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COMMITTEE PRINT

HAZARDOUS MATERIALS TRANSPORTATION:

A REVIEW AND ANALYSIS OF THE DEPARTMENT OF TRANSPORTATION'S REGULATORY PROGRAM

PREPARED AT THE REQUEST OF

HON. HOWARD W. CANNON, *Chairman*

COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

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LETTER OF TRANSMITTAL

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
March 8, 1979.

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
U.S. Senate
Washington, D.C.

DEAR COLLEAGUE: As chairman of the Senate Committee on Commerce, Science, and Transportation, I am pleased to provide you with a committee print entitled "Hazardous Materials Transportation: A Review and Analysis of the Department of Transportation's Regulatory Program." This study was prepared at the request of the committee by the Congressional Research Service of the Library of Congress.

In light of the current interest in various issues concerning the transportation of hazardous materials, I believe this document will prove extremely useful in our review of the safety programs in this area.

While this report has been neither approved or disapproved by the Committee on Commerce, Science, and Transportation, it is hoped that it will provide useful background information.

Sincerely,

HOWARD W. CANNON,
Chairman.

LETTERS OF SUBMITTAL

THE LIBRARY OF CONGRESS,
CONGRESSIONAL RESEARCH SERVICE,
Washington, D.C., March 8, 1979.

Hon. HOWARD CANNON,
Chairman, Committee on Commerce, Science, and Transportation,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Enclosed is a report entitled "Hazardous Materials Transportation: A Review and Analysis of the Department of Transportation's Regulatory Program."

This study examines the activities, regulations, regulatory procedures, and structure of the DOT's program concerning the transportation of hazardous materials. Special attention is focused on the Materials Transportation Bureau, since this organization has been the focal point of the Department's efforts. As was requested by the committee, this study presents:

(1) A review of the primary legislative basis for DOT responsibilities in hazardous materials transportation;

(2) A discussion of the Materials Transportation Bureau and how its responsibilities are implemented;

(3) An outline and analysis of problems, areas of concern, and issues associated with the Federal Government's responsibility relating to hazardous materials transportation; and

(4) A suggested range of legislative options aimed at improving the Federal Government's activities in the transportation of hazardous materials.

The study was partly conducted by an outside contractor and partly in-house. William C. Jennings, a consultant on regulatory procedures and former Director of the Office of Hazardous Materials of DOT was the outside contractor. Dr. Paul F. Rothberg, of our Science Policy Research Division, coordinated and wrote portions of the study.

I trust that this report will serve the needs of your committee as well as those of other committees and individual Members of Congress concerned with the transportation of hazardous materials. On behalf of the Congressional Research Service, I wish to express my appreciation for the opportunity to undertake this assignment.

Sincerely,

GILBERT GUDE,
Director.

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Acronyms and Abbreviations Used in the Study

AAR	Association of American Railroads
CFR	Code of Federal Regulations
CHEMTREC	Chemical Transportation Emergency Center
CRS	Congressional Research Service
DOT	Department of Transportation
FAA	Federal Aviation Administration/Federal Aviation Agency
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
HMRB	Hazardous Materials Regulations Board
ICC	Interstate Commerce Commission
MCA	Manufacturing Chemists Association
MTB	Materials Transportation Bureau
NAS/NRC	National Academy of Sciences/National Research Council
NFPA	National Fire Protection Association
NTSB	National Transportation Safety Board
OHM	Office of Hazardous Materials/Office of Hazardous Materials Operations
OMB	Office of Management and Budget/Bureau of the Budget
RAM	Radioactive Materials
RSPA	Research and Special Projects Administration/Research and Special Projects Directorate
USCG	U.S. Coast Guard
USFA	U.S. Fire Administration

SUMMARY

(by William C. Jennings, Attorney-Consultant on Regulatory Procedures and Paul F. Rothberg, Analyst in Physical Sciences, Science Policy Research Division, Congressional Research Service, Library of Congress)

PURPOSE AND OUTLINE OF THE STUDY

This study reviews and analyzes the Department of Transportation's (DOT) program that regulates the transportation of hazardous materials.

