must not be located in or near: 1. environmentally sensitive areas 2. flood plains 3. permafrost areas 4. critical habitats 5. Recharge zone of aquifer used for drinking water 6. Near public well, spring, etc. If certain conditions are met, it is possible to use above areas.	Landfills must not be located in or near: 1. fault zones (active) 2. floodplains (100 yr.) 3. Wetlands 4. permafrost areas 5. critical habitat 6. Must be away from public wells, springs. Under some conditions, above sites may be utilized.
D. Containers	No container requirements	General requirements pertaining to leakage, opening, spills, and disposal of used containers.

APPENDIX K

MANIFEST FORMAT

ICC STRAIGHT BILL OF LADING

DOT SHIPPING PAPER (STRAIGHT BILL OF LADING)

REPORT FORM

HAZARDOUS WASTE MANIFEST

IDENTIFICATION

	I.D. CODE	NAME	ADDRESS	DATE SHIP / RECEIV
ENERATOR				
RANSPORTER				
SDF (TREATMENT, STOR-GE OR DISPOSAL FACILITY)				

WASTE INFORMATION

SHIPPING DESCRIPTION	HAZARD CLASS	QUANTITY	(Complete Applicable Colum)	
			UNIT	CONTAINER T

EMERGENCY INFORMATION

IMMEDIATE RESPONSE INFORMATION

PHONE NUMBE

SPECIAL HANDLING INSTRUCTIONS

COMMENTS

CERTIFICATION

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the U.S. Environmental Protection Agency.

GENERATOR SIGNATURE _____ DATE _____

This is to certify acceptance of the hazardous waste shipment.

TRANSPORTER SIGNATURE _____ DATE _____

This is to certify acceptance of the hazardous waste for treatment, storage, or disposal.

TSDF SIGNATURE _____ DATE _____

EPA Form 8700-11 (4-78)

UNIFORM STRAIGHT BILL OF LADING

Shipper's No. _____

ORIGINAL—NOT NEGOTIABLE—Domestic Agent's No. _____

_____ Carrier. _____ (SCAC

ECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading.

_____ Date _____ 19___

_____ Street, _____ City, _____ County, _____ State _____

described below, in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned, and destined as shown below (company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees ntinual place of delivery at said destination, if on its own railroad, water line, highway route or route, or within the territory of its highway operations, otherwise to ause carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destina- ery to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited ther printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assign

ed to _____

ress _____ Street, _____

_____ County, _____ State _____ Zip _____

te _____

ing Carrier _____ Vehicle or Car Initial _____ No. _____

n Delivery $_____ and remit to: C. O. D. charges to be paid by } Shipper / Consignee

_____ Street _____ City _____ State

Kind of Package, Description of Articles, Special Marks, and Exceptions	*Weight (Subject to Correction)	Class or Rate	Check Column

Subject to Section 7 of co
tions, if this shipment is to
delivered to the consignee w
out recourse on the consig
the consignor shall sign the
lowing statement:
The carrier shall not ma
livery of this shipment with
payment of freight and all ot
lawful charges.

_____
(Signature of consignor)

If charges are to be prep
write or stamp here "To
Prepaid."

_____

Received $_____
to apply in prepayment of t
charges on the property
scribed hereon.

_____
Agent or Cashier

Per _____
(The signature here acknowledges only the amount prepaid)

Charges advanced:

$ _____

*If shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

†Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

_____ Shipper _____ Agent

_____ Per _____

Address of Shipper, Street, _____ City, _____ State _____

If charges are to be collected, Section 7 of conditions, as applicable, must be completed. If C. O. D. Section is desired, shipper must so indicate in the C. O. D. Section to be Printed in Red.

CONTRACT TERMS AND CONDITIONS

Sec. 1. (a) The carrier or party in possession of any of the property herein described shall be liable as at common law for any loss thereof or damage thereto, except as hereinafter provided.

(b) No carrier or party in possession of all or any of the property herein described shall be liable for any loss thereof or damage thereto or delay caused by the act of God, the public enemy, the authority of law, or the act or default of the shipper or owner, or for natural shrinkage. The carrier's liability shall be that of warehouseman only, for loss, damage, or delay caused by fire occurring after the expiration of the free time (if any) allowed by tariffs lawfully on file (such free time to be computed as therein provided) after notice of the arrival of the property at destination or at the port of export (if intended for export) has been duly sent or given, and after placement of the property for delivery at destination, or tender of delivery of the property to the party entitled to receive it, has been made. Except in case of negligence of the carrier or party in possession, and the burden to prove freedom from such negligence shall be on the carrier or party in possession), the carrier or party in possession shall not be liable for loss, damage or delay occurring while the property is stopped and held in transit upon the request of the shipper, owner, or party entitled to make such request, or resulting from a defect in the property, or for country damage to cotton, or from riots or strikes. Except in case of carrier's negligence, no carrier or party in possession of all or any of the property herein described shall be liable for delay caused by highway obstruction, faulty or impassable highway, or lack of capacity of any highway, bridge or ferry, and the burden to prove freedom from such negligence shall be on the carrier or party in possession.

(c) In case of quarantine the property may be discharged at risk and expense of owners into quarantine depot or elsewhere, as required by quarantine regulations or authorities, or for the carrier's dispatch at nearest available point in carrier's judgment, and in any such case carrier's responsibility shall cease when property is so discharged. Such property may be returned by carrier at owner's expense to shipping point, earning freight both ways. Quarantine expenses of whatever nature or kind upon or in respect of property shall be borne by the owners of the property or be a lien thereon. The carrier shall not be liable for loss or damage occasioned by fumigation or disinfection or other action required or done by quarantine regulations or authorities even though the same may have been done by carrier's officers, agents, or employees, nor for detention, loss or damage of any kind occasioned by quarantine or the enforcement thereof. No carrier shall be liable, except in the case of negligence, for any mistake or inaccuracy in any information furnished by the carrier, its agents, or officers, as to quarantine laws or regulations. The shipper shall hold the carriers harmless from any expense they may incur, or damage they may be required to pay, by reason of the introduction of the property covered by this contract into any place against the quarantine laws or regulations in effect at such time.

Sec. 2. (a) No carrier is bound to transport said property by any particular schedule, train, vehicle or vessel, or in time for any particular market or otherwise than with reasonable dispatch. Every carrier shall have the right in case of physical necessity to forward said property by any carrier or route between the point of shipment and the point of destination. In all cases not prohibited by law, where a lower value than actual value has been represented in writing by the shipper or has been agreed upon in writing as the released value of the property as determined by the classification or tariffs upon which the rate is based, such lower value plus freight charges if paid shall be the measure of recovery, whether or not such loss or damage occurs from negligence.

(b) As a condition precedent to recovery, claims must be filed in writing with the receiving or delivering carrier, or carrier issuing this bill of lading, or carrier on whose line the loss, damage, injury or delay occurred, or carrier in possession of the property when the loss, damage, injury or delay occurred, within nine months after delivery of the property (or, in the case of export traffic, within nine months after delivery at port of export) or, in case of failure to make delivery, then within nine months after a reasonable time for delivery has elapsed; and suits shall be instituted against any carrier only within two years and one day from the day when notice in writing is given by the carrier to the claimant that the carrier has disallowed the claim or any part or parts thereof specified in the notice. Where claims are not filed or suits are not instituted thereon in accordance with the foregoing provisions, no carrier hereunder shall be liable, and such claims will not be paid.

(c) Any carrier or party liable on account of loss of or damage to any of said property shall have the full benefit of any insurance that may have been effected upon or on account of said property, so far as this shall not avoid the policies or contracts of insurance: PROVIDED, That the carrier reimburse the claimant for the premium paid thereon.

Sec. 3. Except where such service is required as the result of carrier's negligence, all property shall be subject to necessary cooperage and baling at owner's cost. Each carrier over whose route cotton or cotton linters is to be transported hereunder shall have the privilege, at its own cost and risk, of compressing the same for greater convenience in handling or forwarding, and shall not be held responsible for deviation or unavoidable delays in procuring such compression. Grain in bulk consigned to a point where there is a regularly licensed public or licensed elevator, may (unless otherwise expressly noted herein, and then if it is not promptly unloaded) be there delivered, and placed with other grain of the same kind and grade without respect to ownership (and prompt notice thereof shall be given to the consignee), and if so delivered shall be subject to a lien for elevator charges in accordance with the tariffs, but all other charges hereunder

Sec. 4. (a) Property not removed by the party entitled to receive it within the free time (if any) allowed by tariffs lawfully on file (such free time to be computed as therein provided, after notice of the arrival of the property at destination or at the port of export (if intended for export) has been duly sent or given, and after placement of the property for delivery at destination has been made, or property not received, at time tender of delivery of the property to the party entitled to receive it has been made, may be kept in vessel, vehicle, car, depot, warehouse or place of business of the carrier, subject to the tariff charge for storage and to carrier's responsibility as warehouseman only, or at the option of the carrier, may be removed to and stored in a public or licensed warehouse at the point of delivery or other available point, or if no such warehouse is available at point of delivery or at other available point, then in other available storage facility, at the cost of the owner and there held without liability on the part of the carrier, and shall be a lien for all freight and other lawful charges, including a reasonable charge for storage. In the event consignee cannot be found at address given for delivery, then in that event, notice of the placing of such goods in warehouse shall be mailed to the address given for delivery and mailed to any other address given on the bill of lading for notifying the warehouse in which such property has been placed, subject to the provisions of this paragraph.

(b) Where perishable property which has been transported to destination hereunder is refused by consignee or the party entitled to receive it upon tender of delivery, or said consignee or party entitled to receive it fails to receive or claim it within 15 days after notice of arrival shall have been duly sent or given, the carrier may sell the same at public auction to the highest bidder, at such place as may be designated by the carrier

PROVIDED, That the carrier shall have first mailed, sent, or given to the consignee notice that the property has been refused or remains unclaimed, as the case may be, and that it will be subject to sale under the terms of the bill of lading if disposition be not arranged for, and shall have published notice containing a description of the property, the name of the party to whom consigned, or, if shipped order notify, the name of the party to be notified, and the time and place of sale, once a week for two consecutive weeks, in a newspaper of general circulation at the place of sale or nearest place where such newspaper is published. PROVIDED, That 30 days shall have elapsed before publication of notice of sale after said notice that the property was refused or remains unclaimed was mailed, sent or given.

(c) Where perishable property which has been transported hereunder to destination is refused by consignee or party entitled to receive it, or said consignee or party entitled to receive it shall fail to receive it promptly, the carrier may, in its discretion, to prevent deterioration or further deterioration, sell the same to the best advantage, at private or public sale: PROVIDED, That if time serves for notification to the consignee or owner the refusal of the property or the failure to receive it and request for disposition of the property, such notification shall be given, in such manner as the exercise of due diligence requires, before the property is sold.

(d) Where the procedure provided for in the two paragraphs last preceding is not possible, it is agreed that nothing contained in said paragraphs shall be construed to abridge the right of the carrier at its option to sell the property under such circumstances and in such manner as may be authorized by law.

(e) The proceeds of any sale made under this section shall be applied by the carrier to the payment of freight, demurrage, storage, and any other lawful charges, and the expenses of notice, advertisement, sale, and other necessary expense and of caring for and maintaining the property, if proper care of same requires special expense, and should there be a balance it shall be paid to the owner of the property sold hereunder.

(f) Property destined to or taken from a station, wharf, landing or other place at which there is no regularly appointed freight agent, shall be entirely at risk of owner after unloaded from cars, vehicles or vessels or until loaded into cars, vehicles or vessels, and, except in case of carrier's negligence, when received from or delivered to stations, wharfs, landings, or other places, shall be at owner's risk until the cars are attached to and after they are detached from locomotive or train or until loaded into and after unloaded from vessels, or if property is transported in motor vehicle trailers or semi-trailers, until such trailers or semi-trailers are attached to and after they are detached from power units. Where a carrier is directed to unload or deliver property transported by motor vehicle at a particular location where consignee or consignee's agent is not prepared, the risk after unloading or delivery, shall be that of the owner.

Sec. 5. No carrier hereunder will carry or be liable in any way for any documents, specie, or for any articles of extraordinary value not specifically rated in the published classifications or tariffs unless a special agreement to do so and a stipulated value of the articles are endorsed hereon.

K-4

Sec. 6. Every party, whether principal or agent, shipping explosives or dangerous goods, without previously obtaining full written disclosure to the carrier of the character of the goods, shall be liable for and indemnify the carrier against all loss or damage caused by such goods, and such goods may be warehoused at owner's risk and expense or destroyed without compensation.

STRAIGHT BILL OF LADING

ORIGINAL—NOT NEGOTIABLE

Shipper No. _____

Carrier No. _____

_____ Date _____

FROM:
Shipper

YOUR NAME IMPRINTED HERE

Street

Origin

Zip Code

Vehicle Number

No. of Units Container Type	HM	DESCRIPTION AND CLASSIFICATION (Proper Shipping Name and Class per 49 CFR 172.101)	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use)
		← MEETS REQUIREMENT OF 49 CFR 172.201				

SAMPLE

THIS IS A SAMPLE OF THE NEW HAZARDOUS MATERIALS STANDARD BILL OF LADING.

ALSO AVAILABLE IN 8½ x 8½ AND WITH PRE-PRINTED COMMODITIES.

SEE PAGE 3 OF LABELMASTER'S NEW HM-112 CATALOG.

NEW MOTOR FREIGHT CLASSIFICATION TARIFF COPY

NEW HM-112 CERTIFICATION

TO:

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

TOTAL CHARGES: $

FREIGHT CHARGES

Check box ☐

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the terms of Bill of Lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER YOUR NAME IMPRINTED HERE

CARRIER

PER

DATE

LABELMASTER CHICAGO, IL 60660

HAZARDOUS WASTE GENERATOR REPORT

IDENTIFICATION

NAME

ADDRESS

GENERATOR IDENTIFICATION CODE

CLOSING DATE

WASTE INFORMATION

TREATMENT, STORAGE OR DISPOSAL FACILITY I.D. CODE	MANIFEST DOCUMENT NUMBER	SHIPPING DESCRIPTION	QUANTITY	UNIT OF MEASURE

SAMPLE

COMMENTS

CERTIFICATION

I have personally examined and am familiar with the information submitted in this certification, and I hereby certify under penalty of law that this information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

SIGNATURE

DATE

APPENDIX L

ANALYSIS OF UTILIZATION OF THE MANIFEST

AS REPORT VERSUS SUMMARY REPORTS

The OSW "notification System Supportive Services" study contract No. 68-01-4631 Published December 21, 1977, listed approximately .38 million generators of hazardous waste. The study "Characterization of Potential Permittees under Section 3005 of the Resource Conservation and Reocvery Act" Contract No. 08-01-4456 published June 8, 1977 estimated .45 million generators of hazardous waste. Assume (1) the average of the two estimates to be the number of hazardous waste generators regulated under Subtitle C Section 3002.

$$\frac{(38 + .45) \times 10^6}{2} = .42 \times 10^6$$

and (2) that these generators are uniformly distributed among the States. Jay Snow of the Texas Water Quality Board has indicated that in the month of May 1977 approximately 2500 tickets (manifests) were issued by 600 to 1200 industrial generators

Assuming then 3 manifest per generator per month as an average, if the manifest were used as the report, then;

$$.42 \times 10^6 \text{ generators} \times \frac{3 \text{ manifest}}{\text{generator month}} =$$

1.26×10^6 manifest/month

EPA would receive 1.26 million manifests per month or 126,000 manifests per Region per month if no States assumed the hazardous waste program.

On the other hand assuming one monthly summary report per generator or one quarterly summary report per generator, then

$$\frac{1 \text{ report}}{\text{generator}} \times .42 \times 10^6 \text{ generator} =$$

$.42 \times 10^6$ report/month or quarter

Thus, EPA would be receiving 420,000 monthly or quarterly summary reports or 42,000 monthly or quarterly report per Region assuming no States assume the hazardous waste program.

Paper flow impact on a typical EPA Regional Office when comparing manifest reporting to monthly, summary reports:

$$\frac{126{,}000 \text{ Manifest} - 42{,}000 \text{ reports}}{126{,}000} \quad X$$

100 = 66.7% decrease in paper flow impact when using a monthly, summary report instead of the manifest as the report.

Paper flow impact on a typical EPA Office Regional when comparing manifest reporting to quarterly, summary reports:

$$\frac{126{,}000 \text{ manifest}}{\text{month}} \quad X \quad \frac{3 \text{ month}}{\text{quarter}} = \frac{378{,}000 \text{ manifest}}{\text{quarter}}$$

then,

$$\frac{378{,}000 \text{ manifest} - 42{,}000 \text{ reports}}{378{,}000}$$

X 100 = 88.9% decrease in paper flow impact when using a quarterly, summary report instead of the manifest as the report.

Paper flow impact on a typical EPA Office Regional when comparing monthly, summary reports quarterly, summary reports:

$$\frac{42{,}000 \text{ reports}}{\text{month}} \quad X \quad \frac{3 \text{ months}}{\text{quarter}} = \frac{126{,}000 \text{ reports}}{\text{quarter}}$$

then,

$$\frac{126{,}000 \text{ reports} - 42{,}000 \text{ reports}}{126{,}000} \times 100 = 66.7\%$$

decrease in paper flow impact when using a quarterly, summary report, instead of a monthly, summary report.

APPENDIX M

STATE RECORDKEEPING REQUIREMENTS

State Recordkeeping Requirements (Period of Retention) DRAFT

State	Agency Requirement Public Utility Comm. Public Service Comm.	Other Agency quirements
Alabama	*6	
Alaska	**6	
Arizona	2	
Arkansas	3	
California	3	
Colorado	2	
Connecticut	2	
District of Columbia	N.A.	N.A.
Delaware	N.A.	*10 Health
Florida	1	
Georgia	3	
Hawaii	2	
Idaho	5	
Illinois	N.A.	3 IEPA
Indiana	**2	
Iowa	**10	
Kansas	1	
Kentucky	5	
Louisana	N.A.	N.A.
Maine	3	
Maryland	N.A.	1 Health
Massachusetts	3	

State	Agency Requirement Public Utility Comm. Public Service Comm.	Other Agency Requirements
Michigan	N.A.	2 Dept. of Natural Resource
Minnesota	3	
Mississippi	3	
Missouri	N.A.	N.A.
Montana	3	
Nebraska	3	
Nevada	3	
New Hampshire	N.A.	N.A.
New Jersey	N.A.	*5 DEP
New Mexico	3	
New York	3	
North Carolina	3	
North Dakota	N.A.	N.A.
Ohio	3	
Oklahoma	N.A.	N.A.
Oregon	***2	
Pennsylvania	3	
Rhode Island	1	
South Carolina	2	
South Dakota	2	
Tennessee	N.A.	3 Health De
Texas	2	
Utah	N.A.	N.A.
Vermont	N.A.	N.A.
Virginia	N.A.	N.A.
Washington	3	
West Virginia	5	

State	Agency Requirement Public Utility Comm. Public Service Comm.	Other Agency Requirements
Wisconsin	6	
Wyoming	N.A.	N.A.

*State Regulations Pending

**Statute of Limitation

***Records held for Audit

RESOURCE CONSERVATION AND RECOVERY ACT

SUBTITLE C - HAZARDOUS WASTE MANAGEMENT

SECTION 3003 - STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

SECTION 250.30 THROUGH 250.38

DRAFT

BACKGROUND DOCUMENT

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF SOLID WASTE
December 15, 1978

Headquarters/Region_____

Document Number _____

This document provides background information and support for regulations which are designed to protect human health and the environment pursuant to Section 3003 of the Resource Conservation and Recovery Act of 1976. It is being made available as a draft to support the proposed regulation. As new information is obtained, changes may be made in the regulations as well as in this background material.

This document was first drafted many months ago and has been revised to reflect information received and Agency decisions made since then. EPA made changes in the proposed Section 3003 regulations shortly before their publication in the Federal Register. We have tried to ensure that all of those decisions are reflected in this document. If there are any inconsistencies between the proposal (the preamble and the regulation) and this background document, however, the proposal is controlling.

Portions of this Background Document were written specifically addressing sections of drafts of the regulation which were current at that time. The reader is cautioned that references to section titles or topics may have changed from draft to draft. Changes in the drafts, as well as additions or deletions of sections, have not changed the rationale or basis for establishing the proposed version of the regulation. Where possible, section numbers of the proposed version of the 3003 regulations, Standards Applicable to Transporters of Hazardous Waste, appear in parentheses (250.30 - 250.38).

Comments in writing may be made to:

Harry W. Trask, Desk Officer
Hazardous Waste Management Division (WH-565)
401 M Street, S.W.
Washington, D.C. 20460

Background Document

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I. Introduction

The Resource Conservation and Recovery Act (Pub. L. 94-580), signed into law on October 21, 1976, directs the Administrator of the Environmental Protection Agency, under Subtitle C of the Act, to promulgate regulations within 18 months of enactment to ensure the proper controls on generation, transportation, treatment, storage, and/or disposal of all wastes defined as hazardous. Section 3003 of the Act (RCRA) requires EPA to develop standards applicable to transporters of hazardous waste as may be necessary to protect human health and the environment.

The standards developed shall include but need not be limited to: (1) recordkeeping concerning the hazardous waste transported, its source and delivery points; (2) transportation of such wastes only if properly labeled; (3) compliance with the manifest system developed under Section 3002; and (4) transportation of all hazardous wastes only to the waste management facility which the shipper designates on the manifest to be a facility holding a permit issued in accordance with Section 3005 of the Act.

In addition to these minimum requirements, paragraph (b) states "that in the event that any hazardous waste identified or listed is subject to the Hazardous Materials

Transportation Act (Pub.L. 93-633), the standards established by the Administrator shall be consistent with the DOT regulations. Also, the Administrator is authorized to make recommendations to the Secretary of Transportation respecting regulation of hazardous wastes under the Hazardous Materials Transportation Act (HMTA).

Current federal authority for the control of transportation of hazardous materials is shared by the Department of Transportation (DOT) and the Interstate Commerce Commission (ICC).

ICC

The ICC has jurisdiction over hazardous materials (as defined by DOT) transportation in two areas: 1) the authorization of new services interstate and limitations thereon, and 2) the investigation of tariff filings affecting hazardous materials. The regulated transport companies are classified either as common or contract carriers. A common carrier offers service to the general public. Interstate common carriers must hold a certificate issued by the ICC, which limits service to a specific geographic area and, in many cases to specific commodities. A contract carrier is a company that engages in for-hire transportation of property under individual contracts or agreements with one or a limited number of shipments. The ICC does not regulate transport of agricultural goods, private carriers (a company not primarily engaged in the transportation business that

hauls its own property in its own vehicles), local cartage carriers, and intra-state carriers.

In addition to regulating the interstate transportation of hazardous materials, the transportation of waste products for reuse and recycling is currently, as of May 13, 1976, covered under ICC authority (MC-85). In 1971, the Commission ruled that waste materials which are recycled "assume all of the characteristics of property." Interstate transporters of waste must acquire a special certificate of public convenience and necessity. In acquiring this certificate, the transporter must file the following with the ICC: 1) name and address of company; 2) carrier's agent; 3) evidence of carrier's insurance coverage; 4) copy of carrier tariff; 5) statement signifying that all appropriate state regulatory agencies have been notified, 6) a statement describing the pollution control program from which the wastes were generated; 7) statement of operational feasibility; and 8) a statement demonstrating the applicant's fitness to perform the involved service.

The ICC, as stated, does not regulate intrastate transportation; however, its regulations do have an impact on the State Public Service Commissions or Utility Commissions that regulate (license/permit) transportation. The State of Texas recently (January 28, 1977) ruled that a person who performs solid waste disposal services is regulated by the State of Texas as a

"motor carrier", principally because the ICC ruled that waste may be considered property. (See Permitting of Hazardous Waste Transporters, Section V.)

DOT

The DOT regulates the interstate as well as the intrastate transportation of hazardous materials under its Hazardous Materials Regulations (49 CFR 100-189). The regulations address all modes of transportation (air, rail, highway, waterway, and pipeline). DOT has established requirements for shipping papers, containers, marking/labeling/ placarding of containers and vehicles, handling of materials, and incident reporting.

According to a recent interpretation by the Office of Hazardous Materials Operations (DOT), any material, including waste, which meets the DOT criteria for a hazardous material must be handled accordingly.

The Office of Hazardous Materials newsletter of April/May 1977 states: "There have been numerous inquiries to the Office of Hazardous Materials Operations regarding the applicability of the Department's Hazardous Materials Regulations to the transportation of waste materials. These regulations are structured to apply to any materials that may pose an undue hazard in transportation and, as such, do not differentiate between waste and other than waste materials. If, after processing, a material meets the definition of a hazardous material, then that material must be classed and shipped in

accordance with the requirements prescribed for the hazard associated with the material. Many materials, including those considered waste materials, may have more than one hazard and certain other materials may lose their hazardous characteristics due to processing. A mixture of materials, both waste and other than waste, must be properly evaluated to determine its characteristics since after processing, a mixture may become more or less hazardous than it was prior to processing.

The Department's Hazardous Materials Regulations may apply to any material regardless of its end use and the fact that a material is considered a waste material does not relieve application of these regulations."

In addition to the Hazardous Materials Regulations, transporters of hazardous materials must also comply with DOT safety regulations for Motor Carriers, (49 CFR 390-397); Transport by Rail, Federal Railroad Administration Emergency Order No. 5; and transport by water, U.S. Coast Guard Shipping Regulations (46 CFR). Currently, Motor Carrier Safety Regulations apply to interstate transport. Under HMTA, the regulations can be extended to also cover intrastate transport. Safety regulations for carriage by air, rail, and water apply regardless of inter or intrastate shipment.

Several States have adopted the hazardous material regulations and the motor carrier safety regulations in toto or in part, or

have similar regulations (Attachment I & II). Twenty-seven States have adopted in toto or have similar regulations for hazardous materials transportation. An additional 12 States have adopted in part the hazardous material regulations leaving 11 States currently with no regulations for hazardous materials transportation. Fourteen States have adopted all parts of the Motor Carrier safety regulation. Of the remaining 37 political subdivisions, 35 either have similar rules, have adopted the regulations in part for all or some sections, or have adopted in toto for some sections the Federal Motor Carrier Safety Regulations, leaving only two States currently with no regulations for intrastate transportation (Louisiana and Montana).

II. Methodology Utilized in Developing Standards

As required under Section 3003(b) of RCRA, the standards set forth under Section 3003 for transporters of hazardous wastes shall be consistent with those standards developed under the Hazardous Materials Transportation Act (PUB. L. . 93-633). In order to be consistent, both substantively and procedurally, the standards for hazardous waste transport are modeled after the hazardous material regulations (49 CFR 100-189).

In addition to using the DOT's Hazardous Materials Regulations, the EPA has solicited comments/data/opinions/suggestions from the regulated community (i.e., hazardous waste generators, transporters, treatment, storage, and disposal facility operators), States, and the public on the major issues confronting EPA as part of the regulation development process. This has been done prior to the development of these regulations. Section 7004(b) of the Act specifically states that "public participation in the development, regulation, guidelines, information, or program under the Act shall be provided for, encouraged, and assisted by the Administrator and the States." Therefore, to fulfill the requirement of the Act and develop a public participation plan, the Office of Solid Waste has encouraged the regulated community to comment prior to proposing regulations on the major issues of the Act, including those dealing with Section 3003 (Standards Applicable to Hazardous Waste Transporters).

In addition to early public participation, EPA undertook a study which examines and characterizes the Hazardous Waste Transport Industry. The study, a first of its kind, identifies the various segments of this industry: transportation by the generator, transportation by the waste management facility, and transportation by independent carriers. The data collected from the study was used in the development of these standards and also for input to EPA's recommendations to DOT.[1] In addition an economic analysis of the proposed regulation was undertaken.[2]

EPA also has an internal working group process which met periodically to discuss and resolve the major issues confronting EPA. The working group formed for Section 3003 is made up of representatives from the various offices in EPA and representatives from the Department of Transportation Office of Hazardous Materials Operations. All issues and proposals are reviewed by the Agency (Steering Committee and Administrator) prior to publication of the draft regulations in the Federal Register as a "Notice of Proposed Rulemaking."

At this point, the public has another opportunity to provide comments/input by way of written responses and public hearings which will be scheduled during the public

1. Arthur D. Little: "A characterization of the Hazardous Waste Transport Industry," Contract No. 68-01-4381, 1977

2. Arthur D. Little: "The Economic Impact of the Hazardous Waste Transportation Regulations", Contract No. 68-01-4381, 1977.

comment period. EPA will then re-evaluate the regulations in view of the comments received and forward the revised final product to the Steering Committee for their final approval. The Administrator will review the final regulation for his approval. The regulations will then be published in the Federal Register as the "Final Rulemaking" after considering all points of view.

A. Meetings with Interest Groups

A series of 15 meetings were held with generators, transporters, waste management facilities, State and local government, and public interest groups to discuss the development of Section 3003 standards. Approximately 1,000 people attended the meetings which were held throughout the country (Table I). At ten of the meetings (Type II) the requirements of the Act and various options for the regulations were discussed. (For summary of meetings see Appendix A.) Three meetings (Type I) were held with the public to review the current direction of all the draft RCRA Standards. In addition a joint public meeting was held with the DOT in Chicago (10/26/77). Transcripts of these four meetings are available for review at the Office of Solid Waste, Washington, D.C. 20460.

Table I

Public Participation Meetings

Type II (Informal meetings)

February 3, 1977	San Francisco, California
February 24, 1977	Washington, D.C.
March 9, 1977	Cleveland, Ohio
March 10, 1977	Minneapolis, Minnesota
April 6, 1977	Hartford, Connecticut
April 8, 1977	Atlanta, Georgia
April 13, 1977	Houston, Texas
April 27, 1977	Oklahoma City, Cklahoma
May 11, 1977	King of Prussia, Pennsylvania
May 25-26, 1977	Seattle, Washington
May 26, 1977	Denver, Colorado

Type I

October 11-12, 1977	Washington, D.C.
October 13-14, 1977	St. Louis, MO.
October 17-18, 1977	Scottsdale, AZ.

Joint EPA/DOT Public Meeting

October 26, 1977	Chicago, ILL.

In addition to public meetings, meetings have been held with various interested parties (Table II).

Table II

Parties Contacted Outside of Public Meetings

Industry Trade Associations

- National Solid Waste Management Association
- National Tank Truck Carriers Conference
- Liquid Waste Control Association
- Association of American Railroads
- American Waterway Operators

Transporters

- Chemical Lehman
- Matlack
- Bohager and Son
- Chancellor & Odgen (BKK)
- Missouri Pacific Railroad

Generators

- Union Carbide

Environmental Group

- Environmental Action

Federal Agencies

- Department of Transportation
- Interstate Commerce Commission

State Governments

- California
- Texas
- Illinois

Table II (cont.)

Parties Contacted Outside of Public Meetings

Industry Trade Associations

National Solid Waste Management Association

National Tank Truck Carriers Conference

Liquid Waste Control Association

Association of American Railroads

American Waterway Operators

Transporters

Chemical Lehman

Matlack

Bohager and Son

Chancellor & Odgen (BKK)

Missouri Pacific Railroad

Generators

Union Carbide

Environmental Group

Environmental Action

Federal Agencies

Department of Transportation

Interstate Commerce Commission

State Governments

California

Texas

Illinois

B. Advance Notice of Proposed Rulemaking (ANPR)

As part of EPA's public participation plan, an Advance Notice of Proposed Rulemaking (ANPR) was published in the Federal Register on May 2, 1977, and a Joint Notice of Public Meeting was published (with DOT) on September 29, 1977, inviting comments/data/information on the major issues confronting EPA in the regulation development process. These notices included a series of question related to Section 3003. The questions raised are similar to the issues discussed during the earlier public meetings (Appendices B and C).