Chapter 1 describes the hazardous materials transportation industry and reviews its accident record. Chapters 2–4 recount the historical development of the Federal safety program. Chapters 5–10 analyze the current DOT program and aspects of the Government-industry relationship. Chapters 11–13 consider areas of disagreement between the National Transportation Safety Board (NTSB) and the DOT, with Chapter 13 concentrating on the issue of emergency response information systems. Finally, chapters 14 and 15 present areas of concern regarding the DOT program and options to possibly improve this Federal effort.

DEFINITION OF A HAZARDOUS MATERIAL

Any substance which poses a risk to health or safety must be regarded as a hazardous material. The list of hazardous materials includes commodities used in industry and general commerce, such as toxic substances, flammable gases and liquids, caustic materials, and radioactive materials. Many of these must be transported in quantities that constitute a threat to public safety in the event of an accident, or an accidental release, or even (in the case of radioactive materials) an indirect exposure.

THE REGULATED INDUSTRY AND ITS ACCIDENT RECORD

The hazardous materials transportation industry is quite extensive. There are 20,870 suppliers (manufacturers, reconditioners, and testers) of containers used in transporting these materials. There are 100,000 locations from which shipments in portable containers originate and 4,370 locations from which bulk shipments originate. Vehicles and vessels regularly transporting hazardous materials in bulk quantities number 600,200; those transporting portable containers number 700,000. Annually, this industry transports hazardous materials some 218,170 million ton-miles.

Although thousands of incidents involving the unintentional release of hazardous materials are reported annually, the number of deaths is relatively low in comparison to the potential danger posed by these

materials. Over the last 7 years (1971–77), carriers reported an average of 8,529 incidents each year to DOT. These accidents resulted in an average of about 21 fatalities and 592 injuries each year. However, 1978 was one of the worst years on record: 45 people were killed and 1,411 injured in some 18,000 transportation incidents. The potential catastrophic nature of hazardous materials will always demand rigorous attention by industry and Federal officials responsible for promoting safe transportation [see chapter 1].

ROLE OF THE DEPARTMENT OF TRANSPORTATION

The Department of Transportation (DOT) is the primary Federal agency responsible for setting safety standards for the transportation of hazardous materials. Since these commodities are essential to national security, economic well-being, and to public health, DOT seeks to secure the safety of persons and property without unduly impeding transportation.

DOT's hazardous materials safety functions are performed by the Materials Transportation Bureau (MTB), U.S. Coast Guard (USCG), Federal Aviation Administration (FAA), Federal Highway Administration (FHWA), and Federal Railroad Administration (FRA). MTB issues the safety regulations (except for bulk shipments by water) with the technical and operational advice of other DOT agencies. USCG issues the safety regulations for bulk shipments by water [see chapter 3].

The basic functions of DOT's program are (1) issuing regulations that state the requirements that industry must meet, (2) educating industry as to the regulatory requirements, and (3) getting industry to comply with the regulatory requirements.

The Department has issued an elaborate system of regulations that occupy more than 1,000 pages in the Code of Federal Regulations [see chapter 6]. These regulations provide for the classification of hazardous materials, shipping container requirements, preparation of materials for shipment, labeling and placarding requirements, stowing and handling requirements by the various modes and reporting of accidents in which hazardous materials are involved.

As indicated in chapter 8, DOT conducts an extensive education program to insure that the requirements are known to every affected person. Until each person who performs a regulated function knows what is required on that job, the regulations will not be fully effective. Knowledge is requisite to compliance. DOT's program complements the educational program that each company is required to conduct for its own employees.

As discussed in chapter 9, DOT has a limited compliance program, including Federal surveillance and enforcement activities. DOT's surveillance of industry's activities consists of onsite inspections, accident investigation, and analysis of the reports that industry submits on accidents and incidents. Onsite inspection is the most effective—and the most expensive—means of surveillance. The primary purpose of surveillance is to determine whether industry is complying with the regulations. Most companies voluntarily comply with the regulations, but an active surveillance program enhances their disposition to comply. Other purposes of surveillance are to determine whether the regula-

tions are adequate, whether the DOT education program is adequate, whether enforcement action is necessary to secure compliance; and to identify problem areas that need priority attention.

DOT has authority to enforce its regulatory requirements by means of civil penalties, and, for willful violations, criminal prosecutions. Legal enforcement is DOT's "muscle" in getting industry to comply with the regulations. For maximum effect, enforcement action must be designed to encourage compliance. DOT is unable to identify and prosecute every infraction of its regulations. The Department can only hope to promote voluntary compliance by prosecution of selected cases that serve as examples and "reminders" to the hazardous materials industry that the regulations must be adhered to.