C. External Review

In addition to the advance notices (ANPR), the second draft of the regulations were sent to over sixty outside reviewers soliciting comments. See Appendix D for major comments received and actions taken.

Comments from the public meetings, transport study, the ANPR , external review, plus any additional information received were reviewed and considered by the Office of Solid Waste before proposing standards for transporters of hazardous waste transportation.

III. Regulatory Development Options

A. Authority for the regulation of hazardous waste transportation is contained in both the Hazardous Materials Transportation Act and the Resource Conservation and Recovery Act (Table III). RCRA and HMTA, except for the reporting requirement, share authority, either mandatory or discretionary (Table IV). The areas of RCRA mandatory requirements in which DOT has discretion to develop regulations are intra-state control, definition and criteria for hazardous wastes, recordkeeping, and notification. DOT, on the other hand, has mandatory requirements for (they are discretionary under RCRA) placarding, marking, handling (operational), and incident reporting. HMTA does not grant DOT the authority in a number of important areas. There are hazardous wastes which do not come under the definition of hazardous materials (e.g., carcinogens). DOT cannot develop standards concerning: 1) bulk shipments of materials by barge, and 2) spill clean up requirements.

B. There are three options for the development of transporter standards under RCRA. Under the first option, EPA would develop standards for the transporter which would address only recordkeeping, compliance with the manifest, acceptance of only properly labeled wastes, and delivery of all the waste to the designated permitted facility. These standards will afford only a minimum amount of protection to the environment and human health. Although the standards may guarantee delivery, they would not guarantee safety in transport for hazardous waste, and they may not adequately address the operational problems encountered by the transporter.

Table III

Regulatory Authority of the Department of Transportation and the Environmental Protection Agency Concerning Hazardous Waste

DOT Authority HMTA (49 USC 1801, P.L. 93-633)	RCRA Authority (42 USC 6901,) P.L. 94-580
Safety, Health, Property Transportation of Haz. Material	Human Health, Environment Hazardous Waste Management
Packaging	Containers
Repackaging	
Handling	
Labeling	Labeling
Marking	
Placarding	
Routing (shipping paper)	Routing (manifest)
Manufacture, Fabrication, Marking Maintenance, Reconditioning, Repairing Testing of Package	
Designation of haz. material	Definition of Hazardous Waste
Recordkeeping	Recordkeeping
Recordkeeping	Recordkeeping
Registration	Notification
Imminent Hazard	Imminent Hazard
	Reporting
	Furnishing of Information
	Compliance with Manifest
	Transport of Properly Labeled Waste

Table IV

Standards Required/Discretionary Under the Resource Conservation and Recovery Act and the Hazardous Materials Transportation Act

	Coverage	
Standard	RCRA	HMTA
Interstate	M	M
Intrastate	M	D - State Pre-emption
Definition of Haz. Waste	M	D - DOT Newsletter 4-5/
Recordkeeping	M	D - Standards only for Container Certification
Labeling	M	M
Placarding	D	M
Marking	D	M
Packaging	M	M
Furnish Info. (Proper Desc.)	M	M
Manifest (Shipping Document)	M	M
Reporting	M	N.A.
Handling	D	M
Incident Reporting	D	M only for limited occurences.
Notification/Registration	M/D	D/D Std. not developed
Spill Reporting	D	M Accident/Incident reporting
*Motor Carrier Safety Regs.	D	M

M = Mandatory

D = Discretionary

N.A. = No Authority

* Separate Authority (Transportation of Explosives Act, Pub. L. 86-710 ,18 USC 831-835)

The second option for the regulations development would be to expand the scope of the regulations under Section 3003 which states "such standards shall include but need not be limited to..." to cover standards for safety in operation and transportation of hazardous waste. Expanding the coverage to include safety in operation and transportation would require EPA to adopt existing Federal regulations for the transportation of hazardous materials interstate and apply them to hazardous waste transportation inter and intrastate.

The final option for regulations development is for EPA to develop standards for transporters of hazardous wastes and request that DOT incorporate all or reference EPA's standards in its regulations. DOT would then modify or develop new regulations for the transportation of hazardous wastes to control inter as well as intrastate movements. EPA would then adopt the new regulations. Various Offices would become involved under this option. The principal one would be the Office of Hazardous Materials Operations with other contacts with the Bureau of Motor Carrier Safety, Federal Rail Administration, U.S. Coast Guard, and the Federal Office of Pipeline Safety.

After reviewing these options, EPA believes that for the most effective development of hazardous waste transport regulations, the DOT's expertise, knowledge, and organizations should be utilized to help develop the regulations. EPA will develop regulations as required under Section 3003 and work with DOT to have additions/modifications to their regulations made. Since there is no guarantee that DOT can respond to all

of EPA's needs regarding especially bulk shipments by barge and spill cleanup, EPA proposed the necessary standards as outlined in Option II.

Since October of 1977, EPA and DOT have cooperated and coordinated each agency's efforts in the development of hazardous waste transportation regulations. In December 1977, DOT stated that every effort would be made to either reference or incorporate all standards that EPA deems necessary for hazardous waste transportation (Attachment III). EPA, therefore is planning to adopt those standards developed by DOT which meet the needs of EPA and promulgate those standards that cannot be developed by DOT.

IV. Identification of Program Issues/Concerns

Several major concerns were expressed by transporters, generators, waste management facilities, public interest groups, and State and local governments during the public meetings and in response to the Advance Notice of Proposed Rulemaking. Some of these are as follows:

A. Transporters:

1. A major concern expressed by transporters of hazardous materials and industrial wastes is that EPA's regulations for hazardous waste transport be consistent or equivalent to the DOT Hazardous Materials Regulations. The regulated community cannot cope with different sets of standards for the same (chemically) substance. EPA should do everything possible to have DOT develop standards for hazardous waste transport. Transporters expressed no objection to having EPA reference DOT standards, thus giving both EPA and DOT enforcement power.

2. A recommendation of the transporters was that EPA should permit or license haulers. Transporters feel that if it is EPA's intent to have responsible carriers haul hazardous waste, the only way to achieve this would be to issue licenses/permits. By issuing hazardous waste hauler permits, the transporters believe EPA could prevent the transport of hazardous waste by a hauler who does not have the proper equipment or understand the regulations. In addition, EPA can establish a data

base that can be used by EPA and generators to identify transporters.

3. The development of spill regulations was another concern of the transporters. Section 311 of the Federal Water Pollution Control Act (Pub. L. 92-500) gives the EPA Administrator authority to develop regulations for control of spills of hazardous substances. When the regulations are promulgated by EPA, every effort should be made to have only one authority cover the spill of hazardous substances and/or wastes. The preferred authority by the transportation community was Section 311 of FWPCA.

4. The problem of waste compatability was discussed. The transporters feel that the generator must furnish them with a description of the wastes so that wastes are not mixed by the transporter so as to cause a chemical reaction, explosion, etc...

B. Waste Generators, Waste Management Facility Operators

The only major concern expressed by these groups was that any regulations developed for transportation of hazardous waste should be consistent with the DOT Hazardous Materials Regulations. Developing separate standards from those promulgated under DOT would not only cause confusion within the shipping/transport industry but would also inhibit the movement of hazardous waste.

C. Public Interest Groups

The major concern of the public interest groups is that the vehicles transporting hazardous wastes be identified so that in the event of an emergency or spill, emergency response personnel and the public at large will be aware that the material spilled is a hazardous waste and, therefore, presents a hazard to human health and the environment. In order to achieve this, all vehicles transporting hazardous waste should be identified by a placard or proper marking.

D. State and Local Governments

State and local governments shared the same concerns of the public interest groups, hazardous waste generators, waste management facilities, and transporters of hazardous wastes.

V. Analysis of Standards

The Office of Solid Waste has reviewed the public input/comments/information that was received from the public meetings and the Advance Notices of Proposed Rulemaking (ANPR). These responses include several suggested alternatives relevant to the standards to be promulgated under Section 3003. This section enumerates the various alternatives/options that were suggested and which were selected.

Many of the wastes which are identified under Section 3001 of RCRA also will meet the DOT criteria for a hazardous material. Since DOT has authority for those wastes meeting their criteria, EPA has no alternative except to require that the hazardous waste be transported in compliance with the DOT Hazardous Materials Regulations, developed under title 49 and 46 CFR that would apply to transporters of hazardous wastes both inter and intrastate.

A. Scope of Regulations

RCRA grants EPA authority to regulate the transportation of hazardous waste intra and interstate. Intrastate transport control would only apply in those States which are not granted interim or full authorization under Section 3006. Most commentors (shippers, transporters, waste management facilities, State governments and public interest groups) agreed that EPA should develop regulations that are consistent with the DOT Hazardous Materials Regulations for hazardous wastes. Being consistent will enable the regulated community to easily comply

and understand the standards developed by EPA. The DOT regulations apply to persons transporting hazardous materials in commerce. DOT has interpreted "in commerce" to mean any transportation on a public highway. Using this interpretation, the regulations do not apply to "on premises" transportation of hazardous materials. Also, no manifest is required for "on premises" transportation as stated under Section 3002. Since DOT regulations do not apply, and the manifest will not be applicable to "on premises" transport, EPA should exclude "on premises" transportation of hazardous waste.

Excluding "on premises" transportation from the regulations does not compromise either protection of human health or protection to the environment. The generator must properly label and contain the waste and treat/store/dispose of the waste at a facility permitted under Section 3005. In the event of an accident or spill, the generator is also required to have a spill contingency plan as well as a record describing the wastes. Including the transportation on-premises within the regulations would only create an unnecessary burden on the regulated community without affording any additional protection to human health or the environment.

Under Section 3002 Standards Applicable to Generators of Hazardous Waste, a generator is defined as any person whose act or process produced a hazardous waste and who generates or disposes of greater than 100 kg per month of hazardous waste. Therefore,

if a generator ships less than 100 kg per month, no manifest would be required. EPA is concerned that small quantities of hazardous wastes may be consolidated by transporters. A transporter could pick-up wastes from non-generators (since the quantity is less than 100 kg) and consolidate a shipment that, if offered from one generator, would be subject to the regulations. EPA believes that if the waste is a DOT hazardous material, regardless of quantity, the generator (shipper) would be subject to the DOT regulations. The transporter would then also be subject to the DOT regulations. Since the shipper is knowledgeable of the waste, the transporter should not be made responsible to properly describe, package, label, etc...the hazardous wastes. In addition to the DOT regulations, the transporter will be required to delivery the consolidated shipment to a permitted facility that can properly handle the waste.

B. Recordkeeping

As required by RCRA, records must be kept concerning the hazardous waste transported, their sources, and delivery points. The purpose of recordkeeping by the transporter of hazardous waste is to document the delivery of all the hazardous waste to the designated permitted facility or the transfer of the waste to another transporter, identify the generator of the hazardous waste, and also describe the hazardous waste. The record would serve as a means of documenting delivery or transfer of the hazardous waste and it would also provide a source of information needed to characterize the hazardous waste transport industry concerning types of hazardous wastes hauled and their destination points either inter or intra state.

Common and contract carriers as required by the Interstate Commerce Commission for interstate transport and the State Public Utility/Service Commissions (PUC/PSC) for intrastate transport require that a record be kept in the form of a bill of lading, waybill, invoice, etc. These documents contain the following information:

the shipper's name, address, etc., the transporter's name, etc., the consignee, the quantity of the material, and description of the material. In addition the consignee may also be required to indicate receipt (Attachment IV) of the shipment.

In the May 2, 1977, ANPR the question was posed as to what kinds of records should be kept. This question was also discussed at the Type II meetings. All parties agreed that a copy of the manifest or the information on the manifest be kept as the record.

Since these types of records are currently being kept by transporters, EPA has developed the recordkeeping standards so as not to create additional unnecessary paper handling and storing. The intent is to require that a record be kept, which would contain information on the source and delivery points of each shipment of the waste, date of pick-up and delivery, quantity of waste transported, and description of the waste. The record, therefore, could be a copy of the manifest or if the document contains the information on the manifest the bill of lading, waybill, etc., thus requiring in most cases the retention of records already being kept.

The length of retention of records was also discussed at the public meetings and addressed in the May 2, 1977, ANPR. Suggestions which were made include: 1) the retention of the records should coincide with the Statute of Limitations, or 2) coincide with Federal/State requirements which vary from one

to three years. The majority of comments supported the adoption of a three year retention period, which is similar to the current ICC requirement.

State requirements for retention of shipping documents for intrastate transport vary widely. State PUC/PSC requirements were reviewed. When the State had no recordkeeping requirement, the State Health Department or Department of Natural Resources regulations were reviewed (Table V). Sixteen State PUC's/PSC's require the period of retention of records to be three years. In those States with no PUC/PSC requirements, two State Health Departments require retention of records by waste haulers for a period of three years. In addition nine State (PUC/PSC) Dept. of Health) require retention of records for a period of five years or longer. Therefore, a total of twenty-seven States require retention of records for at least three years. Of the remaining twenty-four States, ten have no recordkeeping requirements either by the PUC/PSC or Health Department; four have a one year retention requirement; and ten states require that records be kept for two years.

The Interstate Commerce Commission (ICC) which has jurisdiction over interstate transportation of hazardous materials (as defined by DOT) and 66% of the States with PUC/PSC or other Agency recordkeeping requirements, require transporters to retain shipping records for at least a three year period. In order to be consistent with existing ICC

requirements and the majority of existing State requirements for recordkeeping, a three year retention period has been selected. By using existing requirements, many transporters are today currently in compliance with the proposed record-keeping requirements.

State Recordkeeping Requirements (Period of Retention) DRAFT

State	Agency Requirement Public Utility Comm. Public Service Comm.	Other Agency Requirements
Alabama	*6	
Alaska	**6	
Arizona	2	
Arkansas	3	
California	3	
Colorado	2	
Connecticut	2	
District of Columbia	N.A.	N.A.
Delaware	N.A.	*10 Health Dep
Florida	1	
Georgia	3	
Hawaii	2	
Idaho	5	
Illinois	N.A.	3 IEPA
Indiana	**2	
Iowa	**10	
Kansas	1	
Kentucky	5	
Louisana	N.A.	N.A.
Maine	3	
Maryland	N.A.	1 Health Dept
Massachusetts	3	

Table V (continued)

State	Agency Requirement Public Utility Comm. Public Service Comm.	Other Agency Requirements
Michigan	N.A.	2 Dept. of Natura Resource
Minnesota	3	
Mississippi	3	
Missouri	N.A.	N.A.
Montana	3	
Nebraska	3	
Nevada	3	
New Hampshire	N.A.	N.A.
New Jersey	N.A.	*5 DEP
New Mexico	3	
New York	3	
North Carolina	3	
North Dakota	N.A.	N.A.
Ohio	3	
Oklahoma	N.A.	N.A.
Oregon	***2	
Pennsylvania	3	
Rhode Island	1	
South Carolina	2	
South Dakota	2	
Tennessee	N.A.	3 Health D
Texas	2	
Utah	N.A.	N.A.
Vermont	N.A.	N.A.
Virginia	N.A.	N.A.
Washington	3	
West Virginia	5	

Table V (continued)

State	Agency Requirement Public Utility Comm. Public Service Comm.	Other Agency Requirements
Wisconsin	6	
Wyoming	N.A.	N.A.

*State Regulations Pending

**Statute of Limitation

***Records held for Audit

C. Acceptance and Transport of Hazardous Wastes

The existing hazardous materials regulations require that a transporter cannot accept for transport or transport hazardous materials unless they are prepared for transportation in accordance with 49 CFR, Part 171, 172 and 173, which require that the hazardous materials be properly described, packaged, and labeled. The regulations require the transporter not only to assure that the materials received from the shipper comply with the regulatory requirements but also to assure that those shipments received from or transferred to connecting transporters are in compliance as well. Therefore, according to DOT, a transporter cannot accept for transport or transport hazardous wastes which meet the DOT criteria for a hazardous material unless the shipment is offered with a shipping paper signed by the shipper, properly labeled, and packaged.

In the development of the hazardous waste transportation regulations, similar acceptance and transportation requirements were discussed. Several comments were received during the development of the regulations concerning the acceptance of hazardous waste by the transporter prior to transport. "The regulation...does not adequately provide for the acceptance by the transporter of small quantities of hazardous waste such as partially filled pesticide containers and bags, etc., which are not properly labeled and in poor condition. We believe the actual transportation of such waste to a site should be performed only in sound containers. However,

for these small quantities of wastes, acceptance by the transporter should be permitted, followed by repackaging..."

The EPA regulations regarding acceptance of a hazardous waste shipment are modeled after existing DOT regulations. According to DOT, a transporter prior to transporting a hazardous material may repackage, label, etc...the shipment. Therefore hazardous waste transporters prior to transport may as a service to the generator properly describe and manifest the wastes, and properly package, label and mark the package.

D. Compliance With The Manifest

The manifest system developed under Section 3002 assures that all the hazardous waste that is generated and transported off-premises is designated for treatment, storage, or disposal, to a permitted hazardous waste management facility. The manifest document is designed also to furnish information to persons transporting and handling hazardous waste concerning the characteristic of the hazardous waste, emergency response information, and certification by the generator that the waste has been properly described, labeled, and packaged. The regulations developed under Section 3003 concerning compliance with the manifest are to assure that all of the hazardous waste picked up from the generator is delivered to the designated facility and also in the event of an emergency in transit, that information concerning emergency response is with the transport vehicle.

Under existing ICC and DOT requirements, the shipment of hazardous materials interstate must be accompanied by a shipping paper. The ICC requires that either a "Straight Bill of Lading" (Attachment IV) be prepared or a form containing the following information be prepared (49 CFR 1051.1): names of the consignor and consignee; the points of origin and destination; the number of packages, description of the articles; and weight, volume, or measurement of the property received. The DOT also has shipping document requirements specifically for the transportation of hazardous materials (49 CFR 172). The basic difference between the ICC and DOT

regulations is that DOT requires that the hazard be identified and that the shipper certify that the package is in proper order for transportation. In many instances the Bill of Lading, which is required by the ICC is modified to meet the requirements of the DOT.

Shipping documents are initiated by the shipper (generator) of the hazardous material. The shipper either prepares a shipping order (which meets the DOT requirements) and/or contacts the transporter, who then prepares the Bill of Lading (motor), Waybill (rail), or Dangerous Cargo Manifest (vessel, barge). If a shipping order is not prepared, the transporter will produce his own shipping document and acquire shipper certification on it. The transporter's shipping document is the primary document accompanying the hazardous materials shipment.

Procedural differences exist among the modes for the handling of shipping documents. Specifically, differences exist between motor and rail carriage of hazardous materials. The shipping documents for motor carriage are initiated by the shipper via a shipping order, and the transporter prepares a Bill of Lading, etc.. which is used during transport. Currently DOT requires that the shipping document remain at all times with the transport vehicle. Standards for the actual placement and handling of the shipping paper have been developed (Attachment VI). Upon delivery of the shipment to the consignee or transfer between transporters, the Bill of Lading must be

signed or another document must be issued signifying delivery or transfer and receipt of the shipment. The ICC requires that when collecting transportation charges, the transporter must issue a freight or expense bill covering each shipment. The following information is required on the freight or expense bill: names of the consignor and consignee, the date of shipment, the points of origin and destination, the number of packages, description of the articles, weight, volume or measurement of the property transported, the exact rate or rates assessed, the total charges to be collected, etc., the route of movement indicating each carrier participating in the transportation service, and the transfer point or points through which the shipment moved. (DOT shipping papers do not need certification of receipt.)

Shipping documents for rail carriage are initiated in a similar manner (Attachment VI); however, the handling of the shipping papers are different from those procedures used currently by motor carriers. The railroad has developed and is developing for all rail carriers a computerized system for handling the movement of rail cars and shipping documents. The shipping document prepared by the shipper is translated into a computerized waybill which is attached to a train consist (Attachment VIII). DOT's Hazardous Materials Regulations allow for the computerization by the railroad of its shipping papers, and accordingly have adjusted their regulations, "No member of the train crew of a train transporting the

hazardous material is required to have a shippers certificate on the shipping paper in his possession if the original shipping paper containing the certificate is in the originating carrier's possession." Upon delivery of the shipment to the consignee, the transporter prepares a delivery receipt indicating when the shipment was delivered. The shipper in addition to acquiring a delivery receipt also sends the Bill of Lading "overhead" via the mail for certification of receipt.

In developing the standards for compliance with the manifest, EPA has taken into consideration existing industry practices for the handling of shipping papers. Two elements must be addressed in the standards: (1) certification of transfer, receipt, and delivery; and (2) information for emergency response with the shipment. Requiring that the original manifest remain with each shipment of hazardous waste may disrupt current shipping paper handling procedures by the railroad and barge and also prevent the computerization of all shipping documents by the other modes. (For discussion of barge transport see ADL Study, Oct. 1977.) Important elements of the manifest include the shipper's certification and transporter's signature prior to transport, information remaining with the shipment during transport, and certification of receipt by the permitted facility. The above can be achieved either by requiring that the original manifest

remain with the shipment of hazardous waste or the information contained on the manifest accompany the shipment in the form of any shipping documents. To certify delivery the manifest must be signed by the designated facility. In the event that the information is with the shipment, a certification on a shipping document rather than the original manifest would indicate delivery. In either case the transporter would have documents certifying pickup, transfer, and delivery of the hazardous waste. If the manifest or shipping document cannot be immediately signed upon delivery, provisions need to be made concerning acquiring a signature. Various suggestions were made concerning the time period for compliance for signatures from one to thirty days. When developing the time period, holiday weekends delays and delays for weather need to be considered. Most holidays last no longer than three days and recent winter storms have kept business closed for up to a week.

EPA's standards for compliance with the manifest shall be based upon DOT's requirements for handling shipping papers and current industry practices for handling of the shipping document. By employing existing procedures, the regulations would simplify compliance with the regulations as well as protect human health and the environment. Regardless of the handling procedures used, the information needed for emergency response will remain with the transport vehicle and a certification of transfer and delivery would be assured.

If certification of receipt cannot be made upon delivery the circumstances describing why the manifest or shipping paper could not be signed should be indicated. The time period for acquiring signature will be five working days. This will allow delays due to holiday weekends, facility delays and other delays in final acceptance of the waste shipment by the facility.

E. Loading and Storage of Hazardous Materials (DOT)

The DOT regulations for hazardous materials address general handling and loading requirements for each mode: 49 CFR 174 Subpart C (Carriage by Rail); 175 Subpart B (Carriage by Aircraft); 176 Subpart C through O) (Carriage by Vessel); and 177 Subpart C (Carriage by Public Highway). According to DOT if a hazardous waste meets the criteria of a hazardous material, the above regulations must be complied with.

In addition to the above standards, shippers of hazardous materials are prohibited from: 1) "offering of packages of hazardous materials in the same packaging, freight container, or overpack with other hazardous materials, the mixture of contents of which would be liable to cause a dangerous evolution of heat or gas or produce corrosive materials (173.21(a)); 2) offering for transportation of any package or container of any liquid, solid, or gaseous material which under conditions incident to transportation may polymerize or decompose so as to cause a dangerous evolution of heat or gas; and 3) offering for transportation of any package or container of any material which will cause a dangerous evolution of heat or gas." As a result of these regulations, DOT has placed the burden of incompatible materials on the shipper.

For each mode there are several general requirements concerning the loading and unloading of hazardous materials from the transport vehicle. The following requirements concern the loading and unloading of hazardous materials from motor vehicles:

1. Any tank, barrel, drum, or cylinder which is not designed to be permanently attached to the motor vehicle and contains any flammable liquid, compressed gas, corrosive material, or poison must be reasonably secured from movement within the vehicle during transportation.
2. No hazardous material may be put on or transported via any pole trailer.
3. No person may smoke near any vehicle while loading or unloading any explosive, flammable liquid, flammable solid, oxidizing material, or flammable compressed gas. Extreme care should be taken during the loading or unloading of these materials, and all fire and flame should be kept away.
4. The carrier must not use any tools likely to damage the closure or otherwise adversely affect the integrety of any package.
5. Packages containing explosives, flammable liquids, flammable solids, oxidizing materials, corrosive materials, compressed gases, or poisonous liquids or gases must be braced to prevent motion relative to the vehicle during transportation. Containers having valves or other fittings must be loaded so as to minimize the liklihood of damage to them in transit.
6. Reasonable care should be taken to avoid any dangerous rise in the temperature of the lading in transit. No

one should tamper with any hazardous materials container or its contents between the points of orgin and destination, nor may there be any discharge of the contents of any container other than a cargo tank prior to the removal of that container from the trailer.

7. It is absolutely prohibited to leave a cargo tank unattended during loading or unloading of a hazardous material.

8. Flammable solids, oxidizers, and corrosive liquids, when transported on a motor vehicle with other lading must be loaded so as to provide ready access to those materials for shifting or removal.

9. Use of cargo heaters with hazardous materials is carefully regulated: (a) when transporting explosives any cargo heater must be rendered inoperative by draining or removing the heater fuel tank or disconnecting the power source for the heater, and (b) when transporting labeled flammable liquids or flammable compressed gas, a combustion cargo heater may only be used if it is a flameless, catalytic heater, which is not ignited in the vehicle and which has a surface temperature that cannot exceed 130° F. (54° C.) either by thermostatic controls or other controls when the outside or ambient temperature is 60° F. (15° C.) or less. The manufacturer of such

a catlytic heater must certify and mark the heater indicating that it "Meets DOT requirements for catalytic heaters used with flammable liquid and gas." Such a heater must also be marked "Do not load into or use in cargo compartments containing flammable liquid or gas if flame is visible on catalyst or in heater."

10. An automatic, cargo-space-heating, temperature control device may be used when transporting labeled flammable liquid or gas only if (a) there is an electrical apparatis in the cargo compartment; (b) there is no connection or return of air from the cargo compartment to the combustion apparatus; and (c) the heating system will not elevate the temperature of any part of the lading above 130° F. (54° C.). If these restrictions cannot be met, the heating device must be rendered inoperative through emptying or removing the fuel tank. (Each LPG fuel tank for automatic temperature control equipment must have its discharge valve closed and fuel feed line disconnected in lieu of actual emptying or removal of the tank.)

11. So-called ton tanks meeting DOT specifications 106A or 110A, authorized to carry certain hazardous materials by highway, must be securely chocked or clamped to prevent any shifting. Equipment suitable for handling such tanks must be provided at any point of loading or unloading.

12. Specification 56 or 57 portable tanks may not be stacked on top of one another, nor may other freight be stacked on them during transportation.

13. No motor carrier may load any article bearing a poison label into any vehicle with material marked as, or known to be, foodstuff, feed, or any edible material intended for human or animal consumption.

In addition to general requirements for loading and unloading of hazardous materials specific requirements regarding the loading and unloading of articles under headings for each hazard classification are included (Part 176, 177). Also for each mode the DOT has produced loading and storage charts. For example Section 177.848 of Title 49 is a tabular chart of the loading and storage requirements, pairing each classification with potential loads of other classes (Attachment VIII). The loading and storage chart may be summarized as follows:

1. Labeled flammable liquids and flammable compressed gases must not be loaded or stored with Class A poisons.

2. Labeled flammable solids, oxidizers, or organic peroxides must not be loaded or stored with labeled corrosive liquids or Class A poisons.

2. Labeled corrosive liquids must not be loaded or stored with labeled flammable solids, oxidizers, organic peroxides, or Class A poisons, cyanides, or cyanide mixtures.

4. Nitric acid, when loaded in the same motor vehicle with other acids or other corrosive liquids in carboys must be separated from the other carboys as prescribed in the notes to the loading and storage chart.

NOTE: Shippers loading truckload shipments of corrosive liquids and flammable solids or oxidizing materials packages and who have obtained prior approval from DOT may load such materials together when it is known that the mixture of contents would not cause a dangerous evolution of heat.

The storage requirements are principally developed for the storage of containers on transport vehicles. Since wastes are also transported in bulk, there is the potential that they will be mixed during the collection phase of transportation. The existing DOT regulations do not address the mixing of wastes by the transporters. Though the regulations apply to hazardous waste which meet the criteria for a hazardous material, the storage and loading requirements may not apply to mixing. The rational for currently not addressing the subject by DOT for transporters is that hazardous materials are not mixed. Product integrity is of importance and, therefore, during transportation the hazardous materials are not mixed. The contamination of the material is avoided. However, in a spill situation the potential exists for unintentional mixing.

The following information is taken from a report done for EPA concerning the Management of Incompatible Wastes.* Though the study concentrates on waste management at treatment, storage or disposal facilities, similar procedures are used for storage and mixing during transportation.

Statement

Persons involved in the storage, handling, treatment, and disposal of hazardous wastes shall not create a situation whereby potentially incompatible wastes can come in contact with one another and result in: 1) heat generation, 2) pressure generation, 3) fire, 4) explosion or violent reaction, 5) formation of substances which are shock sensitive, friction sensitive, or otherwise have the potential of reacting violently, 6) dispersal of toxic dusts and mists due to an explosion or violent reaction, 7) formation of toxic fumes, gases, or other toxic chemicals, 8) volatilization of flammable or toxic chemicals due to heat generation, and 9) solubilization of toxic substances. All storage and disposal areas shall be demarcated and labeled such that the incompatible characteristics of the waste are clearly displayed.

Rationale

The wastes accepted at hazardous waste treatment, storage, and disposal facilities are usually very hazardous by themselves.

*Recommend General Options for the management of Incompatible Hazardous Wastes at Hazardous Waste treatment Storage and Disposal Facilities, Grant #R-80469201.

However, if a waste were to come in contact with another waste which is incompatible with it, the consequences often create much more hazardous situations than the reactants themselves. Furthermore, wastes can contact other incompatible materials during handling (transport) at a facility resulting in the same consequences. The lack of accurate information about the wastes, and the often indiscriminate handling of the wastes contribute to the high risk of contact of potentially incompatible substances at hazardous waste treatment, storage, and disposal facilities. The chemical reactions which result from such contact can cause secondary consequences such as injury, intoxication, or death of workers, members of the public, wildlife, and domestic animals. They can also cause property and equipment damage, and contamination of air, water and land.

Many incidents have already occured (Attachment IX). The incidents occured during normal handling operations and were the results of lack of accurate information about the waste, indiscriminate disposal practices, and indiscriminate combination during other handling operations. They have shown that the above mentioned reactions or primary consequences are those that are most significant in the consideration of potentially incompatible hazardous wastes. In many instances, these consequences have been documented as a chain of events. An example is where a violent hydrolysis reaction resulted in hear and pressure which caused dispersal of highly corrosive materials and considerable property damage.

It is evident from these cases that sensible precautions are extremely necessary in the handling of hazardous wastes to prevent incidents from occurring. Such precautions must be directed toward preventing contact of potentially incompatible wastes and contact of waste with other incompatible materials. It is imperative that these precautions are stated and clearly understood by all involved in the management of hazardous wastes because of the extreme hazards involved and the swiftness with the consequences of contacting incompatible materials can occur.

Handling of Bulk Hazardous Wastes

Statement

In the handling and disposal of hazardous wastes, potentially incompatible hazardous wastes in bulk shall be handled individually to avoid contact with each other except in the mixing of one waste with another under controlled conditions for the purpose of treatment.

Rationale

A hazardous waste in bulk must not be deposited into an area which is already used for the containment of another incompatible chemical constituent since the two wastes may react to create a more hazardous condition than that presented by the components in each waste. Depositing of an acid waste into a landfill containing a cyanide waste resulted in the evolution of hydrogen cyanide, an extremely toxic gas. Such an accident could have been averted if the handler had ascertained the nature of waste in the landfill before depositing the acid waste. Many

other such accidents have been reported in the literature involving heat, fire, and explosions resulting from mixtures of alcohols with metal hydrides and mixtures of concentrated acids with organic solvents.

All handlers of incompatible wastes must have explicit information on the composition of both the waste being disposed and the waste in the disposal site. Furthermore, they must be aware of any potential incompatibility of chemical constituents in the wastes so that chemical reactions between the chemical species will not have any detrimental effects on the public health, wildlife, environment, property, or equipment.

Under Section 3004, guidelines for hazardous waste management facilities are being developed to prevent mixing of incompatible waste and handling procedures for storage of incompatible waste in drums.

Alternatives Chosen

Rather than EPA developing at this time new loading and storage requirements and since the DOT has developed loading and storage requirements that are applicable to hazardous waste transporters and shippers, EPA will incorporate the DOT regulations under 250.34 of the regulations. Since generators/shippers are familiar with the hazardous waste, it is their responsibility to determine whether or not a waste should be offered for transport and whether or not the container and the existing waste in the container are appropriate for the offered hazardous waste. In addition, since Section 3004 is developing incompatibility guidelines, these guidelines will be made available to transporters.

F. Emergency/Spill Regulations

Emergency Situations

In the event of a spill of hazardous waste or a hazardous material which then becomes a waste, special handling procedures should be instituted. There is a concern that because of the transport requirements, in the event of a spill which requires immediate removal of a waste, the waste could not be transported or that the transporter would be in violation of the standards. EPA needs to consider the emergency situation and allow for immediate response and ease of movement of the waste. Requiring compliance with the regulations may result in unnecessary delay in the removal of hazardous waste spills. The transporter requirements once the emergency is secured would then be in effect. In the event that an on-the-scene coordinator (EPA, State police, etc.) determines that the materials presents an immediate safety hazard, the waste could be allowed to be transported outside of the regulations to allow for immediate removal of the waste. The coordinator would have the responsibility to designate the waste management facility.

DOT Incident Reporting*

"The regulations of the Department of Transportation (49 CFR 171.15, 171.16) require all carriers, including private and contract carriers, to file reports of any accident or incident involving the spillage or unintentional release of any hazardous material from its packaging."

*This discussion taken from Chapter 17 Hazardous Materials Accident & Incident Reporting, Red Book on Transportation of Hazardous Materials, Lawrence Bierlein 1977.

The incident reporting system, as it is commonly called, was developed in response to a recommendation made by the National Transportation Safety Board (NTSB) to the Secretary of Transportation in 1969. The NTSB felt that an incident reporting system was necessary because of an increase in traffic, demand for hazardous materials, and the need for intermodal coordination. The system was designed to provide a unified data system based on uniform definitions of terms and utilizes a common reporting form submitted by transporters.

Beginning in 1971, the reporting system was instituted. The system covers two primary areas. The first is a requirement that all carriers make immediate reports to DOT by telephone when incidents of a specified severity occur." The second part of the system is a routine reporting requirement governing the submission of written reports in a uniform format in those instances when an immediate report is required and also in any case where there has been an unintentional release of hazardous materials from a package. The detailed written report must be filed within 15 days of the date of discovery. If the information at that time is incomplete, the carrier should file within 15 days and complete it later.

The reports on file with DOT are public information, as are the accumulated totals and other compilation prepared by the DOT staff from these reports. Any person may obtain a copy of any report, and no information is considered confidential. A detailed written incident report is required for every unintentional spillage or release of a product. There is no quantity threshold that would preclude reporting small amounts of unintentional spills; although, no report is needed for normal occurrences such as spills from hoses during normal disconnections. As DOT said in adopting the system: "The (Hazardous Materials Regulations) Board does not feel it is in a position at this time to determine whether there are insignificant unintentional releases of hazardous materials that do not warrant the filing of a written report. While it may be true that under the amendment the Board will receive reports of unintentional releases of hazardous materials that may prove to be insignificant, the Board does not have any criteria at this time on which it could draw a line between those releases that should be reported and those that should not. As experience is gained under this incident report program, the program will be subject to containuing review. If it is found that the present criteria is (sic) putting an undue burden on carriers and that the Board is receiving unusable or irrevevant incident reports, the Board will not hestitate to review the reporting requirements and to take future rule-making action".

Although the matter of reporting every incident, no matter how small, has been the subject of frequent critical comment, there has been no indication from DOT that a rule change is contemplated that would set a specific quantity threshold for the reporting requirements. Given DOT's comments during the adoption of these requirements, however, the door has been left open for those who would care to suggest some limitations.

The specific requirements are as follows:

Immediate Telephonic Hazardous

Materials Incident Reports

(a) At the earliest practicable moment, each carrier who transports hazardous materials shall give notice in accordance with paragraph (b), below, after each incident that occurs during the course of transportation (including loading and unloading and temporary storage) in which as a direct result of hazardous materials-

(1) A person is killed;

(2) A person receives injuries requiring his admission to a hospital;

(3) Estimated carrier or other property damage exceeds $50,000;

(4) Fire, breakage, spillage, or suspected radioactive contamination occurs involving a shipment of radioactive material.

NOTE: In these instances, the radioactive materials package or materials should be segregated as far as practicable from personnel contact. If radiological advice or assistance is needed, the U.S. Energy Research and Development search and Development Administration should also be notified at the offices listed below. In case of obvious leakage or if it appears likely that the inside container may have been damaged, care should be taken to avoid inhalation, ingestion, or contact with the radioactive material. Any loose radioactive material should be left in a segregated area and held pending disposal instructions from qualified persons.

Note 2: Details involving the handling of radioactive materials in the event of an accident can be found in Bureau of Explosives Pamphlets 1 and 2.

(5) Fire, breakage, spillage, or suspected contamination occurs involving shipment of etiologic agents; or

(6) A situation exists of such a nature that, in the judgment of the carrier, it should be reported by Immediate Telephonic Report, even though it does not meet the criteria listed in this paragraph. For example, a continuing danger to life exists at the scene of the incident.

(b) Each notice required by paragraph (a), above shall be given to DOT by telephone at Area Code (202) 426-1830. Notice involving etiologic agents may be given to the Director, Center for Disease Control, U.S. Public Health Service, Atlanta, Georgia, at Area Code (404) 633-5313. instead of giving notice to DOT. Each immediate telephone notification must include the following information:

(1) The name of the person calling.

(2) The name and address of the carrier on whose behalf the call is being made.

(3) A telephone number where the caller can be reached.

(4) The date, time, and location of the incident.

(5) The extent of injuries, if there are any.

(6) The classification, name, and quantity of hazardous materials involved, if this information is available at the time of the call.

(7) The type of incident and the nature of the involvement of hazardous materials in the incident, and whether a continuing danger to life exists at the scene of the incident.

(c) Each carrier making an immediate telephone report of an incident must also make a detailed written report as described below.

Detailed Hazardous Materials

Incident Reports

(a) Each carrier who transports hazardous materials shall report in writing, in duplicate, on DOT Form F 5800.1, illustrated below, to DOT within 15 days of the date of discovery, each incident that occurs during the course of transportation (including loading, unloading, or temporary storage) in which, as a direct result of the hazardous materials, any of the circumstances warranting an immediate telephone report have occurred or there has been any unintentional release of hazardous materials from a package (including a tank).

(b) Each carrier making such a detailed written report shall send it to the Director, Office of Hazardous Materials Operations, Materials Transportation Bureau, Department of Transportation, Washington, D.C. 20590.

The DOT incident report is divided into several sections, each given an alphabetical designation. Within each section are items describing the details for that section (Attachment XI).

The data collected from the incident reports are used to determine whether greater emphasis should be directed to shipper and carrier compliance with existing requirements, or to the need for change in containers, hazardous classifications, or in handling requirements. The Secretary of DOT responded to this recommendation with agreement "as to the importance of accident and incident data in evaluating the effectiveness of existing regulations and in developing new hazardous materials regulations."

At this time, the detailed information for the reports is computerized, and it is possible to retrieve complied informa-

tion according to each of the major subject categories on form DOT F 5800.1. Incident data can be retrieved from the full system by carrier name, shipper name, container specification, incident location, material classification, product shipping name, etc.

With recently acquired direct jurisdiction over the makers and reconditioners of packaging for hazardous materials, DOT may be expected to rely on the incident reporting system in its evaluation of the integrity of specification packaging generally, and the products of certain manufacturers particularly.

Data summaries from DOT indicate that since 1971 approximately 44,000 written reports have been received. A majority of 36,500 (83%) of the incident reports were submitted by for-hire (common & contract) motor carriers. Data summaries are also available on container failures, commodaties involved in incidents, etc. (Attachments XII, XIII, XII)

DOT recently conducted an in-house study for 1976. The number of written reports received for each commodity by shipping name were tabulated. Because DOT has a classification N.O.S. (not otherwise specified), it is impossible to determine whether or not hazardous waste are involved. However, DOT does identify by shipping name commodities which may be hazardous wastes. In 1975 only two incident reports were received: one for "acid sludge" and one for "Bottles, having previously contained a hazardous material and not cleaned."

EPA Spill Notification

Current authority over the spills of oil and hazardous substances rests with EPA Section 311 of FWPCA and the U.S. Coast Guard. Control and removal actions are required for spills "into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contigous zones." The waters of the U.S., according to the U.S. Coast Guard include all streams, creeks, lakes, and ponds. . . Storm drains and similar artificially created systems whose discharges are not processed through treatment plants are 'waters of the U.S.' . . ." The "waters of the U.S. also include seasonally dry watercourses. U.S. waters should not be construed as every puddle or depression containing or capable of containing water."

The Coast Guard has developed a toll-free number that is used to report a spill of oil and hazardous substances. Once notified, the U.S. Coast Guard contacts the appropriate spill agency. Hazardous wastes may partially fall under the reporting requirements of Section 311 once promulgated. Reporting to the U.S. Coast Guard to the EPA Regional Spills Office would be required for those wastes covered.

It is estimated that approximately eight million metric tons/year (wet basis) of hazardous waste is transported within the United States.* In order to estimate the potential number

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*Potential for Capacity Creation, Foster D. Snell, August 1976.

of hazardous waste incidents that may occur during transport, the hazardous waste transported will be compared to the total estimated hazardous materials movement. In 1976, it is estimated by DOT that 5,000 million tons of hazardous materials were transported resulting in approximately 12,000 incident reports. DOT estimates that only 10% of the incidents are reported; therefore, the total number of incidents may be estimated at 120,000. Given the ratio of hazardous waste transported to hazardous materials transported of 562:1, and 120,000 incidents, it would be expected approximately 213 incidents would occur involving hazardous waste.

5,000 million tons X 0.9 = 4,500 million metric tons

$$\frac{\text{4,500 million metric tons}}{\text{8 million metric tons}} = \frac{562}{1}$$

This estimate of potential incidents may be low, however, hazardous waste transported represents only .17 percent of hazardous materials transported. In an EPA report** it is estimated that 57% of the spills occur in transit.

Various alternatives are available for the development of spill/emergency reporting for hazardous wastes. EPA could develop its own notification and reporting system for hazardous waste. This, however, ignores existing procedures and available systems for notification and reporting of spills/emergencies.

**Documentation and analysis of Historical Data on Hazardous Material Spills, Contract No. 68-03-0317, April 1976.

During the development of these regulations, the opinion was expressed by outside reviewers and working group members that existing systems should be used, if at all possible. Since the basis for the regulations rest with existing DOT requirements, the use of the DOT incident report to report hazardous waste spills was supported by all. EPA has proposed to DOT that minor modifications be made/allowed to the incident report to cover and identify hazardous wastes and also determine the disposition of the spill. Since DOT currently receives the report, EPA is proposing, with approval of DOT, to have all hazardous waste incident reports mailed directly to DOT. Upon receipt, DOT would forward a copy to EPA.

Early in the development of the regulations, it was felt that a 24-hour toll free number should be utilized. Since such a number already existed under joint sponsorship, the proposal was made that the existing U.S. Coast Guard system be utilized. The Coast Guard has agreed to EPA use of the toll-free number. (Attachment XV).

Alternative Chosen

Under DOT requirements, the spill of any hazardous material is a reportable incident (49 CFR 171.15 & 171.16). Accordingly, any waste which is spilled and meets the DOT criteria must be reported. For those wastes not meeting the DOT criteria, it was felt at the public meetings and during external review that those incidents should be reported using the same procedures.

The purpose of the reports is to determine what caused the spill and also to evaluate the adequacy of existing containers handling procedures, etc. for the transportation of the waste. Use of existing DOT regulations, as stated in the other areas of regulations development, simplifies compliance with the regulations.

A notification system is also needed for hazardous waste spills. Since the U.S. Coast Guard has agreed to the use of their number, EPA is proposing the use of the existing 24-hour spill notification phone lines. It is anticipated that approximately 120 notifications should be received concerning in-transit spills.

Spill Clean-up

Various comments were received from both within EPA and from outside agencies concerning who is responsible for spills of hazardous wastes. According to the structure of the Act, EPA believes that responsibility for the waste (as long as the regulations are complied with) is transferred from the generator to the transporter, to the final destination.

The transporter, once receiving the shipment of hazardous waste, is responsible for the transportation and delivery of the waste to the facility designated on the manifest. If a spill occurs, the transporter is still responsible for the proper management of the spilled waste.

Under Section 3002, a generator is defined as any person whose act or process produced a hazardous waste. If the transporter

spills a waste, the composition of the waste may change. If that is the case, the transporter would become a generator, and again, be responsible for the proper management of the waste.

Upon notification of the spill, either an EPA official or other Federal, State or Local official representing various agencies (Fire, Police, Environmental) would become involved in mitigation of the spill. Emergency actions may be directed by these officials to prevent endangerment to human health or the environment.

Regulation Developed

Since the transporter is responsible for the delivery of the hazardous waste shipment to a permitted facility, this responsibility would be maintained if a spill occurs. EPA could be silent concerning this regulation since the transporter is responsible for delivery or may become a generator. However, EPA believes that responsibility should be clearly stated and therefore, has made the transporter responsible for clean up of a hazardous waste spill.

G. Identification of Vehicles

The Interstate Commerce Commission requires every for-hire motor carrier (common or contract) operating under authority granted by ICC to identify themselves as such. "There shall be displayed on both sides of each vehicle operated under its own power, either alone or in combination...the name, or trade name, of the motor carrier under whose authority the vehicle, or vehicles is or are being operated, and the certificate permit, or docket number assigned to such operating authority by the Interstate Commerce Commission." The purpose for the identification is to identify the transporter as being regulated by the ICC and DOT. Many State PUC's/PSC's have similar identification requirements for common and contract motor carriers. Of those 49 States that have PUC/PSC requirements, the majority, 39, require identification of motor vheicles. In addition to ICC requirements, 49 CFR 397 requires that any private carrier operating a motor vehicle under its own power, which must be placarded for the hazardous materials it is carrying, must also mark the following information on that vehicle: The name or trade name of the private carrier operating the vehicle, and the city or community in which the private carrier maintains its principal office or in which the vehicle is customarily based. These markings must be on both sides of the truck, readily legible from 50 feet while the truck is stationary.

Identification of the transporters hauling hazardous wastes was supported by the majority of persons attending the Type II

public meetings and the external reviewers of the draft regulations. As pointed out in the transport study, the majority of hazardous waste is being transported by motor vehicle. The majority of problems concerning illegal disposal has been the result of illegal disposal by motor carriers.

In developing the identification (marking) requirements for transporters of hazardous wastes, the model differences were taken into account. The rail, air, and barge carriers are easily identifiable and are restricted, due to the nature of the mode, as to their areas of services and use of communication lines (track, rivers, air). The motor carrier, on the other hand, is quite mobile. If there is a road, path or passable route, a motor carrier could take it. Concern was expressed that many motor carriers of hazardous waste, "gypsies", often use unmarked vehicles so that they cannot be identified when picking up, transporting, or disposing of hazardous wastes.

Federal, State, and local government representatives are concerned that all transporters handling hazardous waste be identified. Under existing ICC and State PUC/PSC regulations, the private carriers are not regulated. In order for all motor carriers to be identified, the standards should apply to private, contract, and common carriers.

Alternative Chosen

Since carriers by air, rail, and barge are readily identifiable and restricted as to their routes, EPA sees no need to require identification of the vehicles for hazardous waste transport. Transporters of hazardous waste by motor

vehicle, as urged by the public, will be required to be identified. For the identification, existing ICC requirements will be incorporated into the regulations. Since the I.D. number assigned by EPA under 3010 and these Standards is an existing ICC, PUC, or IRS number, the majority of motor carriers will be identifiable by name and also number. EPA plans to issue a list of transporters who have notified EPA giving name, I.D. number, etc. . . Since EOT uses the 1,000 lb. limit for marking, EPA, for those waste not covered has used similar weight limits. According to existing data the majority of transporters both inter and intrastate currently are complying with the proposed standards. By referencing EPA's list of Transporters, EPA enforcement personnel and State and local governments can identify transporters of hazardous wastes. The identification of the transporter also informs the public and emergency response personnel as to the firm transporting the hazardous waste and the location of the home base of the vehicle. In the event of an emergency, the terminal can be contacted to determine what is in the load.

H. Placarding of Transport Vehicles

As required by the DOT, a transporter cannot move a transport vehicle containing hazardous materials unless it is placarded in accordance with 49 CFR 172 Subpart F - Placarding. DOT has recently developed new placards to identify the hazards present during transportation (Attachment XVI). The DOT placard is a rectangular, color-coded sign with a hazard warning word written on it and attached to the four sides of a transport vehicle. The following hazards and types of hazardous material are identified by the placards: EXPLOSIVE, FLAMMABLE, NON-FLAMMABLE GAS, OXYGEN, FLAMMABLE GAS, CHLORINE, POISON GAS, COMBUSTIBLE FLAMMABLE SOLID, FLAMMABLE SOLID (do not wet), OXIDIZER, ORGANIC PEROXIDE, POISON, RADIOACTIVE, and CORROSIVE.

Transport vehicles containing any quantity of explosives, poison gases, flammable solids (do not wet), radioactive, and corrosive materials must be placarded. Thansport vehicles containing less than 1,000 pounds of the following need not be placarded: flammables, non-flammable gases, chlorine, poisons, oxygen, flammable gases, combustibles, flammable solids, oxidizers, organic peroxide, and corrosives.

The warning word on the placard keys emergency response personnel to the hazard of a spilled material and thus elicits certain responses. DOT has published an emergency action guide

to help emergency service personnel during the first 30 minutes of an accident. The guide identifies both the chemical and the hazard associated with that chemical (i.e., ammonia, corrosive).

Under existing DOT regulations, any hazardous wastes which meet the DOT criteria of a hazardous material must be placarded in accordance with the DOT placarding requirements. DOT regulations currently apply to interstate transportation; however, a majority of the States have adopted the DOT Hazardous Materials Regulations. According to DOT, 39 States require DOT placards on transport vehicles.

The placarding of transport vehicles was discussed at the Type II meetings and in the ANPR. DOT, under their current criteria, cover many hazardous wastes; however, those wastes which are bioaccumulative, above DOT toxicity levels, may cause genetic change, or are carcinogens do not require placards. The majority of the respondents to the ANPR believe that the DOT placarding requirements are sufficient for hazardous wastes. However, many stated that additional placarding is necessary to cover those wastes which are not addressed under the DOT Hazardous Material Regulations. The respondents favored the DOT developing the placard, if deemed essential by DOT.

At the Type II meetings various alternatives were suggested for placarding of transport vehicles. Many attendees suggested use of DOT placards as a base and in addition develop placards similar to the labels designed by the National Fire Protection

similar to the labels designed by the National Fire Protection Association (NFPA), Manufacturing Chemists Association (MCA), or NIOSH.

The NFPA system identifies the hazard of the chemical material in terms of three principal categories: Health, flammability, and reactivity (instability). The order of severity is rated numerically by fire divisions ranging from four, indicating a severe hazard to zero, indicating no special hazard.

The information on the label is presented by a spatial system of diagrams with health always being on the left, flammability at the tope, and reactivity on the right. Supplementing the spatial arrangement, color backgrounds and numbers are used for the three categories: blue for health, red for flammability, and yellow for reactivity. The fourth space is used to indicate unusual reactivity with water or may be used to indicate other additional information to fire and other emergency response personnel and stresses that "the hazard should be assigned on the basis of the greater hazard that could exist under fire or other emergency conditions." Therefore, the NFPA system may not impart a valid health hazard in the absence of fire.

Identification of the various hazards of a waste would be helpful to emergency response personnel, as well as to those individuals handling the waste. The NFPA system would require additional testing and analysis of the waste beyond that required by Sections 3001 and 3002 because wastes may vary from batch to batch.

The labels and precautionary information system of MCA recommends the use of precautionary labels bearing such information as the product name, signal words designating the degree of hazard (i.e., danger, warning, or caution); affirmative statement of hazards; precautionary measures covering actions to be followed or avoided; instructions in case of contact or exposure; antidotes and notes to physicians; and instructions for container handling and storage. The MCA system is rather informative requiring a lot of information on a label and therefore, would not be appropriate for a placard. For wastes, MCA labels may present a problem in developing the information for each waste stream or mixtures fo wastes. The system does not allow for a numerical hazard rating.

"NIOSH's proposed system has drawn upon the most effective features of each system." Basically, NIOSH proposes a label with the following information: alert symbol of health hazard, flammability hazard, and reactivity hazard along with a rating for each (similar to NFPA). The label includes the trade name of the product, statements on the nature of the hazard (DOT), action statements, and first aid statements (MCA). When applicable specific cleanup and disposal statements shall be included.

Each of the systems discussed, NFPA, MCA, and NIOSH in order, relay increasing amounts of information to emergency response personnel and handlers of the material. With too much information portrayed on the placard, the effectiveness of quick response is lost.

Other recommendations to EPA concerning placarding of vehicles for those wastes not covered by DOT were to develop placards for each class of waste (i.e., bioaccumulative, carcinogen, mutagen, etc. . . .) or to develop one placard in addition to the DOT placard or separate from DOT which would indicate that the shipment contains a hazardous waste. By identifying the shipment, emergency response personnel would be alerted to a potential threat to human health and the environment, and the manifest should be consulted. Terminology suggested by participants at the Type II meetings for the placard included: "Hazardous Waste," "Environmental Hazard," "Environmental Contaminant," "Controlled Material," "Controlled Waste," "Waste," or "Dangerous." The terms "Environmental Hazard," "Environmental Contaminant," "Hazardous Waste," and Dangerous" were rejected by the majority of reviewers because the description of the hazardous waste as compared to the actual hazard present during transportation was not consistent. Therefore, the terminology of "controlled material," "controlled waste," or "waste" was supported.

Another approach for the development of placards for those wastes not currently covered by DOT is to recommend to DOT a modification of their regulations. DOT at this time does not see the need for either DOT or EPA to develop a placard for hazardous wastes. Since a placard has certain connotations for emergency response personnel, there is concern that if in the event of a hazardous waste spill which presents a chronic hazard, there is the possibility that a full emergency response action would be taken and, as studied by DOT, a potential exists for an accident incurred by the emergency response personnel.

Alternative Chosen

EPA has received several comments that pacards should only be used when the transportation of a material (waste) presents a hazard during transportation. DOT has the responsibility for determining which materials present a transporation hazard and whether or not a placard should be used to identify the hazard of the shipment. It was recommended that EPA not develop a placard independently of DOT. EPA, therefore, has recommended to DOT that hazardous waste which currently do not require placarding of the transport vehicle be placarded. DOT will determine whether or not a new placard should be developed. Current DOT thinking is that hazardous wastes which present a chronic hazard need not be placarded since the information on the manifest will supply sufficient information for emergency response in the event of a spill.

I. Insurance Requirement

Section 3003 of RCRA mandates that standards applicable to transporters be developed to protect human health and the environment. In order to fully comply with this mandate, the question has been raised as to whether there is a need to establish minimum insurance coverage requirements for hazardous waste transporters to cover the costs of spill cleanup and the resulting environmental damage.

Comments to this question were invited in the May 2, 1977, ANPR. Various State agencies believe that minimum insurance should be required. However, concern was expressed that small transport companies could be driven out of business because of the high cost of insurance.

There was also general agreement among waste generators that insurance should be required. However, the level of coverage suggested varied. Several suggestions were received: transporters should be insured to cover the cost of spill cleanup; minimum insurance requirements should be established plus a $5,000,000 umbrella policy to cover all accidential spills of hazardous wastes; insurance should be required but made available through the public rather than the private sector; and the current ICC insurance requirements are sufficient.

There was also a consensus of opinion among waste disposers that minimum insurance requirements are needed. Either the Federal government should provide the necessary

insurance coverage or if the insurance industry is willing to insure transport of hazardous wastes, the private insurance industry.

Transport companies commenting, however, did not support RCRA requiring minimum or additional insurance. Some felt that no insurance regulations were needed other than to cover unique hazards or extensions of the Price-Anderson Act. Interstate common carriers believe that insurance presently carried by most transporters was adequate and that additional insurance would be expensive and hard to find.

Interstate Commerce Commission

Interstate transportation of hazardous materials (waste) is regulated by the Interstate Commerce Commission (ICC). Motor carriers are required by the ICC to obtain a certificate of insurance before receiving authority to operate (Attachment XVII). The minimum insurance requirements which are set forth in 49 C.F.R. 1043.2 include $100,000 for bodily injury or death of one person; $300,000 for bodily injury or death of more than one person (limited to $100,000 per person); and $50,000 for property damage.

State Regulations

Insurance for the intrastate transportation of hazardous materials (wastes) is required by the various State Public Utility Commissions (PUC). Of the 49 regulatory commissions

which certificate motor carriers, only New Hampshire, Maryland, and New Jersey do not set minimum liability insurance requirements. Thirty States require a certificate of insurance or demonstration of financial responsibility prior to issuing a license or permit.

Among the other States, the minimum amounts vary widely (Table VI). The minimum insurance for bodily injury or death to one person ranges from $10,000 to $100,000 (although California requires $200,000 for petroleum carriers); from $10,000 to $300,000 for bodily injury or death to more than one person ($600,000 in California for petroleum carriers); and from $1,000 to $100,000 for property damage. Although some States have set their minimum insurance requirements quite low, this is not always relevant because carriers in those States hold far more insurance than is required.

*Availability

Insurance coverage for hazardous material spills for fixed facilities and transportation stock varies widely. The trucking industry is the only transportation mode which is required to carry minimum insurance levels. Although the ICC requires minimum insurance coverage, coverage within the industry varies. It is estimated that there are 16,000 (common, contract) truck lines. Of these, about 100 lines carry large "umbrella" insurance policies which range between $1,000,000 and $5,000,000. Another 1,000 truck lines

TABLE VI

State Insurance Requirements

State	Bodily Injury or death one person	Maximum for Bodily Injury	Property Damage	Financial Responsibility or Insurance required for Permit/License
Alabama	10.000	300,000	50,000	X
Alaska	100,000	300,000	10,000	X
Arizona	25,000	100,000	10,000	
Arkansas	25,000	50,000	5,000	
California	100,000 *** 200,000	300,000 600,000	50,000 100,000	
Colorado	25,000	100,000	10,000	X
Connecticut	100,000	300,000	50,000	X
District of Columbia	N.A.	N.A.	N.A.	
Delaware	N.A.	N.A.	N.A.	
Florida	100,000	300,000	50,000	X
Georgia	25,000	100,000	10,000	
Hawaii	25,000	100,000	10,000	
Idaho	100,000	300,000	50,000	X
Illinois	20,000	40,000	5,000	X
Indiana	100,000	300,000	50,000	X
Iowa	25,000	50,000	10,000	X
Kansas	25,000	50,000	5,000	X
Kentucky	*10,000	*20,000-30,000	5,000-**25,000	

*ries by weight of vehicle

State	Bodily Injury or death one person	Maximum for bodily injury	Property Damage	Financial Responsibility or Insurance required for Permit/License
Louisana	10,000	10,000	1,000	
Maine	20,000	40,000	10,000	X
Maryland	N.A.	N.A.	N.A.	
Massachusetts	N.A.	N.A.	1,000	X
Michigan	100,000	300,000	50,000	
Minnesota	100,000	300,000	50,000	
Mississippi	100,000	300,000	50,000	
Missouri	50,000	100,000	10,000	X
Montana	25,000	100,000	10,000	X
Nebraska	25,000	50,000	25,000	X
Nevada	25,000	100,000	10,000	X
New Hampshire	N.A.	N.A.	N.A.	X
New Jersey	N.A.	N.A.	N.A.	X
New Mexico	10,000	20,000	5,000	
New York	25,000	100,000	10,000	
North Carolina	50,000	100,000	50,000	X

* Varies by weight of vehicle
** For flammable, explosive, oil, etc.
*** Petroleum Carriers

Table II (cont.)

State	Bodily Injury or death one person	Maximum for Bodily Injury	Property Damage	Financial Responsibility or Insurance required for Permit/License
North Dakota	100,000	250,000	25,000	X
Ohio	100,000	300,000	100,000	
Oklahoma	10,000	25,000	5,000	X
Oregon	10,000	20,000	10,000	X
Pennsylvania	25,000	100,000	10,000	
Rhode Island	25,000	100,000	10,000	
South Carolina	25,000	100,000	10,000	X
South Dakota	N.A.	N.A.	5,000	
Tennessee	25,000	100,000	10,000	X
Texas	25,000	100,000	10,000	
Utah utah	100,000	300,000	50,000	
Vermont	N.A.	N.A.	N.A.	
Virginia	100,000	300,000	50,000	X
Washington	25,000	100,000	10,000	X
West Virginia	10,000	20,000	5,000	X
Wisconsin	15,000	30,000	10,000	
Wyoming	25,000	100,000	5,000	X

Varies by weight of vehicle
* For flammable, explosive, oil, etc.
** Petroleum Carriers

carry property damage insurance between $100,000 and $500,000, and are assumed to carry correspondingly large coverage for personal liability. The remaining 15,000 truck lines carry the minimum insurance levels as required by the ICC.

The insurance coverage for the trucking industry for hazardous material spills as presently constituted will cover mitigation expenses to prevent further property damage. However, environmental mitigation expenses may not be recognized by these insurers as necessary and valid expenditures to mitigate damages.

There are no Federal requirements for minimum insurance coverage for the railroad industry for hazardous material spills. Generally, railroad lines are self insured and, therefore, cover their own damage claims. Some lines, however, do carry special insurance policies to cover catastrophic accidents and fires. Insurance levels for this type of situation may be for $25,000,000 total coverage, with a $1,000,000 to $2,000,000 deductible clause written into the policy. Accident liability for the railroad industry is thus covered either by the railroad line directly or through a large catastrophe policy with a substantial deductible clause written in. However, as presently constituted, it is not likely that a large catastrophe policy would cover environmental mitigation expense.

*EPA memorandum Johnathan Amson to Hugh Thompson 8/19/75

Insurance coverage for vessel transportation of hazardous materials appears to be different from that for the railroad or trucking industries. Present insurance policies for vessels transporting hazardous materials are indemnity policies, whereby the insurance underwriter indemnifies the vessel owner or operator for all costs the owner or operator must pay to cover all liabilities. Current vessel insurance coverage for most policies is for all liabilities encountered, regardless of whether the substance causing the problem was designated a hazardous substance. Thus, existing insurance for vessels transporting hazardous materials includes all accidents resulting in pollution incidents and the resulting mitigation expenditures.

Cost of Spills

The cleanup costs of hazardous materials far exceeds the value of the chemical spilled. The following examples illustrate the high cost of cleanup incurred on spills of polychlorinated byphenyls (PCB's) during the last four years. (PCB's when destinated for disposal will be considered a hazardous waste.)