SELECTED ACCOMPLISHMENTS AND ACTIVITIES OF THE DOT PROGRAM

DOT has done much to improve the Federal hazardous materials transportation safety effort since this responsibility was transferred from the Interstate Commerce Commission (ICC) in 1967. As discussed in chapters 6–13, DOT has consolidated and simplified the regulations, and made them uniform for all modes of transportation (except for those differences that are required by characteristics inherent in one or another mode). DOT has also:

1. Issued regulations covering the transportation of radioactive materials;
2. Issued more informative shipping paper, label, and placard requirements, making them uniform for all modes [chapter 6];
3. Withdrawn a substantial part of the regulatory authority that ICC had delegated to industry [chapter 3];
4. Established an information and education program for Federal, State, and industry employees to acquaint them with safety requirements and practices [chapter 8];
5. Worked with the Manufacturing Chemists Association and the National Fire Protection Association to develop various means of reducing the damage that results from accidents involving hazardous materials [chapter 13]; and
6. Taken an active role in the work of international organizations concerned with hazardous materials transportation to maintain compatibility between domestic standards and international standards [chapter 10].

As discussed in chapters 5 and 13, DOT has also recently made several management decisions and organizational changes that are designed to increase the efficiency and effectiveness of the program:

1. In September 1978, the Secretary's Task Force on Hazardous Materials Transportation completed an internal review of the DOT program. The task force recommended and the Secretary approved:
   —Creation of the DOT Standing Committee on Hazardous Materials, composed of senior DOT officials, to supervise the program;
   —Development of a plan to establish a National Hazardous Materials Response Center; and
   —Creation of a centralized DOT hazardous materials information center [chapter 13].
2. The structure of MTB has been reorganized to allow for separate offices to perform the regulatory, compliance, and support functions.

3. MTB has published its first "Annual Regulatory Review and Development Plan," which sets forth policy guidelines and a plan for regulatory action.

4. MTB has developed a multiyear plan that provides a continuing cycle of (a) analysis of its program to determine the areas that should get priority action, (b) development of plans to devote resources to priority areas, and (c) implementation of the plans on a scheduled basis. The multiyear plan will be the basis for subsequent annual plans [chapter 5].

AREAS OF CONCERN REGARDING THE DOT PROGRAM

This study identifies several areas of concern regarding the DOT hazardous materials transportation safety program. These include:

1. DOT has not complied with the legislative mandate in Public Law 91–458, passed in 1970, to

> Establish a central reporting system for hazardous materials accidents to provide technical and other information and advice to the law-enforcement and fire-fighting personnel of communities and to carriers and shippers for meeting emergencies connected with the transportation of hazardous materials.

This provision was restated in Public Law 93–633, enacted in 1975. [Chapter 13.]

The Secretary of Transportation's task force on hazardous materials found that improvement in current Federal programs and techniques for response to hazardous materials emergencies was needed. The task force agreed with NTSB's recommendation that DOT should supply the leadership to establish an adequate Nation-wide hazardous materials response network. In response to the task force report, DOT is developing a plan to establish a National Hazardous Materials Response Center by expanding the existing U.S. Coast Guard efforts. This action represents a substantial change from previous DOT policy, which was to primarily encourage the Chemical Transportation Emergency Center that is operated by the Manufacturing Chemists Association. [Chapter 13.]

2. DOT's hazardous materials transportation regulations are deficient in many particulars, such as:

They are written in such specific terms that an exemption has to be issued for each new type of container. Until such time as the container regulations are written in performance standards, this problem will remain; and

The regulations do not make any provision in the classification system for the multiple hazards that are associated with some materials. [Chapters 3 and 14.]

3. Although DOT has withdrawn many of the Federal safety regulatory functions that the Interstate Commerce Commission delegated to industry, many delegations still remain in effect. Consequently, in these cases, industry is partly regulating itself, although DOT has issued guidelines for industry action in most cases. MTB has never had the resources to assume the responsibility for all of the regulatory functions that have been delegated to industry. [Chapters 3 and 14.]