March 1973	1,400 gallons spilled; $1.7 million cleanup cost
November 1974	250 gallons spilled; $175,000 cleanup cost
December 1974	1,400 gallons spilled; $500,000 cleanup cost
January 1975	150 gallons spilled; $7,166 cleanup cost
February 1976	25 gallons spilled; $20,000 cleanup cost and lab work

The cost of spill cleanup varies from incident to incident. Due to the paucity of data concerning cost of cleanup, it is impossible at this time to determine minimum rates of insurance coverage for property damage.

Section 311 FWPCA

Under Section 311 of FWPCA, a revolving fund has been established to defer the cleanup cost of oil and hazardous substance spills (once designated). The fund, known as the Revolving or Pollution Fund, is administered by the Commandant of the U.S. Coast Guard and is available to EPA. This fund is used

(1) to clean up "mystery spills," ones for which the perpeptrator cannot be identified;

(2) to clean up spills from vessels where the limits of liability as defined by the FWPCA have been passes; and

(3) to finance cleanup where the on-scene coordinator has determined that the spiller is not capable of cleaning up a spill even though identified. In these latter cases, the spiller is required to reimburse the fund. Often, these cases result in litigation for final settlement.

EPA

EPA is currently examining the cost of dealing with environmental emergencies. An analysis is being conducted which will include all media and substances for which EPA has some related statutory authority and which have the potential to

cause an environmental diaster or emergency. The primary objective will be to determine the appropriate and most cost-effective approach EPA should support concerning environmental diasters/emergencies. The study will consist of media analysis of (1) the potential, type, and estimated frequency of environmental diasters; (2) the feasibility of conducting cleanup operations; (3) the level of contingency resources necessary to provide technical assistance and monitoring activities necessary to define the problem and to determine what corrective actions should be taken; and (4) the level of contingency resources necessary to cover the costs of actual cleanup operations. In addition to the media analysis, development of insurance requirements or a revolving fund which would be reimbursed by industries that have the potential to cause or do cause an environmental disaster is being reviewed. The need for legislative and regulatory revisions necessary to establish such a fund will also be assessed.

Various issues that will require consideration during the course of the analysis are listed: contingency funds, environmental disaster/emergency, media/substance, contingency fund reimbursement to include a taxing mechanism, and the assignment of direct liability, fines, bonds, or insurance.

Alternative Chosen

The Agency is considering at the current time developing mechanisms to cover the cost of spill cleanup. Until a

final decision is made, no action will be taken concerning insurance coverage for transporters of hazardous wastes. EPA also believes that since the States as well as the ICC require minimum insurance coverage, the property liability being carried by transporters may be sufficient to cover the cost of spill cleanup. A study by the Office of Solid Waste to examine financial responsibility which will include the availability and costs of insurance for transporters of hazardous wastes is being conducted.

J. Permitting of Hazardous Waste Transporters

A major concern expressed by the States, public interest groups, waste management representatives, and transporters is that a permitting system for transporters of hazardous wastes should be developed by EPA. A permitting system for hazardous waste transporters would serve two purposes: the first would be to identify and collect data on hazardous waste transporters; the second, which is the major reason for the development of a permitting system, would be the ability of the permitting agency to revoke the permit, thus preventing a transporter from handling hazardous wastes.

Federal and State transportation agencies currently require that transporters of hazardous materials (wastes) acquire a permit/license before engaging in transportation. The Interstate Commerce Commission (ICC) requires transporters of hazardous materials to obtain operating authority through the standard ICC application procedures. The ICC is far more stringent in its requirements for these transporters than regular freight transporters. The transporter must demonstrate a high degree of responsibility and strict compliance with all safety regulations. The transporter's past record is carefully scrutinized for violations. In addition, the carrier must provide special training for personnel who will come in contact with the hazardous materials as to proper handling

techniques and applicable safety regulations. The transporters equipment must be shown fit to carry dangerous materials, and in accordance with marking and packing requirements. A five year limitation is placed on operating authority granted transporters of certain of the transporters continued fitness and safety compliance.

Traditionally, the power of the ICC to regulate "property" was interpreted to exclude waste products, but in recent years environmental concerns have led to a re-evaluation of this interpretation. Under Ex Parte M.C. 85, wastes to be reused or recycled are deemed to have economic value and are subject to regulation. The Commission further indicated in the Long Island Nuclear Service Corporation Common Carrier Application (110 MCC 398) that radioactive and toxic wastes are subject to regulation regardless of value because of the inherent danger involved in the unmanaged transport of such materials. In the Tri-State Motor Transit Company case (125 MCC 343), the need for reliable and responsive transport services for hazardous wastes was recognized when the ICC issued limited term (5 years) certificates to two carriers of radioactive wastes after these carriers demonstrated fitness to carry such materials. Two additional carriers were denied authority due to a lack of experience and trained personnel in the transportation of radioactive substances.

The above cases set the precedent for ICC regulation of all carriers of hazardous wastes and also has influenced State coverage (Attachment XVIII). It is the ICC's current policy to bring such carriers under regulation through their standard procedures, while at the same time giving special consideration to the sensitive nature of the goods carried.

The ICC regulations pertain to interstate common and contract carriers while State agencies control transportation intrastate. The State Public Utility Commission is the primary agency responsible for the permitting/licensing of transporters. Table VII summaries those States that have license/permit requirements. The first column indicates whether or not the State requires transporters to file for authority to transport DOT hazardous materials (waste). Of the 50 States, 49 require a certificate of authority to operate. In addition to requirements for hazardous material transporters, waste transporters also require permits/license. Of the 49 State PUC's that require certificates of authority for hazardous materials, 38 also regulate waste transporters. Column two indicates whether another agency within the State requires a permit/license for hazardous waste transporters. The permit/license is issued by various agencies within each of the States: Health Department of Natural Resources, State EPA, Department of Environmental Quality, or Water Pollution Control Board... Of the 51 political subdivisions, 30

State	PUC Operating Authority Required: Hazardous Materials	PUC Operating Authority Required: Waste	Permits/licensing required by other Agency		Joint PUC/Other Agency Requirements for: Hazardous	Joint PUC/Other Agency Requirements for: Waste
Alabama	Yes	Yes	Pending	Health Dept.	X	
Alaska	Yes	N.A.	-	-	-	
Arizona	Yes	haz, mat. waste	Pending	Health Dept.	X	
Arkansas	Yes	Yes	No	-	-	
California	Yes	Yes	Yes	Health Dept.	X	
Colorado	Yes	Yes	No	-	-	
Connecticut	Yes	No	Yes	liquid waste Dept. Env. Protection	X	
District of Columbia	N.A.	N.A.	Pending	Committee on Transportation	-	
Delaware	No	-	No	-	-	
Florida	Yes	N.A.	No	-	-	
Georgia	Yes	yes (for treatment)	Yes	Dept. of Natural Resources	X	
Hawaii	Yes	N.A.	N.A.	-	-	

Table VII (cont.)

STATE PERMIT/LICENSE REQUIREMENTS

State	PUC Operating Authority Required: Hazardous Materials	PUC Operating Authority Required: Waste	Permits/licensing required by other Agency		Joint PUC/Other Agency Requirements for: Hazardous	Joint PUC/Other Agency Requirements for: Waste
Idaho	Yes	Yes	No		-	
Illinois	Yes	Yes	Yes	Illinois EPA	X	
Indiana	Yes	Yes	Yes	liquid waste Board of Health	X	
Iowa	Yes	Yes	Pending	Dept. of Env. Quality	X	
Kansas	Yes	No	Yes	Dept. of Health and Environment	X	
Kentucky	Yes	Some	Yes	Dept. of Natural Resources	X	
Louisana	Yes	Yes	Yes	Health & Human Resources Adm.	X	
Maine	Yes	Yes	No	-	-	
Maryland	Yes	No	Pending	Dept. of Health	X	
Massachusetts	Yes	Yes	Yes	Division of Water Pollution Control	X	
Michigan	Yes	No	Yes	Dept. of Natural Resources	X	

State	PUC Operating Authority Required		Permits/licensing required by other Agency		Joint PUC/Other Agency Requirements for	
	Hazardous Materials	Waste			Hazardous	Waste
Minnesota	Yes	Yes	Pending	Pollution Control Agency	X	
Mississippi	Yes	Yes	Yes	Board of Health	X	
Missuori	Yes	reuse/re-cycle	Pending	-	X	
Montana	Yes	Yes	Yes	Dept. of Health and Environment	X	
Nebraska	Yes	Yes	No	-	-	
Nevada	Yes	Yes	No			
New Hampshire	Mes	Yes	No	-	-	
New Jersey	No	Yes	Yes	Dept. of Environmental Protection	X	
New Mexico	Yes	N.A.	Pending	Environment Improvement Agency	X	
New York	Yes	No	Yes	Dept. of Environmental Control	X	
North Carolina	Yes	Yes	No	-	-	

Table III (cont.)
STATE PERMIT/LICENSE REQUIREMENTS

State	PUC Operating Authority Required		Permits/licensing required by other Agency		Joint PUC/Other Agency Requirements for	
	Hazardous Materials	Waste			Hazardous	Waste
North Dakota	Yes	Yes	No	-	-	
Ohio	Yes	Yes	Pending	OEPA	X	
Oklahoma	Yes	Yes	Yes	Dept. of Health	X	
Oregon	Yes	Yes	No	-	-	
Pennsylvania	Yes	Yes	No	-	-	
Rhode Island	Yes	Yes-unless dumped	Yes	liquid waste Dept. of Health	X	
South Carolina	Yes	Yes-except debris/ garbage	Yes	Board of Health	X	
South Dakota	Yes	N.A.	No	-	-	
Tennessee	Yes	Yes	Yes	Dept. of Health	X	
Texas	Yes	Yes	Yes	Water Quality Board	X	
Utah	Yes	N.A.	No		-	

State	PUC Operating Authority Required: Hazardous Materials	PUC Operating Authority Required: Waste	Permits/licensing required by other Agency		Joint PUC/Other Agency Requirements for: Hazardous	Joint PUC/Other Agency Requirements for: Waste
Vermont	Yes	Yes	Pending	Env. Conservation Agency		X
Virginia	Yes	Yes-to treatment	No	-		-
Washington	Yes	Yes	No	-		-
West Virginia	Yes	Yes	Yes	Health Dept.		X
Wisconsin	Yes	Yes-except disposal	Yes	Dept. of Natural Resources		X
Wyoming	Yes	Yes	No	-		-

have existing or pending permit requirements. In 29 States which have existing or pending hazardous waste transport permits/license requirements, the PUC's of each of the States also regulate the transportation of hazardous materials (waste). Of the 29 States with other agency requirements, 24 State PUC's also regulate waste transportation.

It appears that in many instances there may be duplication of effort in some of these states. As stated, one of the purposes of requiring permits/licenses of transporters of hazardous wastes is to identify and collect data on the transporter. In filing for permit/license to the State PUC, certain information is required of the transporter (Table VIII).

Each State requires that the name and address of the transport company be included on the application for a permit or certificate. Some States also require the names and addresses of the principal officers of the firm. The majority of State PUC's require the transporter to submit either a financial statement or show evidence that it was "fit, willing, and able" to perform the tasks specified in the application. Some States required both a financial and fitness statement. About 50% of the State regulations specified that a minimum amount of insurance was necessary before a transporter could obtain a permit. Some States, however, do not require insurance for the permit but require a certificate of insurance before the transporter began service. Some state PUC's require a description

FUC PERMIT/LICEN REQUIREMENTS

STATE	A	B	C	D	E	F	G	H	I	J	K
Alabama	X		X	X	X	X	X				X
Alaska	X	X	X	X	X				X	X	X
Arkansas	X		X	X	X	X	X	X	X	X	X
Arizona ***											X
California***											X
Colorado*									X	X	X
Connecticut	X	X	X	X	X	X	X	X	X		X
District of Columbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delaware											
Florida	X	X	X		X	X		X	X	X	X
Georgia***											X
Hawaii***											
Idaho	X	X	X	X	X	X	X			X	X

KEY

A. Name, Address of Busines Office

B. Name, Address of Princip Officers

C. Financial responsibility Statement

D. Description of Equipment and Facilities

E. Services to be Performed

F. Type of Transport

G. Schedule of Rates

H. Requires Public Hearing

I. Necessity of Service

J. Revokation Authority/

K. Penalities Assessed

* Requirements Not Specified

** State may have revokation authority but not specific mention of complaints pathway-(K not marked)

*** Data Not Available

Table VIII (cont.)
PUC PERMIT/LICENSE REQUIREMENTS

STATE	A	B	C	D	E	F	G	H	I	J	K
Illinois	X							X		X	X
Indiana	X	X	X		X	X		X	X	X	X
Iowa	X	X	X	X	X			X	X	X	X
Kansas	X	X	X	X	X	X	X			X	X
Kentucky	X	X						X		X	X
Louisana*	X										X
Maine	X		X								
Maryland***								X		X	X
Massachusetts	X							X			X
Michigan***											X
Minnesota*	X										X
Mississippi*	X									X	X
Missouri	X		X	X	X		X	X		X	X

KEY

A. Name, Address of Business Office
B. Name, Address of Principal Officers
C. Financial responsibility Statement
D. Description of Equipment and Facilities
E. Services to be Performed
F. Type of Transport
G. Schedule of Rates
H. Requires Public Hearing
I. Necessity of Service
J. Revokation Authority/
K. Penalities Assessed

* Requirements Not Specified
** State may have revokation authority but not specific mention of complaints pathway-(K not marked)
*** Data Not Available

STATE	A	B	C	D	E	F	G	H	I	J	K
Montana*	X										X
Nebraska*	X									X	X
Nevada	X		X							X	X
New Hampshire	X	X					X				X
New Jersey	X	X	X			X					X
New Mexico	X	X		X	X	X	X	X		X	X
New York			X					X	X		X
North Carolina	X	X	X	X			X	X		X	X
North Dakota	X		X	X	X			X		X	X
Ohio ***											X
Oklahoma	X	X	X	X	X	X	X	X	X	X	
Oregon	X		X	X				X		X	X
Pennsylvania*	X										X

KEY

A. Name, Address of Busine Office

B. Name, Address of Princi Officers

C. Financial responsibilit Statement

D. Description of Equipmen and Facilities

E. Services to be Performe

F. Type of Transport

G. Schedule of Rates

H. Requires Public Hearing

I. Necessity of Service

J. Revokation Authority/

K. Penalities Assessed

* Requirements Not Specified

** State may have revokation authority but not specific mention of complaints pathway-(K not marked)

*** Data Not Available

Table VIII (cont.)
PUC PERMIT/LICENSE REQUIREMENTS

STATE	A	B	C	D	E	F	G	H	I	J	K
Rhode Island*	X										X
South Carolina	X	X	X	X		X	X	X	X	X	X
South Dakota***											X
Tennessee	X					X				X	
Texas	X							X		X	
Utah***											X
Vermont*	X										
Virginia	X								X	X	X
Washington	X		X	X	X	X		X		X	X
West Virginia	X							X	X	X	X
Wisconsin	X					X		X		X	X
Wyoming	X	X		X	X	X	X	X	X		

KEY

A. Name, Address of Business Office

B. Name, Address of Principa Officers

C. Financial responsibility Statement

D. Description of Equipment and Facilities

E. Services to be Performed

F. Type of Transport

G. Schedule of Rates

H. Requires Public Hearing

I. Necessity of Service

J. Revokation Authority/

K. Penalities Assessed

* Requirements Not Specified

** State may have revokation authority but not specific mention of complaints pathway-(K not marked)

*** Data Not Available

K. Identification Code

Section 3010(a) requires all who transport a hazardous waste, no later than ninety days after promulgation or revision of the regulations under Section 3001, to file with the Administrator or an autorized State, a notification stating the general description of the activity and identification of the hazardous wastes handled. This ninety day notification period is a one-time notification and does not require notification by transporters beginning operations in hazardous waste after that time period.

Section 3003, as urged by the participants at the public meetings, should require that any person who transports a hazardous waste notify the State or EPA.

There are a variety of purposes for notifying the appropriate agency. The agency will be able to determine all new transporters entering the business. Through the notification and subsequent contact by the appropriate agency, the transporter would become aware of the transport regulations and of the generator regulations. Also, the agency would then have a mailing list to send information concerning the regulations. The notification could also be used to register the transporter. Registration would only signify that the transporter is aware of the regulations, not an endorsement by EPA.

At the Type II meetings all parties have called for a permit system for transporters. Under Federal law, (there are no provisions to permit the transporter), a transporter must notify the appropriate agency before he transports the wastes. Since there

is concern for permitting transporters, the notification syste could be used as a means to register transporters. The regist a- tion would not be considered a permit nor a stamp of approval; only that the transporter is aware of the RCRA regulations. E A could issue a publication or newsletter listing all registered transporters.

Alternative Choosen

EPA believes that the one time notification by transporters would not be sufficient to determine who is transporting a hazardous waste. By requiring notification and subsequent registration, EPA would be able to identify transporters of hazardous wastes. The subsequent issuing of an Identification Code number by EPA would be used by the transporter to identify himself as a hazardous waste hauler and also that he has furnished information to EPA.

In those States in which the hauler of a waste requires a permit or is licensed by the State or ICC, that license or registration number would be used for EPA purposes.

Requiring furnishing of information by the transporter after the 90 day initial notification period, allows for constant update of mailing lists, provides a current list of transporters for technical assistance, establishes a data base for contact with the transport industry and also allows sufficient time for transporters (generators) to determine whether or not hazardous waste is being transported. In addition, transporters would be readily

identifiable by permit number in case actions by EPA or States against the transporter's permit need to be made.

STATUS OF FEDERAL HAZARDOUS [illegible]

Attachment I

STATE	SECTION NUMBERS				
	171	172	173	177	178
ALABAMA	1	2	2	2	
ALASKA	0	0	0	2	0
ARIZONA	3	3	3	3	3
ARKANSAS	3	3	3	3	3
CALIFORNIA	3	3	3	3	3
COLORADO	3	3	3	3	3
CONNECTICUT	0	2	2	2	2
DELAWARE	0	0	0	1	0
DISTRICT OF COLUMBIA	3	3	3	3	3
FLORIDA	3	3	3	3	3
GEORGIA	1	1	1	1	1
HAWAII	1	1	1	1	1
IDAHO	3	3	3	3	
ILLINOIS	0	0	0	0	0
INDIANA	0	0	0	0	0
IOWA	0	0	0	0	0
LOUISIANA	2	2	2	0	0
KANSAS	3	3	3	3	3
KENTUCKY	3	3	3	3	3
MAINE	0	0	0	0	0
MARYLAND	0	0	0	3	0
MASSACHUSETTS	0	0	0	1	0
MICHIGAN	0	0	0	0	0
MINNESOTA	3	3	3	3	3
MISSISSIPPI	0	0	0	0	0
MISSOURI	3	3	3	3	3

Key Explanation

1 - Has Similar Rule

2 - Adopted in Part

3 - Adopted in Toto

0 - Has No Rule

STATE	SECTION NUMBERS				
	171	172	173	177	178
MONTANA	0	3	3	3	0
NEBRASKA	0	0	0	0	0
NEVADA	3	3	3	3	3
NEW HAMPSHIRE	1	1	1	1	1
NEW JERSEY	1	1	1	1	1
NEW MEXICO	3	3	3	3	3
NEW YORK	1	1	1	1	1
NORTH CAROLINA	3	3	3	3	3
NORTH DAKOTA	0	0	0	0	0
OHIO	0	0	0	0	0
OKLAHOMA	0	0	0	1	1
OREGON	0	0	0	3	0
PENNSYLVANIA	3	3	3	3	3
RHODE ISLAND	3	3	3	3	3
SOUTH CAROLINA	0	0	3	3	3
SOUTH DAKOTA	3	3	3	3	3
TENNESSEE	3	3	3	3	3
TEXAS	2	3	3	3	3
UTAH	3	3	3	3	3
VERMONT	0	0	0	0	0
VIRGINIA	1	1	0	1	0
WASHINGTON	3	3	3	3	3
WEST VIRGINIA	0	0	0	0	0
WISCONSIN	3	3	3	3	3
WYOMING	3	3	3	3	3

Key Explanation
1 - Has Similar Rule
2 - Adopted in Part
3 - Adopted in Toto
0 - Has No Rule

STATE OF FEDERAL MOTOR CARRIER SAFETY REGULATIONS ADOPTED BY STATES

STATE	SECTION NUMBERS						
	391	392	393	394	395	396	397
ALABAMA	2	2	2	2	2	2	2
ALASKA	3	3	3	1	2	3	3
ARIZONA	3	3	3	3	3	3	3
ARKANSAS	3	3	3	3	3	3	3
CALIFORNIA	1	1	1	1	2	1	3
COLORADO	3	3	3	3	3	3	3
CONNECTICUT	0	0	1	1	0	0	0
DELAWARE	1	1	1	1	0	0	1
DISTRICT OF COLUMBIA	1	1	2	1	1	0	0
FLORIDA	3	3	3	3	2	3	3
GEORGIA	2	3	3	1	3	3	3
HAWAII	2	2	2	2	2	2	2
IDAHO	3	3	3	3	3	3	3
ILLINOIS	0	0	2	1	0	1	0
INDIANA	3	3	3	1	3	3	3
IOWA	1	0	1	0	1	0	1
LOUISIANA	0	0	0	0	0	0	0
KANSAS	3	3	3	3	3	3	3
KENTUCKY	2	3	3	3	1	3	3
MAINE	0	1	1	1	2	1	2
MARYLAND	2	2	2	2	0	2	3
MASSACHUSETTS	0	0	0	1	1	0	0
MICHIGAN	0	1	2	1	1	0	0
MINNESOTA	3	3	3	3	3	3	3
MISSISSIPPI	3	3	3	3	3	3	0

Key Explanation
1 - Has Similar Rule
2 - Adopted in Part
3 - Adopted in Toto
0 - Has No Rule

Explanation

1 - Has Similar Rule
2 - Adopted in Part
3 - Adopted in Toto
0 - Has No Rule

STATE	SECTION NUMBERS						
	391	392	393	394	395	396	397
MISSOURI	3	3	3	3	3	3	3
MONTANA	0	0	0	0	0	0	0
NEBRASKA	1	1	1	0	1	1	1
NEVADA	2	3	3	3	2	3	3
NEW HAMPSHIRE	1	1	1	1	0	1	1
NEW JERSEY	0	0	3	1	0	3	0
NEW MEXICO	3	3	3	3	3	3	3
NEW YORK	0	3	3	3	1	3	1
NORTH CAROLINA	3	3	3	3	3	3	3
NORTH DAKOTA	2	2	2	0	2	0	0
OHIO	1	0	2	0	1	0	0
OKLAHOMA	0	1	1	1	1	1	1
OREGON	3	3	3	0	3	3	3
PENNSYLVANIA	3	3	3	1	3	3	3
RHODE ISLAND	3	3	3	3	3	3	3
SOUTH CAROLINA	3	3	3	3	3	3	3
SOUTH DAKOTA	3	3	3	3	3	3	3
TENNESSEE	3	3	3	1	3	3	3
TEXAS	3	3	3	3	3	3	3
UTAH	3	3	3	3	3	3	3
VERMONT	1	1	1	1	0	0	0
VIRGINIA	0	0	2	0	0	0	1
WASHINGTON	0	0	2	2	2	0	0
WEST VIRGINIA	3	3	3	0	2	3	3
WISCONSIN	1	1	1	1	0	0	1
WYOMING	3	3	3	3	3	3	3

DEPARTMENT OF TRANSPORTATION
MATERIALS TRANSPORTATION BUREAU
WASHINGTON, D.C. 20590

Attachment III

December 23, 1977

RECEIVED
DEC 28 1977

Mr. John P. Lehman, Director
Hazardous Waste Management Division (WH-565)
Office of Solid Waste
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dear Mr. Lehman:

In December of 1976, the Department of Transportation published an advance notice of proposed rulemaking in the Federal Register concerning environmental and health effects materials (Docket HM-145). Recently, in October, our offices held a joint public meeting concerning the development of regulations for the transportation of hazardous wastes. As you know, both the public meeting and written comments received in response to our joint notice of public meeting and supplemental advance notice of proposed rulemaking overwhelmingly urge the Department of Transportation to take the lead in developing those standards necessary under the Resource Conservation and Recovery Act of 1976, for the transportation of hazardous waste.

Based upon a review of the current drafts of standards being developed under Section 3001, Identification and Listing of Hazardous Waste; Section 3002, Standards Applicable to Generators of Hazardous Waste; and Section 3003, Standards Applicable to Transporters of Hazardous Waste, it appears that the Hazardous Materials Regulations can be modified to accommodate most of the needs of the Resource Conservation and Recovery Act, Subtitle C (Hazardous Waste Management) relative to hazardous waste transportation.

The Department is considering the development of a new class of materials which will include those hazardous wastes not currently regulated by DOT (such as wastes that are bioaccumulative, toxic above current DOT standards, or that may cause genetic change). We also expect to include in our regulations references to EPA standards, particularly to deal with those cases where EPA standards apply to materials now regulated by DOT but which are not identified in DOT regulations as wastes. As you know, the DOT Hazardous Materials Regulations do not now distinguish between waste and non-waste materials.

In order for DOT to develop comprehensive regulations for hazardous waste transportation, it is necessary that I receive from your office final drafts of the Section 3001 and 3002 standards prior to proposing

changes to the DOT regulations. To date, I have received preliminary drafts of these standards in addition to receiving a final draft of the Section 3003 standards.

After a review of the draft Section 3003 standards, it appears that the Hazardous Materials Regulations can be modified to reflect most, if not all, of your proposed standards. The Department will make every attempt possible to develop or incorporate all Section 3003 standards necessary for the transportation of hazardous wastes.

It is my understanding that EPA is planning to propose the Section 3003 standards sometime in January, 1977, with the intention of jointly proposing the DOT standards when they are ready. It is likely that we will not be prepared to publish a notice before the end of January, but we will be prepared to publish in adequate time to allow final rules to be promulgated before April 25, 1978. Consequently, we believe that an earlier unilateral EPA proposal, appearing before a joint DOT-EPA proposal, or before EPA has published proposed Section 3001 and 3002 standards, will only contribute to public confusion. We would prefer to rely exclusively on jointly proposed regulations for waste transporters, which would easily facilitate necessary cross-referencing between proposed DOT and EPA regulatory texts.

However, if EPA determines to proceed with proposed Section 3003 standards in January, I would ask that the preamble to that proposal (1) reference DOT's intention to publish, (2) indicate that a joint DOT-EPA proposal will be forthcoming, and (3) make clear that all or part of the EPA proposal will be withdrawn upon the publication of DOT standards.

I look forward to a continuation of our past and current cooperation to provide a simple, unified set of regulations for shippers and transporters of hazardous wastes.

Sincerely,

Alan I. Roberts
Director
Office of Hazardous
Materials Operations

be Printed on White Paper)

UNIFORM STRAIGHT BILL OF LADING

Shipper's No. _____

ORIGINAL—NOT NEGOTIABLE—Domestic Agent's No. _____

_____ Carrier. _____ (SCAC)

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading.

_____, Date _____, 19____

_____ Street, _____ City, _____ County, _____ State _____

[illegible] described below, in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned, and destined as shown below, [illegible] company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees [illegible] to its usual place of delivery at said destination, if on its own railroad, water line, highway route or route, or within the territory of its highway operations, otherwise to [illegible] another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination [illegible] to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited [illegible] whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

[illegible] to _____

[illegible] _____ Street, _____

_____ County, _____ State _____ Zip _____

[illegible] _____

[illegible] Carrier _____ Vehicle or Car Initial _____ No. _____

[illegible] On Delivery $_____ and remit to:

_____

_____ Street _____ City _____ State

C. O. D. charge to be paid by } Shipper ☐ Consignee ☐

[illegible]	Kind of Package, Description of Articles, Special Marks, and Exceptions	*Weight (Subject to Correction)	Class or Rate	Check Column

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____

(Signature of consignor)

If charges are to be prepaid write or stamp here "To be Prepaid."

_____

Received $_____ to apply in prepayment of the charges on the property described hereon.

_____

Agent or Cashier

Per _____

(The signature here acknowledges only the amount prepaid)

[illegible] shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is [illegible] shipper's weight."

[illegible]—Where the rate is dependent on value, shippers are required to state specifically in writing [illegible] or declared value of the property.

[illegible] agreed or declared value of the property is hereby specifically stated by the shipper [illegible] not exceeding _____ per _____

Charges advanced:

$ _____

_____ Shipper _____ Agent

_____ Per _____

[illegible] address of Shipper: Street, _____ City, _____ State _____

[illegible] recommended C. O. D. Section to be Printed in Red.

CONTRACT TERMS AND CONDITIONS

Sec. 1. (a) The carrier or party in possession of any of the property herein described shall be liable as at common law for any loss thereof or damage thereto except as hereinafter provided.

(b) No carrier or party in possession of all or any of the property herein described shall be liable for any loss thereof or damage thereto or delay caused by the Act of God, the public enemy, the authority of law, or the act or default of the shipper or owner, or for natural shrinkage. The carrier's liability shall be that of warehouseman, only, for loss, damage, or delay caused by fire occurring after the expiration of the free time (if any) allowed by tariffs lawfully on file (such free time to be computed as therein provided) after notice of the arrival of the property at destination or at the port of export (if intended for export) has been duly sent or given, and after placement of the property for delivery at destination, or tender of delivery of the property to the party entitled to receive it, has been made. Except in case of negligence of the carrier or party in possession (and the burden to prove freedom from such negligence shall be on the carrier or party in possession), the carrier or party in possession shall not be liable for loss, shrinkage, or delay occurring while the property is stopped and held in transit upon the request of the shipper, owner, or party entitled to make such request, or resulting from deviation or delay in the property, or for country damage to cotton, or from riots or strikes. Except in case of carrier's negligence, no carrier or party in possession of all or any of the property herein described shall be liable for delay caused by highway obstruction, faulty or impassable highway, or lack of capacity of any highway, bridge or ferry, and the burden to prove freedom from such negligence shall be on the carrier or party in possession.

(c) In case of quarantine the property may be discharged at risk and expense of owners into quarantine depot or elsewhere, as required by quarantine regulations or authorities, or for the carrier's dispatch at nearest available point in carrier's judgment, and in any such case carrier's responsibility shall cease when property is so discharged, or property may be returned by carrier at owner's expense to shipping point, earning freight both ways. Quarantine expenses of whatever nature or kind upon or in respect to property shall be borne by the owners of the property or be a lien thereon. The carrier shall not be liable for loss or damage occasioned by fumigation or disinfecting or other acts required or done by quarantine regulations or authorities even though the same may have been done by carrier's officers, agents, or employees, nor for detention, loss, or damage of any kind occasioned by quarantine or the enforcement thereof. No carrier shall be liable, except in the case of negligence, for any mistake or inaccuracy in any information furnished by the carrier, its agents, or officers, as to quarantine laws or regulations. The shipper shall hold the carriers harmless from any expense they may incur, damages they may be required to pay, by reason of the introduction of the property covered by this contract into any place against the quarantine laws or regulations in force at such place.

Sec. 2. (a) No carrier is bound to transport said property by any particular schedule, train, vehicle or vessel, or in time for any particular market or otherwise than with reasonable dispatch. Every carrier shall have the right in case of physical necessity to forward said property by any carrier or route between the point of shipment and the point of destination. In all cases not prohibited by law, where a lower value than actual value has been represented in writing by the shipper or has been agreed upon in writing as the released value of the property as determined by the classification or tariffs upon which the rate is based, such lower value plus freight charges if paid shall be the maximum amount to be recovered, whether or not such loss or damage occurs from negligence.