4. MTB does not have the resources (personnel, research, and support money) to perform properly all of the functions that have been assigned to it. MTB's annual requests for the resources to conduct all

of its hazardous materials safety functions have been substantially reduced by DOT, the Office of Management and Budget, or Congress. Vacancies in the MTB staff have run as high as 20 percent. Because of a variety of reasons, MTB's personnel requests have not always been processed in a timely manner through DOT and the Civil Service Commission. MTB has never had its own personnel office. As a result of personnel and financial shortages, DOT's program frequently does not respond in a timely fashion to the needs of industry and the public. [Chapter 14.]

5. Federally required shipping papers, labels on containers, and placards on vehicles do not provide emergency personnel and the public with as much information as is frequently needed to respond properly to an accident involving hazardous materials. [Chapter 14.]

6. The MTB field inspection force is not large enough to inspect adequately the manufacturers of portable containers and the intermodal shippers of hazardous materials. MTB has only 6 full-time inspectors to inspect approximately 20,000 container manufacturers/suppliers and 100,000 shippers of hazardous materials. FHWA and FRA are also working with inadequate field inspection forces, but their deficiencies are not as striking as MTB's. The inspection forces of these modal administrations are so small that they can make no more than a token number of inspections of those parts of the industry that they are responsible for. Until the inspection forces are substantially increased, no assurance can be given that the industry is complying with the regulatory requirements. [Chapters 9 and 14.] Furthermore, it can be argued that since increased transport of hazardous materials is expected, the need to add to the number of DOT inspectors seems to be more pressing.

Data revealed that on the average DOT modal administrations do not take vigorous enforcement action. In specific, DOT agencies are not making effective use of the $10,000 maximum penalty provision (as provided for in Public Law 93–633) for violations of the regulations. During 1977, the U.S. Coast Guard, Federal Aviation Administration, Federal Railroad Administration, and the Federal Highway Administration assigned average penalties of $304, $705, $1,451, and $2,541, respectively. Small penalties are unlikely to have much effect on industry activities. This data also indicated that there is a wide disparity in the compliance activities among the modal administrations and suggests the opportunity to improve the effectiveness of the entire DOT compliance effort. Initial data for penalty actions taken during 1978 indicate that DOT is beginning to move in this direction.

7. A large percentage of the time of MTB's regulatory personnel is spent on processing industry's requests for exemptions to the regulations. This allocation of time and manpower reduces the resources available for regulatory formulation. [Chapter 14.]

8. Data indicated that less than 9 percent of DOT hazardous materials inspections are performed at shipper facilities and container manufacturers. This seems to indicate the need for improved allocation of inspection resources to these essential components of the transportation system. Data also indicated that there is a wide disparity in compliance activities among the modal administrations. [Chapters 9 and 14.]

ISSUES FOR OVERSIGHT AND LEGISLATIVE CONSIDERATION

Chapter 15 raises various issues that might be appropriate for congressional examination or action, covering both oversight and legislative subjects. These include:

1. Reexamination of the manpower and funding levels for MTB;
2. Consideration of whether DOT or the U.S. Fire Administration should develop an education and training program to assist firemen and other emergency personnel to respond better to hazardous material accidents;
3. Consideration of whether the hazardous materials emergency response system should be operated by the Chemical Transportation Emergency Center or by the Federal Government;
4. Examination of the effectiveness of, and manpower allocation for, DOT's inspection and enforcement activities;
5. Creation of a Federal Hazardous Materials Compensation Fund, as recommended by the General Accounting Office;
6. Creation of a grant-in-aid program to encourage the States to participate in the inspection and compliance program, particularly the inspection of highway carriers; and
7. Requiring the NTSB to consider costs as part of the analysis used in making its recommendations.

INTRODUCTION

The purpose of this study is threefold: (1) To present an overview of DOT's hazardous materials transportation program, including its accomplishments and major activities, (2) to identify several areas of concern regardnig this program, and (3) to present a list of several legislative options and issues for possible consideration.

The Department's program is primarily conducted by the MTB and DOT's four modal administrations, USCG, FAA, FRA, and FHWA. Because MTB is the core of the DOT program, special attention is focused on this agency's organizational structure, functions, and workload. A brief overview of DOT's haazrdous materials regulations, which occupy more than 1,000 pages in the Code of Federal Regulations (CFR) is presented.

This study deals with each of the major components of DOT's regulatory program, including: The research and development function, which is designed to increase information to guide regulatory formulation; the education and training function, which is designed to improve understanding of the regulations; and the compliance activity, which is designed to insure that the regulations are adhered to.

In addition to DOT, NTSB plays an integral part in the Federal hazardous materials regulatory program. Many view NTSB as Congress' watchdog agency in the field of transportation safety. Because of the important effect this agency's recommendations may have, the relationship between the Safety Board and the DOT is discussed at length.

Since 1970 Congress has passed two laws that sought to improve information available to emergency response personnel in responding to a hazardous materials transportation accident. Since interest in this area is likely to continue, public and private systems are reviewed and the NTSB's recommendations and DOT's response in this area is presented.

To insure that a variety of views were available for analysis, Senator Cannon, chairman of the Senate Committee on Commerce, Science, and Transportation, sent a letter to approximately 30 industry and public officials soliciting their views of the DOT program. Throughout this study, reference is made to many of the comments received. The entire text of these responses is presented in an appendix.

The transportation of hazardous materials by pipeline and the bulk transportation of hazardous materials by water is not considered. The field activities of the DOT modal administrations are only discussed briefly.

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CHAPTER 1—HAZARDOUS MATERIALS TRANSPORTATION INDUSTRY, ITS ACCIDENT RECORD, AND DOT'S REGULATORY FUNCTION

This chapter provides background on the hazardous materials transportation industry and its accident record, presents descriptions and pictures of major accidents, and outlines the basic functions of DOT's hazardous materials transportation regulatory program.

Two accidents in February 1978 dramatized the harm that can result from accidents involving hazardous materials. In Waverly, Tenn., 15 people were killed and 48 injured when a tank car carrying liquefied petroleum gas exploded following a derailment. The explosion leveled most of a four-block square area. In Youngstown, Fla., 8 people were killed and 158 injured by chlorine gas when a tank car carrying chlorine was punctured during a derailment.

According to industry data submitted to DOT, 45 deaths and 1,411 injuries resulted from some 18,000 transportation incidents involving hazardous materials during 1978. The deaths and injuries for 1978 exceeded the full-year averages that had been recorded in recent years. For the 7-year period 1971–77, the annual average was about 21 deaths and 592 injuries.[1]

DEFINITION OF HAZARDOUS MATERIALS; SCOPE OF REGULATIONS

A hazardous material is defined by law (Public Law 93–633) as "a substance or material in a quantity and form which may pose an unreasonable risk to health and safety or property," including such substances as explosives, radicactive materials, liquefied petroleum gas (LPG), liquefied natural gas (LNG), poisons, etiologic agents, and flammables. For the purpose of safety regulation, the Secretary of Transportation is authorized to designate the quantity and form of a hazardous material that will be subject to Federal safety regulation during transportation.[2]

Hazardous materials are shipped by all modes of transportation—air, highway, railroad, and water—under regulatory limitations or prohibitions that reflect the different operational characteristics of the various modes. The materials are shipped in bulk (vessels, tank cars, and tank trucks) and in portable containers (for example, portable tanks, cylinders, drums, barrels, cans, boxes).

DOT hazardous materials regulations are designed to provide for safety during transportation by setting the requirements for:

—Classification of the various hazardous materials according to kind of hazard (such as explosive or poison) and degree of hazard (such as Class A, Class B, or Class C explosive);

---

[1] Information supplied by DOT.

[2] Unless otherwise noted, Public Law 93–633 is the legal basis for DOT's hazardous materials safety regulatory authority.

—Containers for the various classifications, matching the strength of the container to the degree of hazard that the classification poses to public safety;
—Shipping papers and container labels to show the nature of the hazard that is in the container;
—Procedures for handling and stowing the various classifications during transit; and
—Placards for the vehicles that transport hazardous materials to advise the public as to the nature of the hazard that is in the vehicle.

The Secretary has authority to inspect container manufacturers, shippers, and carriers of hazardous materials to determine whether they are complying with the regulatory requirements and to take enforcement action.