(b) As a condition precedent to recovery, claims must be filed in writing with the receiving or delivering carrier, or carrier issuing this bill of lading, or carrier on whose line the loss, damage, injury or delay occurred, or carrier in possession of the property when the loss, damage, injury or delay occurred, within nine months after delivery of the property (or, in the case of export traffic, within nine months after delivery at port of export) or, in case of failure to make delivery, then within nine months after a reasonable time for delivery has elapsed; and suits shall be instituted against any carrier only within two years and one day from the day when notice in writing is given by the carrier to the claimant that the carrier has disallowed the claim or any part or parts thereof specified in the notice. Where claims are not filed or suits are not instituted thereon in accordance with the foregoing provisions, no carrier hereunder shall be liable, and such claims will not be paid.

(c) Any carrier or party liable on account of loss of or damage to any of said property shall have the full benefit of any insurance that may have been effected, upon or on account of said property, so far as this shall not avoid the policies or contracts of insurance: PROVIDED, That the carrier reimburse the claimant for the premium paid thereon.

Sec. 3. Except where such service is required as the result of carrier's negligence, all property shall be subject to necessary cooperage and baling at owner's cost. Each carrier over whose route cotton or cotton linters is to be transported hereunder shall have the privilege, at its own cost and risk, of compressing the same for greater convenience in handling or forwarding, and shall not be held responsible for deviation or unavoidable delays in procuring such compression. Grain in bulk consigned to a point where there is a railroad, public or licensed elevator, may (unless otherwise expressly noted herein, and then if it is not promptly unloaded) be there delivered, and placed with other grain of the same kind and grade without respect to ownership (and prompt notice thereof shall be given to the consignor), and if so delivered shall be subject to a lien for elevator charges in addition to all other charges hereunder.

Sec. 4. (a) Property not removed by the party entitled to receive it within the free time (if any) allowed by tariffs, lawfully on file (such free time to be computed as therein provided), after notice of the arrival of the property at destination or at the port of export (if intended for export) has been duly sent or given, and after placement of the property for delivery at destination has been made, or property not received, at time tender of delivery of the property to the party entitled to receive it has been made, may be kept in vessel, vehicle, car, depot, warehouse or place of business of the carrier, subject to the tariff charge for storage and to carrier's responsibility as warehouseman, or may, at the option of the carrier, may be removed to and stored in a public or licensed warehouse at the point of delivery or other available point, or if no such warehouse is available at point of delivery or at other available point, then in other available storage facility, at the cost of the owner and there held without liability on the part of the carrier, and subject to a lien for all freight and other lawful charges, including a reasonable charge for storage. In the event consignee cannot be found at address given for delivery, or in that event, notice of the placing of such goods in warehouse shall be mailed to the address given for delivery and mailed to any other address given on the bill of lading for notification, showing the warehouse in which such property has been placed, subject to the provisions of this paragraph.

(b) Where nonperishable property which has been transported to destination hereunder is refused by consignee or the party entitled to receive it upon tender of delivery, or said consignee or party entitled to receive it fails to receive or claim it within 15 days after notice of arrival shall have been duly sent or given, the carrier may sell the same at public auction to the highest bidder, at such place as may be designated by the carrier:

PROVIDED, That the carrier shall have first mailed, sent, or given to the consignor notice that the property has been refused or remains unclaimed, as the case may be, and that it will be subject to sale under the terms of the bill of lading if disposition be not arranged for, and shall have published notice containing a description of the property, the name of the party to whom consigned, or, if shipped order notify, the name of the party to be notified, and the time and place of sale, once a week for two successive weeks, in a newspaper of general circulation at the place of sale or nearest place where such newspaper is published. PROVIDED, That 30 days shall have elapsed before publication of notice of sale after said notice that the property was refused or remains unclaimed was mailed, sent or given.

(c) Where perishable property which has been transported hereunder to destination is refused by consignee or party entitled to receive it, or said consignee or party entitled to receive it shall fail to receive it promptly, the carrier may, in its discretion, to prevent deterioration or further deterioration, sell the same to the best advantage at private or public sale: PROVIDED, That if time serves for notification to the consignor or owner the refusal of the property or the failure to receive it and request for disposition of the property, such notification shall be given, in such manner as the exercise of due diligence requires, before the property is sold.

(d) Where the procedure provided for in the two paragraphs last preceding is not possible, it is agreed that nothing contained in said paragraphs shall be construed to abridge the right of the carrier at its option to sell the property under such circumstances and in such manner as may be authorized by law.

(e) The proceeds of any sale made under this section shall be applied by the carrier to the payment of freight, demurrage, storage, and any other lawful charges and the expense of notice, advertisement, sale, and other necessary expense and of caring for and maintaining the property, if proper care of same requires special expense, and should there be a balance it shall be paid to the owner of the property sold hereunder.

(f) Property destined to or taken from a station, wharf, landing or other place at which there is no regularly appointed freight agent, shall be entirely at risk of owner after unloaded from cars, vehicles or vessels or until loaded into cars, vehicles or vessels, and, except in case of carrier's negligence, when received from or delivered to such stations, wharfs, landings, or other places, shall be at owner's risk until the cars are attached to and after they are detached from locomotive or train or until loaded into and after unloaded from vessels, or if property is transported in motor vehicle trailers or semi-trailers, until such trailers or semi-trailers are attached to and after they are detached from power units. Where a carrier is directed to unload or deliver property transported by motor vehicle at a particular location where consignee or consignee's agent is not regularly located, the risk after unloading, or delivery, shall be that of the owner.

Sec. 5. No carrier hereunder will carry or be liable in any way for any documents, specie, or for any articles of extraordinary value not specifically rated in the published classification or tariffs unless a special agreement to do so and a stipulated value of the articles are endorsed hereon.

Sec. 6. Every party, whether principal or agent, shipping explosives or dangerous goods, without previous full written disclosure to the carrier of their nature, shall be liable for and indemnify the carrier against all loss or damage caused by such goods, and such goods may be warehoused at owner's risk and expense or destroyed without compensation.

STRAIGHT BILL OF LADING

ORIGINAL—NOT NEGOTIABLE

Shipper No. _____

Carrier No. _____

_____ Date _____
(Name of Carrier)

	FROM: Shipper
	Street
Zip Code	Origin

Vehicle Number

HM	DESCRIPTION AND CLASSIFICATION (Proper Shipping Name and Class per 49 CFR 172.101)	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

TOTAL CHARGES: $

FREIGHT CHAR

FREIGHT PREPAID except when box at right is checked

...is dependent on value, shippers ... specifically in writing the agreed or ... property ... stated value of the property is hereby ... by the shipper to be not exceeding ... per _____

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

_____ Signature

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____
(Signature of Consignor)

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this ... the property described above in apparent good order, except as noted (contents ... condition of contents of packages unknown), marked, consigned, and destined as ... above which said carrier (the word carrier being understood throughout this contract) agrees ... any person or corporation in possession of the property under the contract) agrees ... at its usual place of delivery at said destination, if on its route, otherwise to deliver to ... carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each ... any time interested in all or any said property, that every service to be performed here... shall be subject to all the bill of lading terms and conditions in the governing classificatio... the date of shipment.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditio... the governing classification and the said terms and conditions are hereby agreed to ... shipper and accepted for himself and his assigns.

CARRIER

49 CFR 177.816

(e) Shipping paper accessibility - accident or inspection A driver of a motor vehicle containing hazardous material, and each carrier using such a vehicle, shall ensure that the shipping paper required by this section is readily available to, and recognizable by, authorities in the event of accident or inspection. Specifically, the driver and the carrier shall---

(1) Clearly distinguish the shipping paper, if it is carried with other shipping papers or other papers of any kind, by either distinctively tabbing it or by having it appear first; and

(2) Store the shipping paper as follows:

(1) When the driver is at the vehicle's controls, the shipping paper must be: (A) Within his immediate reach while he is restrained by the lap belt; and (B) either readily visible to a person entering the driver's compartment or in a holder which is mounted to the inside of the door on the driver's side of the vehicle.

(ii) When the driver is not at the vehicle's controls, the shipping paper shall be: (A) In a holder which is mounted to the inside of the door on the driver's side of the vehicle; or (B) on the driver's seat in the vehicle.

A GUIDE FOR THE PREPARATION OF WAYBILLS FOR RAIL TRANSPORTATION OF HAZARDOUS MATERIALS (Attachment VI)

PURPOSE

ION OF SHIPPING PAPERS FOR HAZARDOUS MATERIALS IS GOVERNED
OUS MATERIALS REGULATIONS OF THE DEPARTMENT OF
RTATION, TITLE 49, CODE OF FEDERAL REGULATIONS, PARTS 170 - 189.
EGULATIONS ARE REPRINTED IN R.M. GRAZIANO'S TARIFF PUBLISHING
LATIONS OF THE DEPARTMENT OF TRANSPORTATION.

NCE WITH VARIOUS SECTIONS OF THE D.O.T. REGULATIONS, ALL
OR "SHIPPING PAPERS" PREPARED BY RAILROAD PERSONNEL, MUST
TAIN INFORMATION IN AN UNABBREVIATED FORM.

CTIONS OF THE D.O.T. REGULATIONS SPELLING OUT THE SPECIFIC
MENTS ARE AS FOLLOWS:

172.4	Explanation of signs and abbreviations
172.5	List of Hazardous Materials
173.427	Shipping papers (radioactive material)
174.510	Shipping papers
174.511	Certificate
174.576	Intermediate shippers and carriers
174.583	Examination of shipping order and packa
174.584	Waybills, switching orders or other billing

SAMPLE

④

DANGEROUS

ORIGINAL FREIGHT WAYBILL

WEIGHT IN TONS (CROSS, TARE, NET) | LENGTH OF CAR (Ordered, Furnished) | MARKED CAPACITY OF CAR (Ordered, Furnished)

CAR INITIALS AND NUMBER | KIND | PLAN NUMBER | BILL OF LADING NO. | DATE OF SHIPMENT | WAYBILL NUMBER

T. O. F. C. | TRAILER INITIAL AND NUMBER | LOADED

CONSIGNEE AND ADDRESS AT STOP

STOP THIS CAR AT

TO NUMBER STATION STATE OR PROV.

FROM ACTUAL ORIGIN NUMBER STATION STATE

BILLED AT

ROUTE

ROUTE (SHOW "X" IF AGENT, "S" IF SHIPPER)

ROUTE CODE NO.

FULL NAME OF SHIPPER | Code No.

RECONSIGNED TO STATION RWC

Origin and date, original car, initial or freight bill and previous waybill reference and routing when reforwarded.

CONSIGNEE AND ADDRESS | Code No.

WEIGHED AT

GROSS

TARE

ALLOWANCE

NET

FINAL DESTINATION AND ADDITIONAL ROUTING

WHEN SHIPPED IN THE UNITED STATES (SEE SEC. 7 OF THE BILL OF LADING) INSERT "YES"

IF CHARGES ARE TO BE PREPAID WRITE OR STAMP HERE "TO BE PREPAID"

SPECIAL INSTRUCTIONS AND CONDITIONS

⑨ DOT SPECIAL PERMIT NO. 4637

⑦ Commodity Code No. 4905731

Pkgs.	Description of Articles, Special Marks and Exceptions	Weight	Rate	Freight	Advances	Prepaid
①	② 1 T/C PROPANE, FLAMMABLE COMPRESSED GAS					
	DANGEROUS PLACARD ⑧	⑤ 180,600				
	⑩ "DOT 112A MUST BE HANDLED IN ACCORDANCE WITH FRA E.O. NO. 5"					
	⑨					

FIRST JUNCTION | SECOND JUNCTION | THIRD JUNCTION | FOURTH JUNCTION

Destination Agent Will Supply Station Name and Code Required

PLACARD OR LABEL NOTATION

⑥ SHIPPERS ARE REQUIRED TO PLACE SPECIFIC LABELS ON PACKAGES OFFERED FOR TRANSPORTATION, AND PARTIES WHO LOAD RAIL CARS ARE REQUIRED TO APPLY PROPER PLACARDS. THE SHIPPING PAPER MUST SHOW THE COLOR OR KIND OF LABEL NOTATIONS FOR LESS THAN CARLOAD SHIPMENTS, OR PLACARD NOTATIONS FOR CARLOAD SHIPMENTS OF EXPLOSIVES AND OTHER DANGEROUS ARTICLES. (SECTION 174.584)

COMMODITY CODE NUMBER

⑦ USE THE 49 SERIES STANDARD TRANSPORTATION COMMODITY CODE (STCC) NUMBER THAT MATCHES THE HAZARDOUS MATERIAL DESCRIPTION AND CLASSIFICATION ON THE WAYBILL UNLESS OTHERWISE INSTRUCTED BY YOUR SUPERIORS.

SPECIAL PERMIT

⑧ WHEN A SHIPMENT IS MOVING UNDER A DEPARTMENT OF TRANSPORTATION (DOT) SPECIAL PERMIT, THE SPECIAL PERMIT (DOT) NUMBER MUST BE SHOWN ON THE SHIPPING PAPER AFTER THE COMMODITY. THIS ALSO APPLIES TO DOT EXEMPTIONS.

RADIOACTIVE MATERIALS

⑨ FOR SHIPMENTS OF RADIOACTIVE MATERIALS, THE WAYBILL MUST ADDITIONALLY CONTAIN ALL THE INFORMATION PROVIDED PURSUANT TO PARAGRAPH (5) OF SECTION 173.427(a).

F.R.A. EMERGENCY ORDERS

⑩ ON THE LOWER PORTION OF THE COMMODITY DESCRIPTION SECTION OF THE WAYBILL, A NOTATION MUST BE MADE FOR ANY APPROPRIATE F.R.A. EMERGENCY ORDERS. THIS REFERENCE INDICATES SPECIAL TRANSPORTATION REQUIREMENTS NOT PUBLISHED IN THE D.O.T. REGULATIONS.

SHIPPING NAME

(1) THE ONLY ACCEPTABLE DESCRIPTIONS FOR HAZARDOUS MATERIALS ARE THE SHIPPING NAMES LISTED IN ALPHABETICAL ORDER IN SECTION 172.5 OF THE TARIFF. YOU WILL NOTICE IN SECTION 172.5 THAT SHIPPING NAMES ARE DESCRIBED IN BOTH ROMAN TYPE AND ITALICS. ONLY THE ROMAN TYPE DESCRIPTIONS MAY BE USED AS A SHIPPING NAME.

CERTIFICATE

(2) EACH SHIPPER OFFERING A HAZARDOUS MATERIAL FOR TRANSPORTATION MUST SHOW ON THE SHIPPING PAPER A SIGNED CERTIFICATE AS SPELLED OUT IN SECTION 173.430(a). A CARRIER CANNOT ACCEPT SUCH SHIPMENT UNLESS IT HAS BEEN SO CERTIFIED AS REQUIRED IN SECTION 174.511.

CLASSIFICATION

(3) THE CLASSIFICATION OF THE SHIPPING NAME IS LISTED TO THE RIGHT OF EACH ARTICLE IN SECTION 172.5, UNDER THE COLUMN "CLASSED AS". THE "CLASSED AS" COLUMN WILL GIVE YOU THE ABBREVIATION OF THE APPROPRIATE CLASSIFICATION. NOW LOOK AT SECTION 172.4 OF THE TARIFF FOR THE DESCRIPTION TO BE USED AS THE CLASSIFICATION.

PLACARD ENDORSEMENT

(4) THIS IS THE NAME OF THE PLACARD APPLIED TO THE CAR. THE NAME OF THE PLACARD MUST APPEAR ON THE SHIPPING PAPERS IN LETTERS NOT LESS THAN ⅜ INCHES HIGH, AND MUST BE LOCATED NEAR THE SPACE PROVIDED FOR THE CAR NUMBER. WHENEVER POSSIBLE, THE PLACARD ENDORSEMENT WILL BE APPLIED USING A RUBBER STAMP. WHEN A RUBBER STAMP IS NOT AVAILABLE, THE ENDORSEMENT CAN BE HANDWRITTEN, BUT MUST BE AT LEAST ⅜ INCHES HIGH AND LOCATED NEAR THE CAR NUMBER. (SECTION 174.584)

TOTAL QUANTITY

(5) QUANTITY MUST BE INDICATED BY WEIGHT, VOLUME, GALLONS, POUNDS, QUARTS, OR OTHERWISE INDICATED. (SECTION 174.510)

§ 172.4 Explanation of signs and abbreviations. (a) Listed below are the hazard classifications covered by this subchapter. Also listed are the abbreviations and symbols used in § 172.5. For information, the United Nations numerical class designations are shown.

Classifications	Abbreviation	United Nations Class
Class A explosives	Expl. A	1
Class B explosives	Expl. B	1
Class C explosives	Expl. C	1
Flammable compressed gas	F. C. G.	2
Nonflammable compressed gas	Nonf. C.G.	2
Flammable liquid	F. L.	3
Flammable solid	F. S.	4
Oxidizing material	Oxy. M	5
Poisonous gas or liquid, class A	Pois. A	6
Poisonous liquid or solid, class B	Pois. B	6
Irritating material	Irr.	6
Etiologic agent	Etiol. Ag.	6
Radioactive materials	R.A.M.	7
Corrosive material	Cor.	8

§ 172.5 List of Hazardous Materials
(See below)

§ 173.427 Shipping papers. (a) Each shipper offering for transportation any hazardous material subject to the regulations in the chapter, shall describe that article on the shipping paper by the shipping name or recognized in § 172.5 and by the classification prescribed in § 172.4, and may add a further description not inconsistent therewith. Abbreviation must not be used. The total quantity by weight, volume, or as otherwise appropriate, must be shown.

(5) For shipments of radioactive materials, the shipping paper description must include:

(i) The Transport Group or Groups of the radionuclides in the radioactive material, if the material is in normal form;

(ii) The name of the radionuclides in the radioactive material, and a description of its physical and chemical form if the material is in normal form;

(iii) The activity of the radioactive material in curies;

(iv) The type of label applied to the package; i.e., Radioactive White-I, Radioactive Yellow-II, or Radioactive Yellow-III;

(v) For a fissile radioactive material, the fissile class of the package. For a fissile class III shipment, the additional notations:

Warning—Fissile Class III Shipment. Personnel Handling and Stowing this Shipment Must be Advised to not Load More Than * * * Packages per Vehicle (* * * to be replaced by appropriate number.) in any Loading or Stowage Area the Shipment Must be Segregated by at Least 20 Feet From Other Packages Bearing Radioactive Labels.

§ 174.510 Shipping papers. (a) Carriers must not accept for transportation nor transport any hazardous material subject to the regulations in this chapter unless that article is described on the shipping paper by the shipping name prescribed in § 172.5 and by the classification prescribed in § 172.4. A further description not inconsistent therewith may be included. Abbreviations must not be used. The total quantity by weight, volume, or as otherwise appropriate, must be shown.

(b) Where the regulations (except § 173.402(d)) exempt the packages from labeling, the exemption must be indicated by the words "No Label Required" immediately following the description on the shipping paper.

(c) The conductor of each train transporting hazardous materials must have in his possession a copy of the shipping paper showing the information required in paragraphs (a) and (b) of this section.

§ 174.511 Certificate. (a) Carriers must not accept for transportation nor transport any hazardous materials subject to the regulations in this chapter unless it has been certified by the shipper, using the following certificate which must be signed by the shipper:

This is to certify that the above named articles are properly classified, described, packaged, marked and labeled and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation.

§ 174.513 Intermediate shippers and carriers. (a) Forwarding companies must have on file shipper's certified bill of lading or shipping order, and know that packages delivered to carrier for transportation comply with Parts 173-199.

(b) Every carrier offering or delivering for rail transportation any loaded motor vehicle or any loaded motor vehicle trailer, semitrailer, or container containing any hazardous material shall show on the shipping order, shipping paper, transfer sheet, or other billing issued in place thereof, in addition to the description of the vehicle or container, the proper name of the material as shown in § 172.5 of this subchapter and the kind of placards applied.

§ 174.583 Examination of shipping order and packages. (a) Carriers must examine shipping order and determine that proper certificate, as required under § 173.430, is given and that packages are not broken or leaking when offered for transportation.

§ 174.584 Waybills, switching orders, or other billing. (a) The revenue waybill, agency waybill, switching order or any other billing issued in lieu thereof, prepared from the shipping order or other shipping paper, or shipping orders used as waybills, must describe the article by shipping name as prescribed in § 172.5 and must show the color or kind of label notations for less-than-carload shipments or placard notations for carload shipments of explosives and other dangerous articles and placard endorsement as follows: (See Ⓐ).

(b) Billing prepared from the shipping order or other shipping paper covering shipments of blasting caps, must, in addition, show the number of blasting caps in the shipment.

(c) Waybills, manifests, or memorandums for shipments offered for transportation by carrier by water must show the label notations as prescribed in this section.

(d) Abbreviations must not be used on shipping orders or billing for explosives or other dangerous articles.

(e) When the initial movement is a switching operation, the switching order, switching receipt or switching ticket, and copies thereof, prepared by the shipper, or by the carrier under the shipper's written authority, must bear the placard endorsement and the shipper's certificate prescribed by § 173.430 and paragraph (a) of this section; for other switching movement, the switching ticket prepared by a railway employee must show the kind of placard required.

(f) The car ticket card waybill, running slip, envelope containing waybills, or any other billing for any loaded car which in this chapter should bear "Explosives," "Dangerous," "Dangerous-Radioactive material," "Poison Gas," or "Flammable Poison Gas" placards must have plainly stamped, or plainly written on the face of such billing, near the car number, in letters not less than three-eighths of an inch high, the words "Explosives," "Dangerous," "Dangerous-Radioactive material," "Poison Gas," or "Flammable Poison Gas," and for container cars must also show which of the containers loaded thereon contain dangerous articles.

(g) For tank cars not loaded, the billing must show the word "Empty" and that for tank cars previously loaded with white or yellow phosphorus the billing must show the words "Caution — This car contains residue phosphorus and must be kept filled with (water) or (inert gas)."

(h) For tank cars that last contained poisonous liquid, class A, the billing must show the words "Dangerous — Poisonous Gas — Empty" except the billing for tank cars that last contained hydrocyanic acid must show the words "Dangerous — Flammable Poison Gas — Empty."

(h) At stations, or other points, where other shipments of any material are loaded into properly certified and placarded car received with shipments of explosives, or when shipments of explosives are transferred or reloaded, or carload shipments are reconsigned, a record must be kept of the car, origin point, carrier's name and date of car certificate. The bracing or blocking and points to secure the lading must be inspected as prescribed in § 174.525 certified for conformance with these regulations by the person making the inspection who shall sign the car certificates immediately below the signature which appears on certificate No. 2 of the original car certificates attached to the bill of lading.

(i) For shipments of radioactive materials, the waybill, manifest, or other billing, as prepared from the shipper's papers, must additionally contain all information provided pursuant to § 173.427 (a) (5) of this subchapter.

Ⓐ	Placard notation to follow entry of the article on the billing	Placard endorsement must be in legible upper case letters being near the space provided for the car number
For high explosives, blasting explosives, low explosives, and blasting caps or electric blasting caps more than 1,000 in quantity, class A	"Explosives Placard"	"Explosives"
For explosive chemical ammunition containing class A poison gas	"Explosives and Poison Gas Placard"	"Explosives and Poison Gas"
For explosives, class B	"Dangerous Placard"	"Dangerous"
For explosives, class C	None	None
For flammable liquids	"Dangerous Placard"	"Dangerous"
For flammable solids	"Dangerous Placard"	"Dangerous"
For oxidizing materials	"Dangerous Placard"	"Dangerous"
For corrosive liquids	"Dangerous Placard"	"Dangerous"
For corrosive solids	None	None
For compressed nonflammable gases in containers other than tank cars	None	None
For compressed nonflammable gases in tank cars	"Dangerous Placard"	"Dangerous"
For compressed flammable gases	"Dangerous Placard"	"Dangerous"
For poisonous gases or liquids, class A	"Poison Gas Placard"	"Poison Gas"
For flammable poisonous liquids, class A, in tank cars	"Flammable Poison Gas Placard"	"Flammable Poison Gas"
For poisonous liquids, class A, in tank cars	"Poison Gas Placard"	"Poison Gas"
For poisonous liquids or solids, class B	"Dangerous Placard"	"Dangerous"
For radioactive materials with "radioactive white-I" or "radioactive yellow-II" labels	None	None
For radioactive materials with "radioactive yellow-III" label	Dangerous-radioactive material placard	"Radioactive Materials"
For tear gases, class C	None	None
For tank cars, filled with water or inert gas and last containing phosphorus	"Caution-the car contains residue phosphorus and must be kept filled with (water) or (inert gas)"	"Caution-Residue Phosphorus"
For empty tank cars that last contained flammable poisonous liquids, class A	"Dangerous Flammable Poison Gas Empty Placard"	"Dangerous Flammable Poison Gas Empty"
For empty tank cars that last contained poisonous liquids class A	"Dangerous Poison Gas Empty Placard"	"Dangerous Poison Gas Empty"

§ 172.5 LIST OF HAZARDOUS MATERIALS

Article	Classed as	Exemptions and Packing (see sec.)	Label required if not exempt	Maximum quantity in 1 outside container by rail express
Projectiles, gas, smoke, or incendiary, with burster or bursting charge with or without detonating fuse. See Explosive projectile.		VI-4		
Projectiles, illuminating, incendiary or smoke with expelling charge but without bursting charge. See Special fireworks.				
Projectiles, sand-loaded, empty, or solid	See § 173.55			
Propane or Liquefied petroleum gas. *See* Liquefied petroleum gas				
Propellant explosives, class A	Expl. A	No exemption, 173.54(b)	Expl. A	See § 173.88
Propellant explosives (liquid), class B	Expl. B	No exemption, 173.93	Expl. B	10 pounds

494 - MISSOURI PACIFIC R. CO. - 494

Attachment VII

****
DANGEROUS *
****

BLOOMINGTON TX 9843 FREEPORT TX
9843 FREEPORT TX
701 S AVENUE D
S
DOW CHEMICAL U S A

R/T / 01 509843-1495

DUPONT DE NEMOURS & CO 65002 WEIGHT AGREEMENT
BILL NO: V-8322

CALL 713-238-2112 IN EMERGENCY

§ 174.24 Shipping papers. (a) Except as provided in paragraph (c) of this section, no person may accept for transportation or rail any hazardous material which is subject to this subchapter unless he has received a shipping paper prepared in the manner specified in Subpart C of Part 172 of this subchapter. In addition, the shipping paper must include a certificate, if required by § 172.204 of this subchapter. However, no member of the train crew of a train transporting the hazardous material is required to have a shipper's certificate on the shipping paper in his possession if the original shipping paper containing the certificate is in the originating carrier's possession.

4904120

CHLORINE
NON FLAMMABLE GAS AS 110,000 534 N
LIQUID LFCC AS 170,000 481 N
GALLONS SHELL CAPACITY
"DANGEROUS PLACARD"
6 N RHOTON

TOTALS
TARIFF SWL 00060 K ITEM 027300

S TO CERTIFY THAT THE ABOVE NAMED ARTICLES ARE PROPERLY CLASSIFIED DES
KAGED MARKED AND LABELED AND ARE IN PROPER CONDITION FOR TRANSPORTATI
ING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION.

Not signed - ~~wrong~~ 174.24

VII - 1

NJ2 1257 02/23/77 U0398 G130010 ON N0992 BY TCS

CLASSIFICATION: CORROSIVE MATERIAL
COMMODITY NUMBER IS 4930253

SLUDGE ACID

FIRE RESPONSE:
EXTINGUISH FIRE USING AGENT SUITABLE FOR TYPE OF SURROUNDING FIRE
(MATERIAL ITSELF DOES NOT BURN OR BURNS WITH DIFFICUTLY.)

NOT ON FIRE:
BUILD DIKES TO CONTAIN FLOW
KEEP MATERIAL OUT OF STREAMS AND SEWERS.

PERSONNEL PROTECTION:
DO NOT HANDLE BROKEN PACKAGES WITHOUT PROTECTIVE EQUIPMENT.
AVOID BREATHING VAPORS.
WEAR PROTECTIVE GLOVES AND SAFETY GLASSES.
WEAR SELF-CONTAINED BREATHING EQUIPMENT.
WASH AWAY ANY MATERIAL WHICH MAY HAVE CONTACTED BODY WITH LARGE
AMOUNTS OF WATER OR SOAP AND WATER.
EOM

Subpart C—Loading and Storage Chart of Hazardous Materials

§ 3. Loading and storage chart of hazardous materials.

Hazardous materials must not be loaded, transported or stored together, except as provided in the Loading and Storage Chart of Hazardous Materials shown in this section.

		a	b	c	d	e	f	g	i	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Low explosives or black powder	High explosives or propellant explosives, class A	Initiating or detonating explosives, wet: Dinitrophenol, mercury fulminate, guanyl nitrosamino guanylidene hydrazine, lead azide, lead styphnate, nitro mannite, nitrosguanidine, pentaerythrite tetranitrate, tetracene, lead mononitroresorcinate	Blasting caps, with or without safety fuse (including electric blasting caps), detonating primers	Ammunition for cannon with explosive projectiles, gas projectiles, incendiary projectiles, illuminating projectiles or shell; ammunition for small arms with incendiary projectiles; ammunition for small arms with explosive projectiles; rocket ammunition with explosive projectiles, gas projectiles, smoke projectiles, incendiary projectiles, illuminating projectiles; boosters (explosive); bursters (explosive); and supplementary charges (explosive) without detonators	Explosive projectiles, bombs; torpedoes; mines; rifle or hand grenades (explosive); jet thrust units (jato), class A; igniters, jet thrust, class A; rocket motors, class A; igniters, rocket motor, class A	Detonating fuses, class A, with or without radioactive components	Ammunition for cannon with empty, inert-loaded or solid projectiles, or without projectiles; rocket ammunition with empty, inert-loaded or solid projectiles	Propellant explosives, class B; jet thrust units (jato), class B; igniters, jet thrust, class B; rocket motors, class B; rocket motor cartridges (liquid), class B; igniters, rocket motor, class B; starter cartridges, jet engine, class B	Fireworks, special or railway torpedoes	Small arms ammunition, or cartridges, practice ammunition	Primers for cannon or small arms, empty cartridge bags—black powder igniters, empty cartridge cases, primed, empty grenades, primed, combination primers or percussion caps, toy caps, explosive cable cutters, explosive rivets	Percussion fuses, tracer fuses or tracers	Time, combustion or detonating fuses, class C	Cordeau detonant fuse, safety squibs, fuse lighters, fuse igniters, delay electric igniters, electric squibs, instantaneous fuse or igniter cord	Fireworks, common	Flammable liquids or flammable gases: Flammable liquid or flammable gas label.	Flammable solids or oxidizing materials, Flammable solid, oxidizer, or organic peroxide label	Corrosive liquids; Corrosive label.	Nonflammable gases: Nonflammable gas label.	Poisonous gases or liquids, in tank cars or tanks, cylinders, projectiles or bombs, poison gas label	Radioactive materials label
CLASS A EXPLOSIVES																							
Low explosives or black powder	(a)			X							X						X	X	X	X	X	X	
High explosives or propellant explosives, class A	(b)			X	•X			X			X						X	X	X	X	X	X	
Initiating explosives, wet: Dinitrophenol, mercury fulminate, guanyl nitrosamino guanylidene hydrazine, lead azide, lead styphnate, nitro mannite, nitrosguanidine, pentaerythrite tetranitrate, tetracene, lead mononitroresorcinate	(c)	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Blasting caps, with or without safety fuse (including electric blasting caps), detonating primers	(d)		•X	X			X				•X						•X	•X	•X	•X	X	•X	
Ammunition for cannon with explosive projectiles, gas projectiles, incendiary projectiles, illuminating projectiles or shell; ammunition for small arms with incendiary projectiles; ammunition for small arms with explosive projectiles; rocket ammunition with explosive projectiles, gas projectiles, smoke projectiles, incendiary projectiles, illuminating projectiles; boosters (explosive); bursters (explosive); and supplementary charges (explosive) without detonators	(e)			X	X											X	X	X	X	X	X	X	
Explosive projectiles, bombs; torpedoes; mines; rifle or hand grenades (explosive); jet thrust units (jato), class A; igniters, jet thrust, class A; rocket motors, class A; igniters, rocket motor, class A	(f)		X	X	X	X					X					X	X	X	X	X	X	X	
Detonating fuses, class A, with or without radioactive components	(g)			X		X	X				X												
CLASS B EXPLOSIVES																							
Ammunition for cannon with empty, inert-loaded or solid projectiles, or without projectiles; rocket ammunition with empty, inert-loaded or solid projectiles, or without projectiles	1			X															•X		X		
Explosives, class B, jet thrust units (jato), class B, igniters, jet thrust (jato), class B, starter cartridges, jet engine, class B	2			X															•X		X		
Fireworks, special or railway torpedoes	3	X	X	X	•X	X	X	X													X		

•Exceptions at end of table

The following table shows the hazardous materials which must not be loaded or stored together.

The letter X at an intersection of horizontal and vertical columns shows that these articles must not be loaded or stored together, for example: Detonating fuzes class A, with or without radioactive components g horizontal column must not be loaded or stored with high explosives or propellant explosives, class A b vertical column.

		Low explosives or black powder	High explosives or propellant explosives, class A	(initiating or priming explosives, wet: Diazodinitrophenol, fulminate of mercury, cyanuryl nitrosamine cyanyldioxa hydrazine, lead azide, lead styphnate, nitro mannite, nitroguanidine, pentaerythritetetranitrate, tolutrono, lead mononitroresorcinate	Blasting caps, with or without safety fuse (including electric blasting caps), detonating primers	Ammunition for cannon with explosive projectile, gas projectile, smoke projectile, incendiary projectile, illuminating projectile or shell, ammunition for small arms with explosive bullet, or ammunition for small arms with explosive projectile, or rocket ammunition with explosive projectile, gas projectile, smoke projectile, incendiary projectile, illuminating projectile; and boosters (explosive), bursters (explosive), or supplementary charges (explosive) without detonators	Explosive projectiles, bombs, torpedoes, or mines, rifle or hand grenades (explosive), jet thrust units (jato), explosive, class A or igniters, jet thrust (jato), explosive, class A	Detonating fuzes, class A, with or without radioactive components	Ammunition for cannon with empty, inert-loaded or solid projectiles, or w/thout projectiles, or rocket ammunition with empty projectiles, inert-loaded or solid projectiles or without projectiles	Propellant explosives, class B, jet thrust units (jato), class B, igniters, jet thrust (jato), class B, or starter cartridges, engines, class B	Fireworks, special or railway torpedoes	Small arms ammunition, or cartridges, practice ammunition	Primers for cannon or small arms, empty cartridge bags—black powder igniters, empty cartridge cases, primed, empty grenades, primed, combination primers or percussion caps, toy caps, explosive cable cutters, explosive rivets	Percussion fuzes, tracer fuzes or tracers	Time, combination or detonating fuzes, class C	Ordinary detonant fuze, safety squibs, fuse lighters, fuse igniters, delay electric igniters, electric squibs, instantaneous fuze or igniter cord	Fireworks, common	Flammable liquids or compressed flammable gases, red label	Flammable solids or oxidizing materials, yellow label	Acids or corrosive liquids, white label	[illegible]	Poisonous gases or liquids in tank cars or bombs, poison gas label	Radioactive materials
		a	b	c	d	e	f	g	1	2	3	4	5	6	7	8	9	10	11	12	[illegible]	14	15
CLASS C EXPLOSIVES																							
Small arms ammunition, or cartridges, practice ammunition	4			X																			
Primers for cannon or small arms, empty cartridge bags—black powder igniters, empty cartridge cases, primed, empty grenades, primed, combination primers or percussion caps, toy caps, explosive cable cutters, explosive rivets	5			X																			
Percussion fuzes, tracer fuzes or tracers	6			X																			
Time, combination or detonating fuzes, class C	7			X																			
Ordinary detonant fuze, safety squibs, fuse lighters, fuse igniters, delay electric igniters, electric squibs, instantaneous fuze or igniter cord	8			X																			
Fireworks, common	9	X	X	X	•X	\	X	X														X	
OTHER DANGEROUS ARTICLES																							
Flammable liquids or flammable gases; Flammable liquid or flammable gas label	10	X	X	X	•X	X	X	X														X	
Flammable solids or oxidizing materials; Flammable solid, oxidizer, or organic peroxide label	11	X	•X	X	••X	X		X													•X	X	
Corrosive liquids; Corrosive label	12	X	X	X	•X	X	X	X	•X	•X										X		X	
Nonflammable gases; Nonflammable gas label	13	X	X	X	•X	X	X	X															
Poisonous gases or liquids in tank cars or cylinders, projectiles or bombs, poison gas label	14	X	X	X	X	X	X	X	X	X	X						X	X	X	X			
Radioactive materials	15	‡X	‡X	‡X	‡X	‡X	‡X	‡X															

• Blasting caps or electric blasting caps in quantities not exceeding 1,000 caps may be loaded and transported with articles named in vertical and horizontal columns 9, 10, 11, 12, and 13. Loading and transportation of blasting caps or electric blasting caps as prescribed in § 177.835, in any quantity, with articles named in vertical column b, c, e, or f is prohibited.

‡ Corrosive liquids must not be loaded above or adjacent to flammable solids, oxidizing materials, ammunition for cannon with or without projectiles, or propellant explosives, except that shippers loading truckload shipments of corrosive liquids and flammable solids or oxidizing materials packages and who have received approval from the Department may load such materials together when it is known that the mixture of contents would not cause a dangerous evolution of heat or gas.

Explosives, class A and explosives, class B must not be loaded or stored with ammunition containing incendiary charges or white phosphorus either with bursting charges.

Boosters (explosive), boosters (explosive), or supplementary charges (explosive) with detonators when shipped by, to or for the Departments of the Army, Navy, or Air Force of the United States Government may be loaded with any of the articles except those in columns c, d, 3, 9, 10, 11, 12, 13, 14, and 15.

‡ Does not include nitro carbo nitrate or ammonium nitrate, fertilizer grade, which may be loaded, transported or stored with high explosives or with blasting caps or electric blasting caps, and detonating primers.

‡ Normal uranium, depleted uranium, and thorium metal in solid form may also be loaded and transported with articles named in vertical and horizontal columns a, b, c, d, e, f, and g.

NOTE 1: Charged electric storage batteries must not be loaded in the same vehicle with explosives, class A.

NOTE 2: Cyanides or cyanide mixtures must not be loaded or stored with acids or corrosive liquids.

NOTE 3: Gas identification sets may be loaded and transported with articles named except those in column c.

NOTE 4: Nitric acid, when loaded in the same motor vehicle with other solids or other corrosive liquids in carboys, must be separated from the other carboys by a 2 by 5 inch plank, set on edge, should be nailed across the motor vehicle floor at least 12 inches from the nitric acid carboys, and the space between the plank and the carboys of nitric acid should be filled with sand, sawdust, or other incombustible absorbent material.

NOTE 5: Smokeless powder for small arms in quantities not exceeding [illegible] pounds net in one motor vehicle shall be classed as a flammable solid for purposes of loading when approved for such classification by the Bureau of [illegible]

ATTACHMENT IX

Case Histories

Violent Reaction, Pressure Generation in Tank Truck

In Richmond, California, a hazardous waste hauler mixed, in his 30-barrel tank truck, a liquid waste containing butyl acitate in xylene with an etching waste containing sulfuric acid, nitric acid, and hydrofluoric acid. A hydrolysis reaction took place. Pressure was generated in the tank and the safety relief valve was blown off while the truck was traveling through a residential area. A private residence was sprayed with the hazardous mixture. No one was injured, but considerable cleanup and repainting of the house were required.

Heat Generation and Explosion from Reuse of Contaminated Drums

An employee transferred two five-gallon cans of waste vinyl cyanide and water from a still to a supposedly empty waste drum. As the employee rolled the drum to a storage area across the road, it exploded. An employee was sprayed by the waste material. He believed that he saw a flash at the time of the explosion. The drum was thrown approximately 48 feet, wrapping around a steel guard post. The employee received thermal and possible chemical burns to both feet. The waste drums contained still bottoms from the stripping of a vinylation mixture. The exothermic reaction, causing the drum to rupture, was probably a combination of cyanoethylation and polymerization.

Formation of Toxic Gas and Explosion in Waste Tank

Sulfide waste was added to soluble oil waste in a tanker and subsequently added to other oily wastes in a tank. Later, treatment of the oil with acid to break the emulsified oil resulted in

the evolution of hydrogen sulfide. Two operators were briefly affected, and there was an exposive in the tank.

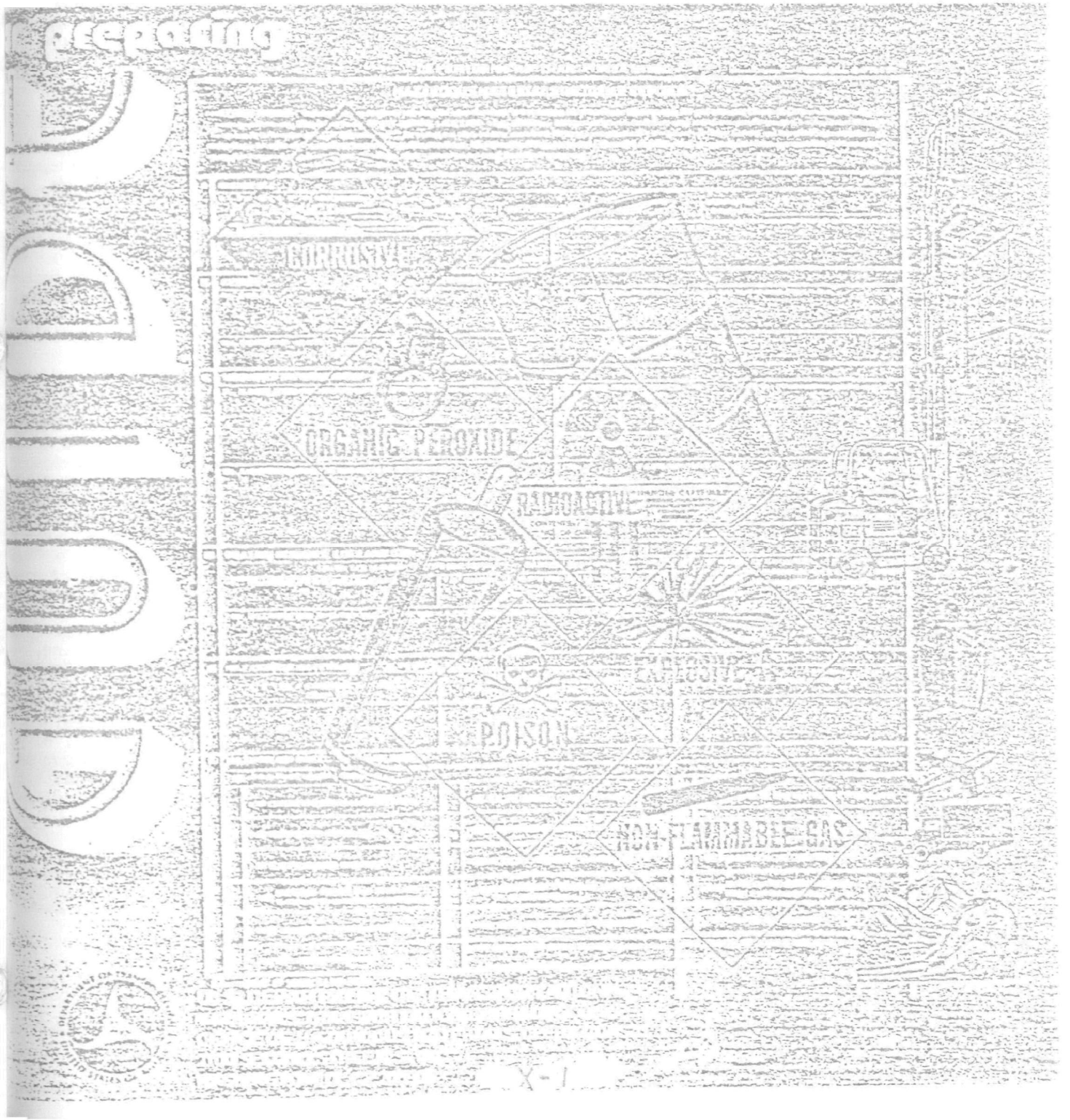
Fire, Dispersal of Toxic Dusts from Leaky Containers

At a dump in Contra Costa County, California, a large number of drums containing solvents were deposited in a landfill. In the immediate area were leaky containers of concentrated mineral acids and several bags containing beryllium wastes in dust form. The operators failed to cover the waste at the end of the day. The acids reacted with the solvents during the night, ignited them, and started a large chemical fire. There was possible dispersion of beryllium dust into the environment. Inhalation, ingestion, or contact with beryllium dust by personnel could have led to serious health consequences.

Violent Eruption in Waste Drum

At an engineering work, hot chromic acid waste was inadvertently added to a drum containing methylene chloride waste from degreasing operations. There was a violent eruption resulting in chemicals being sprayed locally in the workshop. No one was harmed.

GUIDE for preparing Hazardous Materials Incident Reports



PREFACE

In 1971 a nationwide intermodal system for the reporting of hazardous materia incidents was established to provide the Department of Transportation with th factual data necessary to comply with the Hazardous Materials Transportation Control Act of 1970. Analysis of the reports is expected to reveal problem a and may result in changes in the regulations where necessary to alleviate any threat to public safety.

The regulations requiring reporting of hazardous materials incidents are contained in the Code of Federal Regulations, viz:

Title 49, Parts 100 to 199 (Governing the transport of hazardous materia by highway and rail)
171.15 Immediate notice of certain hazardous materials incidents
171.16 Detailed hazardous materials incident reports
Title 14, Part 103 (Governing the transport of hazardous materials by ai
103.28 Reporting certain dangerous article incidents
Title 46, Parts 1 to 65 (Covering the transport of hazardous materials by water)
2.20-65 Immediate notice of certain hazardous materials incidents
2.20-70 Detailed hazardous materials incident reports

*****

This system is two-fold in that an immediate telephone notice is required under certain conditions and a detailed written report is required whenever there is any unintentional release of a hazardous material during transportation or temporary storage related to transportation.

*****

Any time there is an unintentional release of hazardous materials, the carrier must submit a report on Form F 5800.1 within 15 days from the date of the incident. While carriers are required to report, any interested party may report. In order to include all pertinent information, other reporting parties are encouraged to also utilize this form.

The success of this program depends greatly on the quality of the information submitted on the report. Generally, most of this required information is available at the time of the incident, but since leaking and damaged containers are destroyed and spills are cleaned up, some investigation is often necessary in order to obtain all of the facts. Much of this information is also required by carriers for other purposes: insurance records, damage claims, etc. In view of this, carriers may find it to their advantage to incorporate reporting requirements into standard company procedures, thereby making the needed details for the report more readily available and enabling the company to more easily comply with the reporting regulations.

This guide is intended to assist carriers in completing the report form by providing examples of the information needed. However many of 26,000 reports received in the past 4 1/2 years are incomplete, particularly as to container information. Additional information relating to containers, container marking, labels, definitions, etc. is available at no cost from the address shown below.

A limited supply of the report form is available upon request in writing from the Office of Hazardous Materials Operations. Larger quantities may be obtained from several industry sources who have reproduced the form for this purpose, or you may reproduce the form yourself. (A blank report form is provided on the last two pages of this guide for this purpose). Two copies of the report must be submitted to the Department. Typewritten reports are preferred.

*****

Incident reports should now be addressed to: U. S. Department of Transportation, Materials Transportation Bureau, Office of Hazardous Materials Operations (MTH-30), Washington, D. C. 20590. When Form DOT F 5800.1 is revised at a later date, this change will be included.

'ill in all blanks. Use N/A when not applicable. If there are none, state "No marking on container," "No label applied," "No symbols," "No serial numbers," etc. as the case may be.

ction A:

If items 1.1 through 1.5 do not apply, insert at 6 your operational area: Manufacturer, arehouse, etc. For items A2 and A3, if the actual date and location are not known, give the ate and location of discovery. Do not include terms such as "on trailer 376" or "between lew York and Philadelphia".

HAZARDOUS MATERIALS INCIDENT REPORT

INSTRUCTIONS: Submit this report in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, Washington, D.C. 20590, (ATTN: Op. Div.). If space provided for any item is inadequate, complete that item under Section H, "Remarks", keying to the entry number being completed. Copies of this form, in limited quantities, may be obtained from the Secretary, Hazardous Materials Regulations Board. Additional copies in this prescribed format may be reproduced and used, if on the same size and kind of paper.

Example

INCIDENT

1. TYPE OF OPERATION
1 ☐ AIR 2 ☒ HIGHWAY 3 ☐ RAIL 4 ☐ WATER 5 ☐ FREIGHT FORWARDER 6 ☐ OTHER (Identify) _____

2. DATE AND TIME OF INCIDENT (Month - Day - Year)	3. LOCATION OF INCIDENT
March 7, 1972 — 11:30 a.m. ☐ p.m. ☐	Exit 3 on I-495 near Alexandria, Va.

ection B

Item B4 should indicate the complete company name. Do not use abbreviations. If the eport is submitted by someone other than the carrier involved in the incident, please indiate your connection with the incident such as "J & J Chemicals--Consignee" and identify the arrier. Item B5 should be the main office address of the company, not the terminal prearing the report. Item B6 should specify the type of vehicle or facility in which the unintentional release took place: tank car, van trailer, trailer on flat car (TOFC), storage arehouse, etc.

REPORTING CARRIER, COMPANY OR INDIVIDUAL

Example

4. FULL NAME	ADDRESS (Number, Street, City, State and Zip Code)
ABC Trucking Company, Inc.	204 Post Avenue Fayetteville, North Carolina 28301
6. TYPE OF VEHICLE OR FACILITY	
Tractor - Van Trailer	

Items C7 and C8 should include the complete company name. [illegible] no., by itself, identify the shipper or consignee although it may be completely obvious to the reporter as "American Hotel Supply". The street address and zip code should also be included. Item C9 should clearly identify the shipping papers. A series of numbers without any identification is not very meaningful. An example of "Other" in C10 would be the broker or agent of the shipper on an import shipment.

C SHIPMENT INFORMATION

7. NAME AND ADDRESS OF SHIPPER (Origin address)	8. NAME AND ADDRESS OF CONSIGNEE (Destination)
XYZ Chemical Company 1101 South Peachtree Street Atlanta, Ga. 30303	J & J Chemicals 1506 Wayne Street Alexandria, Va. 22301
9. SHIPPING PAPER IDENTIFICATION NO. Shipper's B/L: FNC 12345 Carrier's Pro: 98765	**10. SHIPPING PAPERS ISSUED BY** [x] CARRIER [ ] SHIPPER [ ] OTHER (Identify)

Example

Section D:

For items D11 and D12 enter the number of persons injured or killed AS A RESULT OF [illegible] HAZARDOUS MATERIALS INVOLVED. If a casualty resulted from a collision and not from the release of a hazardous material, then "none" should be entered. If the exact amounts for D13 and D14 are not known, give an estimate. Do not leave these spaces blank.

D DEATHS, INJURIES, LOSS AND DAMAGE DUE TO HAZARDOUS MATERIALS INVOLVED

11. NUMBER PERSONS INJURED	12. NUMBER PERSONS KILLED	13. ESTIMATED AMOUNT OF LOSS AND/OR PROPERTY DAMAGE INCLUDING COST OF DECONTAMINATION (Round to nearest dollars)
-1-	-0-	$ $1,000.00

14. ESTIMATED TOTAL QUANTITY OF HAZARDOUS MATERIALS RELEASED: 45 gals.

Example

Section E:

In item E15 enter the classification of the commodity as shown in the hazardous materials regulations. The shipping name in E16 MUST be one of the names shown in the commodity lists of the three hazardous materials regulations mentioned in the PREFACE. This may or may not be the same name used for rate or billing purposes. Nevertheless, the regulations are quite specific as to a commodity's proper hazardous material shipping name. In item E17 enter the trade name if any.

E HAZARDOUS MATERIALS INVOLVED

15. CLASSIFICATION (Sec. 172.4)	16. SHIPPING NAME (Sec. 172.5)	17. TRADE NAME
Corrosive Liquid	Formic Acid	None

Example

Section F:

In item F18 check all spaces which may have contributed to the package failure. All "External Puncture" may have been caused by "Other Conditions" such as a traffic collision. Do not make any mark in item 19.

F NATURE OF PACKAGING FAILURE

18. (Check all applicable boxes)

[ ] (1) DROPPED IN HANDLING	[x] (2) EXTERNAL PUNCTURE	[x] (3) DAMAGE BY OTHER FREIGHT
[ ] (4) WATER DAMAGE	[ ] (5) DAMAGE FROM OTHER LIQUID	[ ] (6) FREEZING
[ ] (7) EXTERNAL HEAT	[ ] (8) INTERNAL PRESSURE	[ ] (9) CORROSION OR RUST
[ ] (10) DEFECTIVE FITTINGS, VALVES, OR CLOSURES	[ ] (11) LOOSE FITTINGS, VALVES OR CLOSURES	[ ] (12) FAILURE OF INNER RECEPTACLES
[ ] (13) BOTTOM FAILURE	[ ] (14) BODY OR SIDE FAILURE	[ ] (15) WELD FAILURE
[ ] (16) CHIME FAILURE	[x] (17) OTHER CONDITIONS (Identify) Traffic Collision	19. SPACE FOR DOT USE ONLY

Example

tion G:

Columns 1, 2, and 3 may be used to convey a variety of information. You may report details three different types of containers from which hazardous materials escaped, or three containers of the same type but of different capacities, or three containers of the same type and size made by three different container manufacturers. In the example below, Columns 1 and 2 been used to separate the details of inner and outer containers. If columns 1, 2, and 3 not adequate, a separate sheet may be attached to the report, or you may utilize the space the "Remarks".

Additional examples for G30 are "Carboys" and "Fiberboard Box" and for G21, the capacity a tank trailer or tank car. G22 and G23--In the example below, the report clearly indicates t hazardous materials escaped from 1 drum and 1 liner out of 72 lined drums in the shipment. a the inner and outer containers are of a different capacity or nomenclature, the report uld clearly state. For example: 2 glass bottles out of 4 glass bottles in a carton were ken. If there were 10 such cartons in the shipment, then the report should state that rdous materials escaped from 2 bottles out of 40 bottles in the shipment and from 1 carton of 10 cartons. There should be no doubt that the 40 bottles were the inner containers of outer containers in one shipment.

In G24 show all of the markings related to the container. "123" is not the complete king for a fiberboard box. It should be "12340", or "12360", etc. If the container bears DOT specification marking, enter "NONE" in the space. DO NOT leave G24 blank.

G25 - The hazardous materials regulations also require additional markings in some cases, h as: "HIGH EXPLOSIVES - DANGEROUS" or "HANDLE CAREFULLY".

In G26 enter the name of the container manufacturer. Keep in mind that some manufacturers initials, abbreviations, symbols and combinations of letters and symbols.

For G27 the serial number of a cylinder should appear just below the cylinder neck ring. ank car serial number might be similar to "GOTX 98765".

Enter in G28 "Flammable Liquid", "Compressed Gas", etc. If no label appears on the pack- , state "NONE".

G29A - Include symbols and registration numbers e.g. R 1000, M 1000, etc.

G29B - Show periodic test dates for containers which require same (e.g. cylinders, tank icles, reconditioned drums).

G30 - Include DOT Special Permit numbers (e.g. DOT SP 9999, SP 99-72).

PACKAGING INFORMATION - *If more than one size or type packaging is involved in loss of material show packaging information separately for each. If more space is needed, use Section H "Remarks" below keying to the item number.*

ITEM			#1	#2	#3
TYPE OF PACKAGING INCLUDING INNER RECEPTACLES *(Steel drums, wooden box, cylinder, etc.)*			(Inner) Plastic Liner	(Outer) Steel Drum	
CAPACITY OR WEIGHT PER UNIT *(55 gallons, 65 lbs., etc.)*			55 gals	55 gals	
NUMBER OF PACKAGES FROM WHICH MATERIAL ESCAPED			1	1	
NUMBER OF PACKAGES OF SAME TYPE IN SHIPMENT			72	72	
DOT SPECIFICATION NUMBER(S) ON PACKAGES *(21P, 17E, 3AA, etc., or none)*			DOT 55L	DOT 17H	
SHOW ALL OTHER DOT PACKAGING MARKINGS *(Part 178)*			55-12-71	STC 1G/16-55-70	
NAME, SYMBOL, OR REGISTRATION NUMBER OF PACKAGING MANUFACTURER			AAA	HUBAR	
SHOW SERIAL NUMBER OF CYLINDERS, CARGO TANKS, TANK CARS, PORTABLE TANKS			N/A	N/A	
TYPE DOT LABEL(S) APPLIED			N/A	Corrosive Liquid	
IF RECONDITIONED OR REQUALIFIED, SHOW	A	REGISTRATION NO. OR SYMBOL	N/A	DOT R1000	
	B	DATE OF LAST TEST OF INSPECTION	N/A	Tested 2/72	
IF SHIPMENT IS UNDER DOT OR USCG SPECIAL PERMIT, ENTER PERMIT NO.			None	None	

Example

Section H:

In addition to the information requested following "Remarks" on the form, this section should be used to include any information which the reporter feels is pertinent. For instance, if there was a spill of a flammable liquid and the driver was burned, and you did not indicate "fire" in F17 (Other Conditions), then Section H should clearly explain that there was a fire involving the flammable cargo, the origin of the fire, etc. In instances of contamination of a vehicle or freight, the method of decontamination and disposition of the contaminated freight should be explained.

H REMARKS - Describe essential facts of incident including but not limited to defects, damage, probable cause, known, action taken at the time discovered, and action taken to prevent future incidents. Include any recommendations to improve packaging, handling, or transportation of hazardous materials. Photographs and diagrams should be submitted when necessary for clarification.

Our vehicle was involved in a minor traffic accident which caused the load to shift and puncture one of the drums. The leaking drum was removed by the consignee to their disposal area and buried. The vehicle was taken to our Alexandria terminal and cleaned (washed down and steamed). A Highway Patrolman on the scene had some of the spilled liquid splash on his hand. He was taken to a local hospital where he was treated and released.

Example

31. NAME OF PERSON PREPARING REPORT (Type or print)	32. SIGNATURE
Ira Jeopard	Ira Jeopard
33. TELEPHONE NO. (Include Area Code)	34. DATE REPORT PREPARED
(202) 143-0510	March 15, 1972

NOTE: This report cancels the report formerly required by Section 177.814. It DOES NOT REPLACE other required reports such as the accident report MCS-50 required by the Federal Highway Administration. This material may be reproduced without special permission from this office.

DEPARTMENT OF TRANSPORTATION

Form Approved OMB No. 04-S613

HAZARDOUS MATERIALS INCIDENT REPORT

ICTIONS: Submit this report in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of rtation, Washington, D.C. 20590, (ATTN: Op. Div.). If space provided for any item is inadequate, complete that der Section H, "Remarks", keying to the entry number being completed. Copies of this form, in limited quantities, obtained from the Secretary, Hazardous Materials Regulations Board. Additional copies in this prescribed format reproduced and used, if on the same size and kind of paper.

IENT

PE OF OPERATION

☐ AIR 2 ☐ HIGHWAY 3 ☐ RAIL 4 ☐ WATER 5 ☐ FREIGHT FORWARDER 6 ☐ OTHER *(Identify)* _____

ATE AND TIME OF INCIDENT *(Month - Day - Year)*	3. LOCATION OF INCIDENT
_____ a.m. _____ p.m.	

IRTING CARRIER, COMPANY OR INDIVIDUAL

ULL NAME	5. ADDRESS *(Number, Street, City, State and Zip Code)*

PE OF VEHICLE OR FACILITY

IENT INFORMATION

AME AND ADDRESS OF SHIPPER *(Origin address)*	8. NAME AND ADDRESS OF CONSIGNEE *(Destination address)*

IPPING PAPER IDENTIFICATION NO.	10. SHIPPING PAPERS ISSUED BY
	☐ CARRIER ☐ SHIPPER ☐ OTHER *(Identify)* _____

THS, INJURIES, LOSS AND DAMAGE

DUE TO HAZARDOUS MATERIALS INVOLVED

UMBER PERSONS INJURED	12. NUMBER PERSONS KILLED	13. ESTIMATED AMOUNT OF LOSS AND/OR PROPERTY DAMAGE INCLUDING COST OF DECONTAMINATION *(Round off in dollars)*
		$

STIMATED TOTAL QUANTITY OF HAZARDOUS MATERIALS RELEASED

RDOUS MATERIALS INVOLVED

15. CLASSIFICATION (Sec. 172.4)	16. SHIPPING NAME (Sec. 172.5)	17. TRADE NAME

RE OF PACKAGING FAILURE

(Check all applicable boxes)

(1) DROPPED IN HANDLING	(2) EXTERNAL PUNCTURE	(3) DAMAGE BY OTHER FREIGHT
(4) WATER DAMAGE	(5) DAMAGE FROM OTHER LIQUID	(6) FREEZING
(7) EXTERNAL HEAT	(8) INTERNAL PRESSURE	(9) CORROSION OR RUST
(10) DEFECTIVE FITTINGS, VALVES, OR CLOSURES	(11) LOOSE FITTINGS, VALVES OR CLOSURES	(12) FAILURE OF INNER RECEPTACLES
(13) BOTTOM FAILURE	(14) BODY OR SIDE FAILURE	(15) WELD FAILURE
(16) CHIME FAILURE	(17) OTHER CONDITIONS *(Identify)*	19. SPACE FOR DOT USE ONLY

T F 5800.1 (10-70)

G PACKAGING INFORMATION - *If more than one size or type packaging is involved in loss of material show packaging information separately for each. If more space is needed, use Section H "Remarks" below keying to the item number.*

	ITEM			#1	#2	
20	TYPE OF PACKAGING INCLUDING INNER RECEPTACLES *(Steel drums, wooden box, cylinder, etc.)*					
21	CAPACITY OR WEIGHT PER UNIT *(55 gallons, 55 lbs., etc.)*					
22	NUMBER OF PACKAGES FROM WHICH MATERIAL ESCAPED					
23	NUMBER OF PACKAGES OF SAME TYPE IN SHIPMENT					
24	DOT SPECIFICATION NUMBER(S) ON PACKAGES *(21P, 17E, 3AA, etc., or none)*					
25	SHOW ALL OTHER DOT PACKAGING MARKINGS *(Part 178)*					
26	NAME, SYMBOL, OR REGISTRATION NUMBER OF PACKAGING MANUFACTURER					
27	SHOW SERIAL NUMBER OF CYLINDERS, CARGO TANKS, TANK CARS, PORTABLE TANKS					
28	TYPE DOT LABEL(S) APPLIED					
29	IF RECONDITIONED OR REQUALIFIED, SHOW	A	REGISTRATION NO. OR SYMBOL			
		B	DATE OF LAST TEST OF INSPECTION			
30	IF SHIPMENT IS UNDER DOT OR USCG SPECIAL PERMIT, ENTER PERMIT NO.					

H REMARKS - Describe essential facts of incident including but not limited to defects, damage, probable cause, [illegible], action taken at the time discovered, and action taken to prevent future incidents. Include any recommendations to improve packaging, handling, or transportation of hazardous materials. Photographs and diagrams should be submitted if necessary for clarification.

31. NAME OF PERSON PREPARING REPORT *(Type or print)*	32. SIGNATURE
33. TELEPHONE NO. *(Include Area Code)*	34. DATE REPORT PREPARED

Reverse of Form DOT F 5800.1 (10-70)

X-8

Attachment XI

DEPARTMENT OF TRANSPORTATION
MATERIALS TRANSPORTATION BUREAU
WASHINGTON, D.C. 20590

MTH-31 2/1/77

HAZARDOUS MATERIALS INCIDENT REPORTS

REPORTING CARRIERS AND REPORTS SUBMITTED

The following tables list by mode of transport the number of reporting carriers and the number of HMI reports submitted by each mode.

MODE	Reporting Carriers							Percer
	1971	1972	1973	1974	1975	1976*	Total*	of Tot
Air Carriers.....	3	11	15	32	31	40	50	4
Hwy Carriers (For-hire).	233	323	353	380	392	600	700	62
Hwy Carriers (Private)..	54	58	73	82	116	200	250	22
Rail Carriers.....	28	35	35	40	44	50	75	7
Water Carriers.....	10	8	7	17	23	40	50	4
TOTAL.....	328	435	483	551	606	930	1,125**	See No

*Estimated

** - Total number of different reporting carriers during the 6 year period - NOT the addition of numbers for each year. (For example - Carrier XYZ submitted reports in EACH year but as the "total" reporting carriers, XYZ is only one reporting carrier - not six..)

NOTE - About 10 freight forwarders and 14 other reporters (such as stevedoring firms, Port Authorities, Police, etc.) submitted about 100 HMI reports during this 6 year period.

MODE	Reports Submitted							Percen
	1971	1972	1973	1974	1975	1976	Total*	of Tot
Air Carriers.....	5	32	48	155	152	150*	550	1
Hwy. Carriers (For-Hire)	1,633	3,613	5,092	7,254	8,988	9,900*	36 500	83
Hwy. Carriers (Private).	258	352	450	361	903	950*	3 300	7
Rail Carriers.....	346	337	412	617	675	1,000*	3400	7
Water Carriers.....	13	10	12	26	32	50*	150	1
Total.....	2,255	4,344	6,014	8,413	10,750	11,898	44,000	See No

Attachment XII

132,000 HAZARDOUS MATERIALS INCIDENT REPORTS RECEIVED FROM 1971 THROUGH 1975 INDICATED CONTAINER FAILURE CAUSES AS FOLLOWS:

(Actual figures used for first 4 1/2 years and estimated figures used for last 6 months of 1975)

9. NATURE OF PACKAGING FAILURE (10. Check all applicable boxes)					
4000	(1) DROPPED IN HANDLING	6800	(2) EXTERNAL PUNCTURE	4900	(3) DAMAGE BY OTHER FREIGHT **
110	(4) WATER DAMAGE	100	(5) DAMAGE FROM OTHER LIQUID	100	(6) FREEZING
130	(7) EXTERNAL HEAT	550	(8) INTERNAL PRESSURE	500	(9) CORROSION OR RUST
2400	(10) DEFECTIVE FITTINGS, VALVES, OR CLOSURES ***	3800	(11) LOOSE FITTINGS, VALVES OR CLOSURES ***	1000	(12) FAILURE OF INNER RECEPTACLES
1700	(13) BOTTOM FAILURE	1050	(14) BODY OR SIDE FAILURE	550	(15) WELD FAILURE
400	(16) CHIME FAILURE	8500	(17) OTHER CONDITIONS (Identify) *	200	No failure shown

ABOVE CONTAINER FAILURE CAUSES LISTED BY RANKING:

Other Conditions*	8500	HMI reports	Weld failure	550	HMI reports
External puncture	6800	" "	Internal pressure	550	" "
Damage by other freight**	4900	" "	Corrosion or rust	500	" "
Dropped in handling	4000	" "	Chime failure	400	" "
Loose fittings, valves, closures***	3800	" "	No failure shown	200	" "
Defective " " " ***	2400	" "	External heat	130	" "
Bottom failure	1700	" "	Water damage	110	" "
Body or side failure	1050	" "	Damage from other liquid	100	" "
Failure of inner receptacles	1000	" "	Freezing	100	" "

36,790 failures causes reported since many HMI reports cited more than one cause.

* - Reporting carriers often check "other conditions" and insert "traffic accident", "derailment", "fire" , etc. which they may or may not explain in the "Remarks" section of the report.

** - Analysis of the incident reports which show "damage by other freight" generally reveals improper blocking, bracing or stowage. "Imprpper loading" is often shown in "other conditions".

*** - Many incident reports cite both "loose fittings, valves or closures" and "defective fittings, valves or closures", apparently indicating that the reporter in unable to determine if the fitting, valve or closure was merely "loose" or was in fact "defective".

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DEPARTMENT OF TRANSPORTATION
MATERIALS TRANSPORTATION BUREAU
WASHINGTON, D.C. 20590

ATTACH XIII

MTH-31 10/1/76

COMMODITIES NAMED MOST OFTEN IN HAZARDOUS MATERIALS INCIDENT REPORTS

Title 49, CFR 172.5 contains approximately 1,100 line entries (entries having one or more shipping names in Roman type and showing reference to Part 173 for packing). Approximately 425 of those 1,100 line entries were utilized in the 32,000 Hazardous Materials Incident Reports received from January 1, 1971 through December 31, 1975. However, 21 of the 425 commodities accounted for about 77 percent (24,633) of the 32,000 reports Paint related compounds were combined with paint, and electrolyte fluid was combined with batteries, to make the following list of the top 21 commodities reported most often.

Section 172.5 Commodity	Number of Reports (1971-1975)	Approx. % of all 32,000 reports rec'd
1. Paint and paint related compounds	6,590	20 1/2
2. Gasoline	4,243	13 1/2
3. Batteries and electrolyte fluid	3,593	11
4. Compounds, cleaning, liquid (Cor.)	2,194	7
5. Sulfuric acid	1,081	3 1/2
6. Cement, liquid, n.o.s.	903	3
7. Flammable liquids, n.o.s.	844	2 1/2
8. Hydrochloric acid	825	2 1/2
9. Corrosive liquids, n.o.s.	714	2 1/4
10. Insecticides, liquid (Poison B)	422	1 1/4
11. L.P.G.	395	1 1/4
12. Poisonous liquids, n.o.s. (Poison B)	364	1
13. Ink	355	1
14. Alcohol, n.o.s.	337	1
15. Acids, liquids, n.o.s.	316	1
16. Caustic soda liquid	304	1
17. Nitric acid	265	0 3/4
18. Resin solution	240	0 3/4
19. Anhydrous ammonia	222	0 3/4
20. Compounds, tree or weed kill (Poison B)	215	0 3/4
21. Compounds, cleaning, liquid (FL)	211	0 3/4
TOTAL	24,633	77 %
TOTAL of all reports received	32,000	100 %

This list is merely a tabulation and does not imply that ranking of risk or hazard to the public. For example, most of the paint spills were less than 5 gallon amounts and most of the battery acid spills were less than one quart amounts, but many of the gasoline spills were of 100 gallons or more. Quantity released is only one of the factors to be considered in any evaluation. This list is intended to show nothing more than which commodities were reported most often.

ATTACHMENT XIV

MTH-31 10/1/76

TALLY OF "CLASSIFICATIONS" OF HAZARDOUS MATERIALS INCIDENT REPORTS RECEIVED 1971-197

Classification	1971	1972	1973	1974	1975	Tota
Class A explosives	13	5	11	7	21	57
Class B explosives	5	2	4	3	4	18
Class C explosives	8	7	6	12	6	39
Flammable compressed gas	49	102	119	198	228	696
Nonflammable comprd. gas	36	61	96	142	188	523
Flammable liquid	1,010	2,322	3,195	4,279	5,267	16,071
Combustible liquid	-	-	-	19	76	95
Flammable solid	29	28	27	49	48	181
Oxidizing material	83	117	136	158	136	630
Poison gas or liq. CI A	3	3	11	5	1	23
Poison liq or solid, CI B	161	244	337	524	612	1,878
Irritating material	1	-	-	-	9	10
Etiologic agent	-	-	1	1	0	
Radioactive materials	9	17	11	61	58	
Corrosive material	555	1,382	1,971	3,164	4,151	11,223
Blank, Unknown, or later determined to be not subject to these regulations	286	68	110	0	0	464
TOTALS	2,248	4,358	6,035	8,622	10,805	32,068

Attachment XV

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD (G-WEP-4/73)
WASHINGTON, D.C. 20590
PHONE: (202) 426-9568

16490/4
19 APR 1978

4-24-78
#5100

Mr. Stephen W. Plehn
Deputy Assistant Administrator for
Solid Waste (WH-562)
U.S. Environmental Protection Agency
Washington, D.C. 20460

Dear Mr. Plehn:

This is to confirm the agreement that was reached at our 24 March 1978 meeting concerning the use of the National Response Center 800 number for reporting any spill of hazardous waste that occurs during transportation. Accordingly, we have no objection and in fact encourage that you use the toll free pollution incident reporting number 800-424-8802 for this purpose. We therefore recommend that section 250.37 of the proposed 40 CFR Part 250 Standards Applicable to transporters of Hazardous Wastes be changed to reflect this.

Sincerely,

J. R. KIRKLAND
Captain, U.S. Coast Guard
Chief, Marine Environmental
Protection Division
By direction of the Commandant

SPEED LIMIT 55
t's a law we
an live with.

DOT PLACARDS

DOT PLACARDS

NOV 9

Attachment XVII

91 (Rev. '57)

TATE COMMERCE
MMISSION

of Operations
ton, D. C. 20423

MOTOR CARRIER AUTOMOBILE BODILY INJURY LIABILITY AND PROPERTY DAMAGE LIABILITY CERTIFICATE OF INSURANCE

filed with

INTERSTATE COMMERCE COMMISSION

Bureau of Operations
Washington, D. C. 20423

(Executed in Triplicate)

Interstate Commerce Commission Docket No.

MC .....

ate certify, That the.....(NAME OF COMPANY).....

office Compan(y) of.....(HOME OFFICE ADDRESS OF COMPANY).....

is.....(NAME OF MOTOR CARRIER).....

.....(ADDRESS OF MOTOR CARRIER).....

olicies of Automobile Bodily Injury Liability and Property Damage Liability Insurance which, by the attachment of endorsement, form number proved by the Interstate Commerce Commission, has or have been amended to provide the coverage or security for the protection of the public required by the operation, maintenance, or use of motor vehicles under certificate of public convenience and necessity or permit issued by the Interstate Commerce Commission or otherwise in transportation subject to Part II of the Interstate Commerce Act and the pertinent rules and regulations of the Commerce Commission, regardless of whether such motor vehicles are specifically described in the policy or policies or not. The liability of the relates to all losses, damages, injuries, or deaths whether occurring on the route or in the territory authorized to be served by the Insured or elsewhere. Upon requested by the Commission, the Company agrees to furnish to the Commission a duplicate original of said policy or policies and all endorsements thereon.

endorsement described herein may not be cancelled without cancellation of the policy (or policies) to which it is attached. Such cancellation may be by the Company or the Insured giving thirty (30) days' notice in writing to the Interstate Commerce Commission at its office in Washington, D. C., days' notice to commence to run from the date notice is actually received at the office of said Commission.

is.....(12:01 a.m., standard time at the address of the Insured as stated in said policy or policies) ...until cancelled as provided in the rules and regulations under section 215.

ated at.....(STREET ADDRESS)..... (CITY)..... (STATE)..... Date.....

.....(ISSUING OFFICE — FULL NAME OF AGENCY OR BRANCH)

Agency File No.....(POLICY NUMBER)

By.....(SIGNATURE OF AUTHORIZED REPRESENTATIVE)

XVII - 1

THE ATTORNEY GENERAL
OF TEXAS

JOHN L. HILL,
ATTORNEY GENERAL

AUSTIN, TEXAS 78711

January 28, 1977

The Honorable Carol S. Vance
District Attorney
Harris County Courthouse
Houston, Texas 77002

Opinion No. H-933

Re: Whether persons performing solid waste disposal services are motor carriers under article 911b, V.T.C.S.

Dear Mr. Vance:

You have requested our opinion regarding whether a person who performs solid waste disposal services may be regulated by the Railroad Commission as a "motor carrier." Article 911b, V.T.C.S., authorizes the Commission "to prescribe all rules and regulations necessary for the government of motor carriers." Sec. 4(a). "Motor carrier" is defined to include

> any person, firm, corporation, company, copartnership, association or joint stock association . . . controlling, managing, operating, or causing to be operated any motor-propelled vehicle used in transporting property for compensation or hire over any public highway in this state, where in the course of such transportation a highway between two or more incorporated cities, towns or villages is traversed. Sec. 1(g). (Emphasis added).

Since 1972, the Railroad Commission has been issuing certificates of convenience and necessity to persons who perform solid waste disposal services. You ask whether such operation may properly be deemed to employ "motor-propelled vehicles used in transporting property for compensation or hire," so as to authorize the Commission to require them to obtain certificates of convenience and necessity.

You state that a solid waste disposal company charges a fee for its services to each customer based upon such factors as the number and size of the containers, frequency of pickup and compactability of the waste. Although there is in most instances no separately stated charge for the transportation of the waste, there is no dispute that transportation costs are included within the charge which the customer pays for the disposal service. So long as transportation costs are included in the contract price, we believe that the Railroad Commission is permitted to conclude that the operation embraces transportation "for compensation or hire" within the meaning of article 91 New Way Lumber Co. v. Smith, 96 S.W.2d 282, 286-87 (Tex. Su 1936); Attorney General Opinion S-218 (1956). See also Attorney General Opinion C-126 (1963). Cf. Attorney General Opinion M-247 (1968).

In order to fall within the jurisdiction of the Railro Commission, however, a solid waste disposal company must al be deemed to transport property. No Texas court has ever determined whether garbage is "property," and the courts of other jurisdictions have not reached a consensus on the iss

In Masgai v. Public Service Commission of Pennsylvania 188 A. 599, 600-01 (Pa. 1936), the Pennsylvania Supreme Court held that garbage and other refuse had "certain valuable uses under varied circumstances," even though its owner regarded it as being of no value. The Supreme Cou Washington has also concluded that "ashes, cinders, broken household furniture and vegetable matter" have a property value. State v. Diamond Tank Transport, 97 P.2d 145, 147 (Wash. 1939). On the other hand, the Supreme Court of Arizona has determined that garbage loses its character as "property" when discarded by its owner. Vicso v. State, 388 P.2d 155, 163 (Ariz. 1963). And the Supreme Court of New Mexico, in Fairchild v. United Service Corp., 197 P.2d 875, 883 (N.M. 1948), held that, although garbage may at times include objects of value, it is worthless to i owner and is hence not embraced within the meaning of "property."

In 1965, the Interstate Commerce Commission ruled that "debris, including rock," has a negative value to the person who discards it and thus loses its character as "property" when it is loaded and removed from his premises. Joray Trucking Corp., 99 M.C.C. 109 (1965). More recently, however with the advent of recycling techniques, the Commission has reevaluated its position. In a 1971 decision, Transportation of "Waste" Products for Reuse and Recycling, 114 M.C.C. 92 (1971), the Commission ruled that waste materials which are recycled "assume all of the characteristics of 'property.' Id. at 104-05.

The apparent acquiescence of the Legislature in the regulation of solid waste disposal activities by the Railroad Commission must be taken into account. As we have noted previously, the Commission has since 1972 issued certificates of convenience and necessity for disposal operations. The two sessions of the Legislature which have convened since that time could easily have signaled their concern over such regulation by expressly removing solid waste disposal services from the Commission's jurisdiction. As the Supreme Court of New Hampshire observed in Waste Control Systems, Inc. v. State, 314 A.2d 659, 662 (N.H. 1974), the exercise of jurisdiction by the Public Utility Commission over disposal operations "was proper in the absence of a definite expression of legislative intent that rubbish and garbage is not 'property.' See also Schlagel v. Hoelsken, 425 P.2d 39, 42 (Colo. 1967). In our opinion, the Railroad Commission's assumption of jurisdiction over solid waste disposal operations, even though of recent origin, is sufficient, in the face of legislative acquiescence, to authorize its regulation thereof, particularly in view of the numerous conflicting decisions regarding whether waste may be deemed "property." We conclude therefore that, at the present time and absent specific legislation on the subject, one who performs solid waste disposal services may be regulated by the Railroad Commission as a "motor carrier."

S U M M A R Y

A person who performs solid waste disposal services may be regulated by the Railroad Commission as a "motor

carrier," provided such person is otherwise subject to Commission jurisdiction under article 911b, V.T.C.S.

Very truly yours,

JOHN L. HILL
Attorney General of Texas

APPROVED:

DAVID M. KENDALL, First Assistant

C. ROBERT HEATH, Chairman
Opinion Committee

jwb

3002/3003

APPENDIX A

SUMMARY OF COMMENTS FROM

TYPE II MEETINGS

CONCERNING

TRANSPORTATION

CITIES INVOLVED IN TYPE II MEETINGS

San Francisco, California

Washington, D.C.

Cleveland, Ohio

Minneapolis, Minnesota

Hartford, Connecticut

Atlanta, Georgia

Houston, Texas

Oklahoma City, Oklahoma

Seattle, Washington

Denver, Colorado

Summary of Comments

Manifest System

The type of information on the manifest and the degree of detail were commented upon by those in attendance at the meeting. Opinions differed greatly as to what should be included in the description. Some of the data listed as important information was: emergency response procedures, generic name of waste, hazard class, quantity, general type of waste, phone numbers of the generator and transport company, physical state of the waste, chemical composition, the process from which the waste was derived, as well as other pertinent information. Some groups complained that the chemical composition was of little value since most drivers would not be able to understand it in an emergency. Trade names were also to be avoided for the same reasons.

The proposed format of the manifest drew varied responses. Many suggested that the manifest be incorporated into the DOT bill of lading. This could be done with modifications such as allowing additional room at the bottom so information can be included that would satisfy ICC/DOT requirements.

Several in attendance recommended that a set of data requirements rather than a format be developed, allowing the use of existing shipping papers. Most groups believed that the use of a separate uniform format would be more desirable and would facilitate computerization of the manifest. This uniformity would be important in interstate transport, and it was deemed necessary to make sure all States used the same manifest format. The State of Kansas suggested using its manifest as the model for the proposed manifest.

Most groups in attendance felt that the manifest was a tracking tool and should not be used in reporting procedures. Instead, summary reports should be issued to the designated agency or authority.

The circulation of the manifest was also the subject of discussion. The majority opinion was that the manifest should follow the waste delivery from generator to transporter to waste management facility. The waste management facility then sends a copy of the manifest to the generator, and the generator then reports to the State. Differences arose over whether it was necessary for the disposer to report back to the generator.

Questions were raised over what to do in the event that a manifest, for one reason or another, does not accompany a waste shipment. Several groups felt that allowances should be made, such as permitting a second party (transporter or disposer) to have the option of filling out the manifest as long as the generator has certified the waste shipment. Waste disposers had questions about using transfer points where wastes with the same manifest number may be designated for different destinations. They argued that it could be necessary for a manifest to originate from the transfer point in order to legally ship the waste material.

A plan for developing manifest numbers was proposed. The numbers could be derived by using the prefix of the company's phone number and the area code. A national data bank would be established with code numbers assigned to generators, transporters, and disposers.

Recordkeeping

There were a number of recommendations made concerning the recordkeeping system. The majority of those present believed that the record should be a copy of the manifest plus any analytical data available on the waste. Other groups felt that certain data should be required, rather than a specific form for recordkeeping. The length of retention of records was the subject of controversy. It was noted that pesticide producers were required to keep records for 20 years; although, no one suggested a retention period this long. Several waste disposer facilities felt that six months was long enough, but most groups recommended retention of from one to three years. Another suggestion made was that length of retention should coincide with the statute of limitations.

Containers, Placards, and Labels

A number of suggestions were made concerning the information to be placed on the label and the format that should be followed. Most groups felt that DOT requirements should be followed, with some modifications pertaining directly to hazardous wastes. DOT regulations require the generator's name, the type of waste, and the chemical composition of the waste on the label. The manifest number and the environmental or occupational hazards should also be required. Others felt that the labels should be color coded and represent the highest level of hazard.

Many of those in attendance at the meeting felt that placards should follow DOT requirements with added regulations where necessary. It was suggested that the word, "waste," be included somewhere on the placard. UN code numbers could also be used with DOT placards to handle the problem of multiple hazards. Some persons felt that additional information should be placed on the placard, since in the event of

an accident, the manifest could be lost and the placard would be the only source of information. One group believed that no additional placarding requirements were needed for hazardous waste transport. Another felt that a limit should be imposed on the number of placards allowed on a vehicle.

Several persons suggested that labeling and placarding systems other than DOT should be used for hazardous wastes. The NFPA system was the most commonly recommended alternative. An advantage to the NFPA system is that it exhibits the multiple hazard of the material as well as its health effects. A disadvantage is that these labels are not recognized by all fire and emergency response personnel. Another alternative is to develop a classification system based on color or alphabetical designation where each letter or number corresponds to a particular hazard or degree of hazard. Other suggested labeling systems are the ANSI and the Material Safety Data Sheets.

The consensus opinion pertaining to container regulations was to utilize DOT container requirements as long as the wastes being stored met DOT criteria. For those which do not,

performance standards must be developed which are adequate to insure proper waste storage. One group felt that container regulations were already too stringent and should not be added to. Several groups also recommended that DOT container reuse standards be modified to allow for more recycling of containers. Another group believed that no containers should be reused under any conditions.

Those participating in the meeting made it clear that they expected regulations to be written that would insure that all vehicles carrying hazardous wastes would be clearly marked as such. Transport trucks should have "Hazardous Waste" or some other description stenciled on the side to warm the public of its contents. Placards should be placed on all waste transport vehicles, whether it is on or off-site.

Several groups felt that hazardous waste destined for on-site disposal should not be subject to any special labeling or placarding requirements.

Other Comments

The status of recyclable materials was a subject of discussion. Most groups felt that these materials should be exempted from the regulations. Less restriction would have the effect of promoting the reuse of these wastes.

The State of Kansas suggested that before a waste is transported, the generator must fill out a detailed waste disposal request. The information is then used by both the transporter and disposer, and parts of it appear on the manifest

Several groups recommended that emergency response personnel and response manuals be upgraded. Truck drivers, police, and fire departments should be educated in spill response and cleanup methods. The emergency response manuals now in use are too difficult to be understood by first-line emergency units and should be rewritten.

One group wanted to know what the liability would be of the generator who declares a waste non-hazardous based on tests but later events prove it to be hazardous.

PLACE - HARTFORD, CONN.
DATE - April 6, 1977

MANIFEST SYSTEM

1. Do not require manifest to be submitted to an authority. Instead, only require summary reports to be submitted.

2. The manifest should list emergency response procedures to transporters and emergency response personnel. The generator is required to furnish this information.

3. A form similar to NIOSH Material Data Safety Sheet should be filled out by the generator.

4. Manifest should be suitable for ICC/DOT requirements.

5. When handling drums of dilute material rather than bulk, should each drum have a different identification if only the concentrations differ and not the type of waste?

6. The generic name and hazard class of the material should be listed.

PLACE - King of Prussia, PA.
DATE - May 11, 1977

MANIFEST SYSTEM

1. The manifest is a tracking tool and is not the sole source of information for the waste management facility. Waste facilities will not accept waste unless they know in advance the chemical composition. (Rollins does not depend on the manifest for information).

2. Information is supplied by the generator to the waste disposer by contract. A sample is furnished to the waste disposer or analyzed by the generator. Often the waste disposer analyzes the waste sample also.

3. Quantities and general type of waste (flammable, corrosive, etc.) should go on the manifest. Otherwise, it should be kept as simple as possible.

4. For off-site transporting, the manifest should be the record for the transporter.

5. The Manifest format should allow additional information to be included at the bottom of the form so that it can be used to satisfy ICC/DOT regulations.

PLACE - Seattle, Washington
DATE - May 25. 1977

MANIFEST SYSTEM

1. A set of data requirements should be developed rather than a set form. This would allow the use of existing shipping papers.

2. Allowances should be made for emergency situations where no manifest is present with the waste shipment.

3. A second party (i.e., transporter, disposer) should have the option to fill out the manifest as long as the generator has certified the waste shipment.

4. Use the NFPA labeling system.

5. The manifest should be used in the channels of commerce. It should follow the waste from generator to transporter to waste management facility.

PLACE - Oklahoma State Department of Health
DATE - April 22, 1977

MANIFEST SYSTEM

1. The manifest should be used only in tracking the waste material.

2. The information on manifest should be similar to the Kansas manifest model.

PLACE - Atlanta, GA.
DATE - April 8, 1977

MANIFEST SYSTEM

1. The manifest form should be uniform and easily computerized.

2. The State should not have any option to modify the manifest for interstate movement of wastes. This is necessary since interstate transport regulations are the same. In intrastate transport, the regulations may be different.

3. Information on the manifest should include chemical composition, principal hazard, emergency response, and the phone numbers of the generator and the trucking company.

4. A copy of the manifest should be returned to the generator, and the generator should report to the State.

5. DOT requirements should be the basis of the manifest, and transporters should have some part in the development of the manifest form.

PLACE - Houston, Texas
DATE - April 13, 1977

MANIFEST SYSTEM

1. The Manifest should be part of the presently used bill of lading.

2. DOT regulations should be followed as much as possible.

3. The manifest should include an identification of the waste. This includes the name of the chemical, the state (solid, liquid, gaseous), the broad chemical classification, and the process from which it is derived. Other information may also be included.

PLACE - Cleveland, Ohio
DATE - March 14, 1977

MANIFEST SYSTEM

1. The manifest should be a simple form for tracking the hazardous wastes.

2. The manifest should be a uniform and basic format.

3. No trade names should be on the manifest.

4. The manifest should include the hazards of the waste, how to deal with it, and a safety data sheet.

5. The bill of lading should be the basis of the manifest.

6. The manifest should contain emergency response instructions.

PLACE - Minneapolis, Minn.
DATE - March 10, 1977

MANIFEST SYSTEM

1. Transport companies indicated that they would like more information about what steps they should take to avoid health and environmental problems in the event of a spill. Chemical composition was of little value to most drivers since they would not know what to do with it.

2. If a waste disposer uses a facility as a transfer point, problems can arise since a waste generator only supplies one manifest even though the waste will go to several locations.

3. The maximum number of copies that can be produced from the manifest is five. Others would be illegible.

4. The manifest should accompany the waste from generator to transporter to waste management facility. A copy should be sent back to the generator.

5. If a company operates a transfer point, a manifest may have to originate from there for wastes shipped from that point.

PLACE - San Francisco, Calif.
DATE - February 1, 1977

MANIFEST SYSTEM

1. The manifest must be consistent with DOT requirements.

2. The manifest numbers could be derived by using the prefix of the company's phone number and the area zip code. A national data bank should be established with code numbers assigned to generators, transporters, and disposers.

3. The description on the manifest often is not sufficient to know what is being carried. A more detailed description along with emergency response and handling information is needed.

4. The manifest must be completely filled out giving an accurate description, handling, and emergency response procedures.

PLACE - Denver, Colo.
DATE -

MANIFEST SYSTEM

1. The EPA should designate a manifest number for each generator. Each manifest bears that number plus the generator's own numbers. Each State then checks the generator's number against those of the waste disposers, and then sends the others to the EPA or to the appropriate State agency.

Place: Hartford, Connecticut

Containers, Placards, and Labels

1. DOT label, placard, and container requirements should be met when applicable.

2. NFPA labels should be used when a substance which is hazardous to health is in transport.

3. Do label and container requirements need to be met when the waste is not transported off-site?

4. Trucks should be marked when carrying hazardous material,

Place: King of Prussia, Pennsylvania

Containers, Placards, and Labels

1. Labels should state the contents of the containers. These should contain those called for by DOT regulations and a description of the material.

2. Placards should be consistent with DOT requirements. The word, "waste", should be included on the placards.

3. An alternative to the above would be to have separate placards labeled Waste A, Waste B... etc. The alphabetical designation would reflect the degree of hazard.

4. A recommendation should be made to DOT to allow the reuse of containers if they do not leak. This may be contrary to DOT regulations, however.

Seattle, Washington

Containers, Placards, and Labels

1. The DOT label with the manifest number should be attached to the waste containers. It is also necessary to include in the label the environmental and occupational hazards of the waste.

2. DOT requirements for containers should be used where they apply. Those not covered by DOT need to have performance standards developed.

3. It is necessary to develop placards that designate a cargo as a hazardous waste.

4. A transporter cannot accept wastes without a label attached. The transporter should not be required to relable wastes.

5. The manifest number should be on the container to protect against removal of the label.

6. Do not reuse old drums.

Oklahoma State Department of Health

Containers, Label, and Placards

1. DOT containers should be required where applicable.

2. If waste material does not meet DOT criteria, then performance standards must be developed.

3. Containers should be adequate and proper for handling, transporting, and storing of hazardous wastes.

4. DOT labels should be used with a manifest number included. The manifest number would be the key to what is in the container. For multiple contained wastes being addressed on a manifest, each drum would need to be numbered.

5. DOT placards with UN code numbers should be used to handle the problem of multiple hazards.

6. NFPA labels are not recognized by all fire personnel and should not be used.

Atlanta, Georgia

Containers, Placards, and Labels

1. Labels are necessary on 11 drums.

2. The labels should represent the highest possible hazard.

3. The NFPA system should be used, modified to reflect environmental hazards.

4. Labels should be detailed with characteristic markings and coding.

Houston, Texas

Containers, Placards, and Labels

1. No special placards should be utilized for waste transport.

2. Transport trucks should have "Hazardous Waste" stenciled on the side of the truck so that the public will know what is in them.

3. Containers should meet the DOT requirements and performance standards.

Cleveland, Ohio

Containers, Placards, and Labels

1. Hazardous waste destined for on-site disposal should not be subject to any special labeling requirements.

2. Vehicles which carry hazardous waste should be placarded with the hazard type and the word, "waste."

3. ANSI labels should be used along with spill and leak statements.

Minneapolis, Minnesota

Containers, Placards, and Labels

1. EPA should adopt DOT labeling and container standards.
2. A marking should be made on the drum pertaining to the class of waste contained within it. These labels should be color-coded and be related to the dangers.
3. Material Safety Data sheets should accompany all wastes being transported and should follow NFPA/MCA suggested procedures.

San Francisco

Containers, Placards, and Labels

1. The DOT placarding requirements are insufficient concerning vehicles carrying hazardous wastes. There should be a limit on the number of placards placed on a vehicle.

2. If the manifest cannot be found in case of an accident, the placard would have to supply the emergency information. Additional information should be placed on the placard.

3. No new placards should be required but additional information should be placed on existing placards.

4. NFPA labels that exhibit the multiple hazard of the material should be used. These labels should be on the container and visible from a distance.

5. Waste materials do not need to be placarded. The vehicles carrying the waste must be marked, however.

6. Placards should be placed on all waste transport vehicles, regardless of whether it is on or off-site.

7. Container and vehicle specifications should be modified to be less stringent for the transportation of hazardous waste.

Denver, Colorado

Containers, Placards, and Labels

1. Labels can be keyed to shipping papers. DOT regulations require the generator's name, the type of waste, and the chemical composition of the waste on the label.

2. Containers should be reusable.

3. DOT should be asked to lower reuse standards.

Seattle, Washington

Other Comments

1. A generator should not be required to do additional testing once a waste has been identified as hazardous. Information kept on file should show why the substance was classified as hazardous.

2. A data system should be set up so that a generator can determine from this data whether a waste is hazardous without doing elaborate testing.

3. Recycled materials should not be exempt from the regulations.

Atlanta, GA.

Other Comments

1. Truck drivers, police, fire department and others should be educated in spill response and clean-up methods.

Other Comments

1. The emergency response manuals currently in use are too difficult to be understood by first-line emergency units (first to arrive). A less complex manual should be prepared.

Minneapolis, Minn.

Other Comments

1. It is often necessary to seggregate incompatible wastes. A system should be developed to be sure such wastes are not stored together.

2. Wastes destined to be recycled should be exempted from the manifest requirements in order to promote such reuse.

Oklahoma State Dept. of Health

Other Comments

1. Before a waste can be transported, the State of Kansas requires that a detailed waste disposal request form be filled out by the generator. This information is used by the transporter and waste management facility. Information on the manifest comes from this document.

2. What should be done about waste generated on-site/off-site and disposed of at a different location owned by the generator? Should they be exempt from the manifest system?

3. Common carriers did not recommend putting the phone number on the vehicle - but felt that it should be on the manifest.

Cleveland, Ohio

Other Comments

1. Transporters involved in spills could be considered generators of wastes. They should not, however, have the same regulations imposed upon them as upon the originating generators, as this may hinder the clean-up effort.

2. It would be difficult to enforce transporter liability insurance standards without a permit system for transporters.

Denver, Colo.

Other Comments

1. What is the liability of the generator who declares a waste non-hazardous based on tests, but later events prove it to be hazardous?

2. EPA should operate a quality control program to watch over labs which test wastes for generators?

APPENDIX B

SUMMARY OF COMMENTS

ON

SECTIONS 3003

ANPR MAY 2, 1977

Applicability of Standards to all Hazardous Waste Transporters.

1. Are there reasons to develop separate standards applicable to each mode of transportation (motor carriers, tank vessels, barges, rail, pipeline, air, etc.)

State Agencies

Most State agencies felt that separate standards are necessary for each mode of transport. Some indicated that DOT and ICC regulations already differentiate and are sufficient to regulate the industry. Washington, Virginia, and Hennepin County, Minnesota, held this viewpoint. The State of Washington Highway Commission recommended that separate standards be developed for hazardous waste transport. Texas Water Control Board stated that standards should be proposed that emphasize the motor carrier mode of transport. The Department of Environmental Quality and the Dayton Regional Air Pollution Control Agency proposed that uniform standards be developed for all modes of transport.

Waste Generators

Waste generators all agreed that separate standards are necessary. Union Carbide and Mobay Chemical Co. felt that the present DOT regulations differentiated enough and were adequate. Your Seattle Light felt that separate standards need to be developed. While the Malone Company indicated that more stringent standards are necessary for water vessels.

Waste Management Facilities

Most waste processors indicated that standards should be broad and applicable to all modes of transportation. This view was held by Rollins and Chemical-Nuclear Systems. Chemical Processors felt that ICC and DOT regulations were adequate for now but that a review should be made at a later date.

Associations

The Southern Agricultural Chemical Association and the Compressed Gas Association felt that DOT regulations were sufficient in their coverage and already differentiate between modes. The New Jersey/Business and Industrial Association believed that hazardous waste should be regulated the same way hazardous materials are.

Transporters

The Association of American Railroads indicated the need for separate standards and felt that these standards should follow DOT requirements which recognize "natural differences" between the modes.

2. What kinds and length of storage of records

State Agencies

The Texas Water Quality Board and the Regional Air Pollution Agency of Dayton recommended that the manifest copy should be retained by the transporter for three years. The Texas Department of Health Resources felt that records should be retained by the transporter the same amount of time as required of generators and disposers. Commonwealth of Virginia indicated the length of retention should depend on the statute of limitations proposed under RCRA. The Department of Interior suggested that recordkeeping length should be tailored to the pertinent characteristics of the hazardous waste. The Washington Highway Commission recommended that the retention period be decided upon at a later date.

Waste Generators

Both the Mobay Chemical Co. and the Tom River Corporation indicated that the manifest be maintained for three years. The record should consist of the bill of lading with the generator identification numbers on it.

Waste Management Facilities

There was no consensus of opinion among waste disposers. Chemical Processors, Incorporated recommended that records be retained up to the statute of limitations. Chemical-Nuclear Systems felt that each State should determine retention length. Rollins recommended that the manifest system be applied to all modes of transport and that record retention should be three years.

Associations

The American Iron and Steel Association suggested that the manifest and recordkeeping system should be required only for shipments outside the plant area. Southern Agricultural Chemical Asso. felt that two years would be sufficient for recordkeeping length of retention.

Transporters

The Association of American Railroads believed that the DOT recordkeeping system should be utilized. National Tank Truck Carriers thought that State and ICC regulations differed and should be uniform and that microfilming of records be allowed.

3. What special handling procedures, if any, may be necessary to assure the delivery of the manifest to the designated facility.

State Agencies

State agencies proposed several different measures to ensure the delivery of the manifest. The Washington State Highway Commission suggested that a second copy of the manifest be sent by registered mail from the generator to the disposer. Washington State Department of Ecology recommended the arrest of a transporter for failing to deliver s shipment of waste to the designated facility. The Dayton Regional Air Pollution Agency felt that the transporter should provide the cosignee with a manifest. It might also be advisable to require generators and shippers to send copies of the manifest to the designated facility.

Waste Generators

All generators were in agreement that some method of certifying that a waste reached the proper destination be developed. Both the Malone Co. and Union Carbide recommended that the disposer send a copy of the completed manifest or invoice to the generator certifying proper disposal of the waste. Proctor and Gamble suggested that the hauler send a note of certification to the generator with penalties imposed for failure to do so.

Waste Management Facilities

Both Chemical-Nuclear Systems and Rollins believed that the manifest should stay with the shipment and that the transporter should be fired if he does not deliver a manifest with the waste to the waste management facility. Chemical Processors felt that no additional regulations are needed to ensure delivery of the manifest.

Associations

There was unanimous agreement that a completed manifest should accompany every shipment of hazardous waste. Both the Southern Agricultural Chemical Association and the New Jersey Business and Industrial Association adhered to this viewpoint.

Transporters

The National Tank Truck Carriers proposed that the current practice of requiring a bill of lading, signed by the then returned to the shipper be continued. The Association of American Railroads felt that no requirements were needed for the railroads since the presently used pedigree assures safe delivery.

4. Sufficiency of existing Federal regulations to protect ppublic health and environment during transportation of hazardous wastes. Should additional placards be developed to identify hazardous wastes? Is the classification of hazardous wastes, for example, as "flammable not otherwise specified" sufficient for environmental emergency response? Are special safety rules needed for hazardous wastes in addition to existing rules? Should the Federal Motor Carrier Safety regulations be adopted for motor carriers of hazardous waste?

State Agencies

Most of the agencies responding indicated that the DOT regulations for placarding and labeling with some additions would be sufficient to cover hazardous waste transport. The Texas Water Quality Board suggested that a color coding system be included where each color is representative of a hazard class. Washington Highway Commission, Hennepin County, Minn., and the Department of Environmental Quality believed that the DOT requirements were sufficient and that EPA and DOT should work together when developing new ones. The Dayton Regional Air Pollution Agency thought that existing DOT regulations were acceptable except that a new class of hazardous materials should be developed. In their opinion, there was no need for any placarding regulations. They also suggested the FMCS regulations be enforced upon all motor carriers. The San Francisco Fire Department recommended using placards which conform with NEPA standards and contain emergency response information.

Waste Generators

All those who responded to this issue were in agreement that the DOT regulations were sufficient in most cases. Some felt that additions would be necessary in a few areas. The Diamond Shammock Co. felt that substances which were a special threat to health and welfare need more stringent regulation. The Malone Co. suggested that in addition to the DOT regulations, the Federal Motor Carrier Safety system be adopted. Shell Oil Co. believed that DOT regulations were adequate but wanted to avoid distinguishing between hazardous materials and wastes. Both Phillips and Tom River Chemical Corp. wanted to avoid the use of additional placards. Most generators indicated that changes in the regulations should be coordinated with DOT.

Waste Management Facilities

The consensus opinion was that existing regulations should be adopted and studied for a length of time to see if they are sufficient. Those with this opinion included Chemical-Nuclear, Rollins,and Chemical Processors.

Associations

All those who responded were in agreement that the DOT regulations for placarding and labeling would insure environmental safeguarding. No need was felt for additional regulations. This opinion was expressed by the Compressed Gas Association, New Jersey Business and Industrial Assoc., Southern Agricultural Chemical Assoc., and the National Agricultural Chemical Assoc.

Transporters

Opinion was divided, pertaining to the sufficiency of DOT regulations. The National Tank Truck Carriers suggested that additional placards could be needed if the waste was especially hazardous. The Association of American Railroads believed no additional placards would be necessary. Both companies wanted additional information on the placards, including exact identification of the waste and emergency response procedures.

5. What additional, if any, vehicle inspection or certification rules are needed for transport of hazardous waste.

State Agencies

Both agencies responding, The Washington Highway Commission and Department of Environmental Quality, recommended additional rules for the transport of hazardous wastes. Washington Highway Commission indicated additional inspection was needed to prevent leakage. The Department of Environmental Quality suggested that transporters register with a regulatory agency and that driver certification may be desirable.

Waste Generators

Most agreed that DOT and State regulations which pertain to hazardous chemicals should be adopted for hazardous wastes. Union Carbide, Stauffer Chemical, and American Cyanid upheld this view. Tom River Chemical Co. felt no additional regulations were necessary.

Waste Management Facilities

Chemical-Nuclear and Chemical Processors both felt there was no need for additional rules. Rollins recommended licensing and insurance regulations plus additional generator and disposer safeguards and not more transporter regulations.

Associations

The Southern Agricultural Chemical Assoc. and New Jersey Business and Industry Assoc. recommended that DOT regulations be adopted in full for hazardous waste.

Transporters

The Association of American Railroads felt that no additional regulations were needed for the railroads. The National Tank Truck Carriers believed that a shipper should be required to certify that he has tested the hazardous material and has identified the hazard classification.

6. Is there a need for contingency spill clean-up plans in addition to those established under the Federal Water Pollution Control Act, for hazardous waste spills.

State Agencies

Nearly all agencies felt there was a need for additional contingency spill plans. The San Francisco Fire Department thought it was important to provide for training and equipping of emergency response personnel. The Commonwealth of Virginia

believed that the clean-up of spills should be a responsibility delegated to the State but with the backing of the EPA. The Interior Department suggested using spill contingency plans that depend on the mode of transportation as well as the quantity of spilled waste. In their opinion, FWPCA regulations covering such emergencies should be reviewed. The Washington State Highway Commission and the Texas Water Quality Board felt that no additional rules are required.

Waste Generators

Most generators thought that present contingency plans were enough. Stauffer, Chevron, and Tom River Chemical were of this opinion. Chevron felt that the generator should be responsible for the cleanup Union Carbide recommended that the contingency plan not accompany the shipment in order to lessen the paperwork. Your Seattle Light Co. suggested that additional waste cleanup plans different from those of the FWPCA Act be set up.

Waste Management Facilities

All disposers felt that additional plans were necessary. Rollins suggested that the contingency plans be keyed to the type of waste and the area where the spill could occur. Chemical Processors recommended that plans like those drawn up for oil spills be applied to hazardous chemicals and wastes.

Associations

The Southern Agricultural Chemical Assoc. and the New Jersey Business and Industry Assoc. both felt that existing plans are adequate.

Transporters

Both transporters responding to this question indicated that additional spill contingency plans would be unnecessary. The National Tank Truck Carriers maintained that the filing of contingency clean-up plans is unnecessary since each spill is unique.

7. Is there need to establish minimum insurance coverage requirements for hazardous waste transporters to cover the cost of spill clean-up and possible environmental damage?

State Agencies

All agencies agreed that minimum insurance requirements should be set up. The Washington State Highway Commission, Department of Environmental Quality, and Commonwealth of Virginia responded with this opinion. Virginia also expressed concern that small companies could be driven out of business because of the high cost of insurance and that a permit system could be set up to regulate hazardous waste transporters.

Waste Generators

There was general agreement that insurance requirements should be set up. Your Seattle Light Co. and Tom River Chemical Corp. recommended that carriers be insured to cover the clean-up costs. The Malone Co. suggested minimum insurance plus a $5,000,000 umbrella policy to cover all accidental spills. Mobay supported the insurance regulations but felt that the transporter should be held responsible for any spills occurring during transport. Union Carbide suggested that insurance be paid for through public funding. Stauffer Chemical Corp. felt that no regulations concerning insurance were necessary while Shell Oil thought that damage and cost liabilities should be born by the party responsible for the spill.

Waste Management Facilities

The consensus among waste disposers was that a minimum insurance requirement was needed. Chemical-Nuclear Systems recommended that the Federal government provide the necessary insurance coverage. Chemical Processors suggested that the EPA determine if the insurance industry was willing to insure transport of hazardous wastes. Rollins agreed that insurance regulations were needed.

Transporters

Neither of the transport companies supported minimum or additional insurance requirements. The Association of American Railroads felt that no insurance regulations were needed other than to cover unique hazards or extensions of the Price-Anderson Act. The National Tank Truck Carriers thought that insurance presently carried by most transporters was adequate and that additional insurance would be expensive and hard to find. They suggested regulating and insuring private carriers and the "midnight dumper."

Other Comments and Opinions

State Agencies

A number of agencies were concerned about duplication between DOT and EPA regulations. Most felt that DOT regulations were sufficient and that few additional rules would be necessary. The Texas Department of Health Resources and the Regional Air Pollution Agency of Dayton held this view. The Georgia Game and Fish Division wanted extra precautions to prevent disposal of wastes in streams, lakes, etc. and to keep contaminated runnoff out of water resources. The San Francisco Fire Department suggested that transporters carry one waste at a time to avoid mixing. Hennephin County, Minnesota, proposed that certain sections of the "Minnesota Pollution Control Agency Rules and Regulations" be adopted. The Wayne County, Michigan, Department of Health called for comprehensive regulations that controlled a waste from "cradle to grave." The Washington Department of Ecology recommended that hazardous wastes be treated the same as other hazardous comodities. The State of North Carolina suggested that State regulations be uniform and that the Federal government provide minimum standards in order to assure a degree of uniformity. The Interior Department felt that these regulations could also cover pesticide transport, and the DOT regulations should be reviewed for adequacy.

Waste Generators

Generators also called for the use of DOT requirements as a basis for transportation regulation. Some companies felt that DOT/ICC regulations were sufficient. Companies in this category included American Cyanid, Kraft Inc., Chevron, Systems Technology Corp., and the Tom River Chemical Co. Other businesses believed that additions were needed to the DOT regulations and that these additions should be coordinated with DOT. Companies in this category were Diamond Shamrock, Florida Phosphate Council, and Velsicol Chemical Co.

Several companies suggested that transporters accept most of the responsibility if an accident should occur. Proctor and Gamble stated that regulations should emphasize the responsibility of the hauler and not the generator. Olin-Brass believed that the generator should not be liable for a regulation violation by a second party.

The Alabama Power Co. felt the need for a definition of a hazardous waste transporter. They also believed that intra-company transport should occur without being registered by a manifest system. The Cad Nickel Plating Co. wanted to exempt industries which produce sludge due to EPA effluent regulations. Celanese recommended the use of a manifest which includes a safety warning but not a description of waste characteristics and a phone number for hauler and State emergency response teams. Mobay Chemical Co. felt that Federal regulations should be uniform and should not conflict with one another.

Waste Management Facilities

Chemical-Nuclear Systems suggested that the transport industry should provide regulations for itself through the ICC and DOT. These regulations apply only to off-site transport.

Associations

The American Iron and Steel Institute felt that transporters should be liable for safe and proper handling during transport as well as for the condition of the transport vehicle and personnel. The National Agricultural Chemical Association endorses the comments of the Southern Agricultural Chemical Association particularly with regard to avoiding conflicts with other regulations.

Transporters

The National Tank Truck Carriers emphasized the need to properly package a waste shipment. They also wanted to avoid regulation duplication and preferred to have all regulations governed by DOT.

APPENDIX C

Joint Notice of Public Meetings

42 FR 51625, September 29, 1977

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF SOLID WASTE
DEPARTMENT OF TRANSPORTATION
MATERIALS TRANSPORTATION BUREAU
OFFICE OF HAZARDOUS MATERIALS OPERATIONS

JOINT NOTICE OF PUBLIC MEETING

DEVELOPMENT OF REGULATIONS FOR
THE TRANSPORTATION OF HAZARDOUS WASTE

The Resource Conservation and Recovery Act of 1976 (RCRA) was signed into law on October 21, 1976. It mandates a comprehensive Federal-State-local approach to all aspects of waste management, including resource conservation and recovery, land disposal of municipal and industrial wastes, and authorizes a new regulatory program for hazardous wastes.

The Environmental Protection Agency (EPA) under Subtitle C--Hazardous Waste Management--is required to write standards for generators, shippers, transporters, and receivers of hazardous waste. In addition EPA is required to develop criteria and a list to define what are hazardous wastes.

During the analysis of the RCRA requirements, it became apparent that current Department of Transportation (DOT) regulations under the Hazardous Materials Transportation Act of 1974 (HMTA) may have the potential to be expanded to partially meet the mandate of RCRA. EPA would like to maximize the coordination of the RCRA regulatory requirements with existing DOT rules for the benefit of all parties.

(42 FR 51625, September 29, 1977)

The Act requires that regulations developed under Su title C of RCRA be consistent with the requirements of HM and the regulations thereunder. In addition, it authoriz the EPA to make recommendations to DOT respecting regula- tions for hazardous wastes under HMTA and for the additio of materials to be covered by that Act.

Authority for the regulation of hazardous waste tran portation is contained in both HMTA and RCRA. The HMTA i concerned with the protection of public safety, health, a property during the loading, transportation, storage inci to transportation, and unloading of hazardous materials. HMTA requires the Secretary of Transportation to designat materials as hazardous upon finding that the transportati of a particular quantity and form of material in commer may pose an unreasonable risk to health and safety or property. The materials designated as hazardous may incl but are not limited to: explosives, radioactive materia etiologic agents, flammable liquids or solids, combustibl liquids or solids, poisons, oxidizing or corrosive materi als, and compressed gases.

Under Subtitle C, RCRA is concerned with the protect of the public health and the environment from improper hazardous waste management during transportation, treatme storage or disposal. Hazardous waste as defined by RCRA is a solid waste, or combination of solid wastes which because of its quantity, concentration, or physical, ch ical, or infectious characteristics may cause, or signifi

cantly contribute to an increase in mortality or an increas in serious irreversible, or incapacitating reversible, illness or pose a substantial present or potential hazard t human health or the environment when improperly treated, stored, transported, or disposed of. In turn, RCRA defines "solid" waste to include solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and, with some exception, agricultural operations, and from community activities. The Administrator shall take into account, when designating hazardous wastes, toxicity, persistence and degradability in nature, potential for accumulation in tissue, and other related factors such as flammability, corrosiveness and other hazardous characteristics.

For the transportation of hazardous wastes under RCRA, Section 3002 requires the Administrator to develop standards for generators/shippers of hazardous wastes concerning labeling practices for any containers used for storage, transport, or disposal that will identify accurately such wastes; use of appropriate containers, and use of a manifest system to assure that all hazardous waste generated is designated for treatment, storage or disposal to a permitted hazardous waste management facility. The manifest as defined by the Act means the form used for identifying the quantity, composition, and the origin, routing, and destination of hazardous waste during its transportation from the

point of generation to the point of disposal, treatment, storage. Section 3003 requires the Administrator to de standards for transporters of hazardous waste concerning recordkeeping, transportation of hazardous wastes only if properly labeled, compliance with the manifest system and transportation of all the hazardous wastes to the designa permitted facility. In addition, the Administrator is considering the development of standards for the acceptan of hazardous waste for transport, loading and stowage of hazardous wastes, notification in the event of a spill an spill reporting, marking and placarding of vehicles, and notification of the transportation of hazardous wastes.

Many of the standards being considered under RCRA fo transportation are currently required under HMTA. Specif ally, definition of a hazardous material (waste), labelin placarding, packaging, manifest (shipping document), spil notification and reporting, and loading and stowage. In addition, HMTA has provisions for the development of stan ards concerning recordkeeping and registration.

In December of 1976 the Department of Transportation evidenced concern for the development of regulations for hazardous waste transporters. HM-145, Environmental an Health Effects Materials Advance Notice of Proposed Rul e- making, published December 9, 1976, in the Federal Regist

presented several questions concerning hazardous wastes: "with regard to hazardous wastes, what classification syste may be used to clearly identify mixtures as opposed to single compound materials; what packaging may be appropriat for transportation; and how existing transportation documentation can be used to cover transport of hazardous waste from the generator (shipper) to the disposer (consignee)." Several comments were received expressing concern for the development of hazardous waste transportation regulations by both EPA and DOT.

A one-day public meeting will be held on October 26, 1977, to solicit public, industry, State and local government comment on the regulation of hazardous waste transportation by the Department of Transportation and the Environmental Protection Agency. The public meeting will begin at 9:30 a.m. at the Ramada O'Hare Inn, Mannheim and Higgins Road, Des Plaines, Illinois (312/827-5131). Interested members of the public; representatives of industry that ship as well as transport hazardous materials (waste); entities, both public and private, that respond to transportation emergencies; State and local governments; and firms that receive hazardous wastes for storage, treatment, and disposal are urged to attend and respond to any or all of the discussion topics listed below, as well as any other issues concerning the regulation of hazardous waste transportation.

The meeting is open to the public and will be conducte by a panel from the U.S. Environmental Protection Agency an the U.S. Department of Transportation.

The following procedural rules will apply. The Chairman of the panel is empowered to conduct the meeting in a manner that in his judgment will facilitate the orderly conduct of business, to schedule presentations by participants, and to exclude material which is irrelevant, extraneous, or repetitious. The time allotment for oral statements shall be at the discretion of the Chairman, but shall not ordinarily exceed 15 minutes. With the permissio of any person offering a statement, questions may be asked by members of the panel. At the discretion of the Chairman a procedure may be made available for presentation of pertinent questions from other persons to participants. Individuals with prepared statements are requested to bring at least one copy for the record. Persons unable to attend, but wishing to comment on the Discussion Topics, are invitec to send written comments to the address below by November 9, 1977.

A transcript of the meetings will be made and a copy of the transcript, together with copies of all documents presented at the meeting, and all written submissions will constitute the record of the meeting. A copy of the record of the meeting will be available for public inspection by December 16, 1977, at the U.S. Environmental Protection

Agency, Office of Solid Waste, Hazardous Waste Management Division, Docket Section, Room 2111, 401 M Street, S.W., Washington, D.C. 20460 and at the Department of Transportation, Room 6500, Trans Point Building, 2100 Second Street S.W., Washington, D.C. 20590.

Anyone desiring additional information on the meeting or wishing to be placed on the program to present a statement is requested to contact: Mrs. Geraldine Wyer, Public Participation Officer, Office of Solid Waste, WH-462, U.S. Environmental Protection Agency, Washington, D.C. 20460 (Phone: 202/755-9157) before October 21, 1977.

DISCUSSION TOPICS

1. Regulations being developed by the Environmental Protection Agency and existing regulations of the Department of Transportation impact the transportation of hazardous wastes. Which Agency should take the lead in developing the regulations for hazardous waste transportation? What approach should be taken? Should DOT modify its definition of hazardous materials to include all hazardous wastes? (Wastes which are bioaccumulative, toxic above current DOT definition levels, infectious, carcinogens, or having potential for genetic change are likely to be identified under RCRA as hazardous wastes and are not currently covered by the DOT Hazardous Materials Regulations.) Should EPA then incorporate DOT regulations by reference or should EPA consider a separate set of regulations to supplement the gaps in DOT regulatory coverage, in that EPA regulations would cover only wastes which are hazardous, not all hazardous materials?

2. If DOT does modify its definition of hazardous materials to include all hazardous wastes, should DOT regulations specifically address the transportation of hazardous wastes or treat them the same as hazardous materials that are bioaccumulative, toxic, infectious, carcinogenic, etc.?

3. Section 3002 of RCRA requires the development of a manifest (shipping paper) to assure that the hazardous waste

is designated to a permitted hazardous waste management facility and that all the hazardous waste is delivered to that facility. Should DOT modify its shipping paper re ments to fulfill the needs of the RCRA manifest or should EPA develop requirements to supplement existing shipping paper requirements (including the possibility of a separa document)?

4. Are the current DOT requirements for labeling, marking and placarding sufficient for handling of hazardo waste in transportation? For those hazardous wastes whic will not fall under DOT purview, should EPA develop labels and placards of separate design or should DOT develop the labels and placards for these hazardous waste that are compatible with current DOT design?

5. HMTA authorizes the registration of anyone tra porting hazardous materials; RCRA requires notification of the transportation of hazardous wastes. Should registrati requirements be developed for transporters of hazardous wastes?

6. In the event of an accident or a spill of a hazar ous material during loading, transportation, or unloading, DOT requires notification of the incident and the filing o a report. For the spill of hazardous waste, EPA is also considering similar requirements. Should notification of spills be directed to EPA, DOT (Office of Hazardous Materi Operations), or the U.S. Coast Guard National Emergency

Response Center? Should EPA and DOT receive incident reports (DOT for hazardous materials and EPA for hazardous wastes), or should all reports be filed with DOT (even when spilled hazardous wastes are not covered by DOT regulation)?

7. In the event of a spill, the material cleaned up may become a hazardous waste. Should DOT or EPA develop the regulations for handling the spilled hazardous material?

8. HMTA authorizes DOT to require training to be conducted by shippers and transporters of hazardous materials. Are training programs necessary relative to emergency response and cleanup of hazardous wastes specifically? If so, to what extent should they be required?

9. Since hazardous wastes are mixtures or may be mixed during collection for transportation, is it necessary for DOT to modify its loading and stowage requirement to address the mixing and stowage of incompatible wastes?

10. Any other comments relevant to the development of regulations for transportation of hazardous wastes by the Department of Transportation and the Environmental Protection Agency are welcome.

Thomas C. Jorling
Assistant Administrator
for Water and Hazardous Materials

Alan I. Roberts, Director
Office of Hazardous Material Operation

Date: 9/22/77

APPENDIX D

External Review Comments/Actions

U.S. Coast Guard	National Response Center (NRC) phone number can only be used for 311	Regulations list appropriate EPA regional 24-hour telephone emergency line.
The Aluminum Assn. Am. Petroleum Institute National Tank Truck Carriers Assn. of Am. Railroads Manufacturing Chemists Assn.	Urges continued close cooperation with DOT.	Regulations are being coordinated with DOT.
Oscar E. Erickson, Inc.	All required reports should be sent to DOT for relay to EPA.	Regulations modified to require tha reports be sent to DOT.
California Dept. of Health Oscar E. Erickson, Inc. Illinois Environmental Protection Agency State of Washington, Dept. of Ecology	Manifest should be the only shipping document required	No action taken; regulations reflec multi-model handling and existing paper handling procedures.
Manufacturing Chemists Assn.	Spills not covered by DOT classification should be reported directly to EPA using DOT form.	Current thinking is to require that all spills be reported to DOT; thos not covered by DOT classification would be sent to EPA by DOT.

Manufacturing Chemists Assn. American Petroleum Institute	"Premises" should be defined and be consistent with definition of "site."	"Premises" replaced by "site." Definition of "site" made consistent with other sections.
Manufacturing Chemists Assn. National Tank Truck Carriers	Since ICC already requires that vehicles be marked with appropriate number, redundant for EPA to require additional number.	Current thinking is to use existing ICC or PUC requirements.
National Tank Truck Carriers	Unnecessary to number trailers since they will be attached to a numbered power unit.	Agree and regulations modified.
Oscar E. Erickson, Inc. Illinois Environmental Protection Agency	Don't overemphasize hazard of waste in placarding, i.e., toxic.	Only DOT placarding will be required.
Chem Nuclear	Transporters should be allowed to accept small quantities of hazardous waste which are not properly labeled, followed by repackaging. Hazardous Waste should not be delivered to an unattended disposal or treatment facility.	Transporters can accept hazardous waste but must properly containeri label, and load prior to transport No action taken. Should be arranc between transporter and disposer.

Association of American Railroads	Supports modification of DOT Hazardous Materials Incident Report to accommodate EPA's specific requirements.	No action taken.
	Two classifications should be required on shipping document for those hazardous wastes and materials which meet both EPA and DOT requirements.	No action taken.
Assn. of Am. Railroads American Petroleum Inst. Monsanto	Definition of "Common carrier" should be changed to include all modes.	Definition modified to reflect comments.
Assn. of Am. Railroads	Exempts transporters from inspecting vehicles which are loaded and sealed by generators to determine if properly labeled.	Discussed in Preamble.
	Require shipper to comply with appropriate compatibility and stowage chart when shipper loads.	Not authorized under 3002 and 3003. DOT regs. may apply.
California Dept. of Health Oscar E. Erickson, Inc. Nottingham Co., Inc. State of Idaho Ohio Liquid Disposal	Support permitting system for transporters.	Will not require permits at this time, since ICC requires permits for all interstate transporters and most intrastate carriers are are permitted by State PUC's.

National Solid Waste Management Assn. Rollins Environmental Services		
California Dept. of Health	Requirement to maintain records for three years is excessive.	Consistent with ICC and most State which require retention of records for three years.
Region VII	Regulations should clarify circumstances when a delivery document is more appropriate than a manifest.	Clarification made in regulations to require delivery document only when no original manifest.
Dept. of Environmental Quality State of Vermont Illinois EPA	State accident response system number (if designnated) should be listed.	Regs.concerned with Federal, not State standards. Mentioned in Preamble.
The Standard Oil Company	Regulations should outline specific emergency situations which require reporting. (DOT does this.)	Discussed in Preamble.
State of Idaho	Information pertaining to emergencies should be forwarded to the Regions.	Regions will be notified.
National Solid Waste Management Assn.	Acceptance of waste - meaning of "Improper" is too vague.	Deleted from regs.

National Solid Waste Management Assn. Illinois EPA National Tank Truck Carriers	Procedures for loading and stowage of hazardous waste not covered by DOT should be included. Unclear as to how incompatibility is determined.	Removed from regulations. DOT regulations referenced.
National Solid Waste Management Assn.	Transporter should be required to notify generator of intent to mix loads.	According to available data, mixing is rare. No Action.
	Procedures for later certification of manifest when certification is not required upon delivery should be clarified.	Certification on manifest or other delivery document is required upon delivery.
	Procedure for transporter to modify manifest to change destination should be established.	Addressed in Working Group mtg. Will be worked out between generator and transporter. 3002 modified manifest to provide for alternate destination.
Ohio Liquid Disposal National Solid Waste Management Assn.	Both EPA and DOT should be notified of emergencies.	EPA will be notified by telephone. Upon notification, EPA will notify DOT.
Ohio Liquid Disposal	Notification of cessation of service should be required within 30 days or less.	Regulations modified.

Ohio Liquid Disposal The Aluminum Assn. Interex Corp.	Emergency Situations-volume limitation should be included.	Regulations are consistent with DOT's which require notification of any quantity.
Ohio Liquid Disposal Manufacturing Chemists Assn.	Reference to notifying fire department should be deleted.	Regulations modified to delete reference.
American Iron and Steel Institute	Transporter should be liable for hazardous waste during transport.	Regulations cannot assign liabili
EPA Region X	Emergency Situations-include list of on-scene coordinators. Include procedures for handling manifest after emergency situation is over.	Reference to on-scene coordinator deleted. Generator topic
U.S. Coast Guard	Loading and Stowage-add reference to bulk vessels.	Regulations modified to add refer to CFR 176 Subpart C through O an 46 CFR.
American Petroleum Institute Region VII	General Requirements-include private carriers	Regulations modified to include all carriers.

American Petroleum Institute	Unnecessary to record notification number on manifest.	Notification number will facilitate data reporting by generator and waste facility.
Manufacturing Chemists Assn.	No additional marking should be required for hazardous waste which don't fall within DOT classification.	Agree.