DESCRIPTION OF THE HAZARDOUS MATERIALS INDUSTRY

To understand the scope of the regulatory function that DOT implements, it is necessary to know the size of the industry that packages, marks, and transports hazardous materials. The following statistics indicate the number of suppliers and transporters (vehicles and vessels) subject to DOT's regulations. Since the regulatory function includes compliance, DOT needs to inspect periodically these suppliers and transporters to determine whether they are operating in accordance with the regulatory requirements.[3]

There are 20,870 suppliers (manufacturers, reconditioners, and testers) of containers that are used to transport hazardous materials. Most of the suppliers provide containers for the less hazardous materials. Below are listed the numbers of suppliers of larger vehicles and portable containers for the more hazardous materials:

Barges and ships	455
Tank cars	28
Tank trucks	50
Freight cars	163
Portable tanks and cylinders	1,486
Steel drums	157

There are 4,370 locations from which bulk shipments originate and 100,000 locations from which shipments in portable containers originate.

There are 600,200 vehicles and vessels regularly transporting hazardous materials in bulk:

Barges	27,000
Crude oil tankers (U.S. registry)	290
Bulk tankers	100
Tank cars	160,000
Cryogenic tank trucks	1,800
Other tank trucks	411,000

There are 700,000 vehicles and vessels regularly engaged in transporting portable containers of hazardous materials.

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[3] DOT provided the statistics for this section of the report. Most of the figures are approximations.

There are 218,170 million ton-miles of hazardous materials transported annually, including these readily recognizable commodities:

Commodities:	*Million ton-miles*
Anhydrous ammonia	4,550
Chlorine	580
Sulphuric acid	830
Liquefied petroleum gas (LPG)	3,020
Industrial gases (compressed and liquefied)	1,230
Gasoline and jet fuels	68,470
Distillate fuel oil	41,390
Paints and allied products	2,450

DEATHS, INJURIES, AND DAMAGES RESULTING FROM ACCIDENTS INVOLVING HAZARDOUS MATERIALS

DOT regulations require industry to report certain accidents involving hazardous materials, such as whenever the accident results in death, injury requiring 24 hours of hospitalization or property damage of $50,000 or more.[4] Based on industry reports filed with DOT, the number of deaths and injuries and the amount of damage resulting from hazardous materials accidents for the years 1971–77 are shown in exhibit 1.[5]

Exhibit 2 presents examples of summaries of hazardous materials accident reports that were filed with DOT during the first half of 1978. These reports show a pattern that is consistently repeated: Most of the deaths and injuries result from accidents involving bulk transportation. In a recent study, the Federal Railroad Administration (FRA) found:

> After reviewing FRA, DOT, ICC, and Bureau of Explosives (AAR) accident and incident records, it appears that during the last 30 years no person has been killed and no person has been seriously injured (hospitalized for over 24 hours) as the result of the release of packaged hazardous materials (hazardous materials packaged in containers with a capacity not exceeding 60 U.S. gallons) while being transported by rail.
>
> Likewise, during the last 30 years no person has been killed and no person has been seriously injured as the result of the release of hazardous materials from an "intermodal" shipment while it was being transported by rail.[6]

For the first 6 months of 1978, the commodities most often involved in hazardous materials transportation accidents were:

Commodity:	*Number of reports*
Paint and related products	2,353
Batteries, electric storage, wet	683
Gasoline	567
Compounds, cleaning, liquid corrosive	523
Compounds, paint removing, flammable liquid	456
Flammable liquids, N.O.S	447
Corrosive liquids, N.O.S	393
Cement liquid, N.O.S. flammable liquid	301
Sulfuric acid	231
Resin solution, flammable liquid	224
Fuel oil, combustible liquid	[7] 215

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[4] 49 CFR 171.16.
[5] DOT statistics are derived from accident reports filed by industry.
[6] Unpublished FRA memorandum. May 23, 1978.
[7] Data supplied by DOT.

The following photographs are of hazardous materials transportation accidents:

EXHIBIT 1.—DEATHS AND INJURIES RESULTING FROM HAZARDOUS MATERIALS ACCIDENTS, 1971–77

[Damages in millions of dollars]

	1971	1972	1973	1974	1975	1976	1977	Total
DEATHS[1]								
Air	0	0	0	4	0	0	0	4
Highway (for hire)	18	6	11	14	7	12	14	82
Highway (private)	5	6	7	4	20	4	17	63
Rail	0	0	3	10	0	2	1	16
Water	0	0	0	0	0	0	0	0
Freight forwarder	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
Total	23	12	21	32	27	18	32	165
INJURIES[1]								
Air	0	0	6	5	4	4	9	28
Highway (for hire)	122	192	297	243	395	568	447	2,264
Highway (private)	60	49	38	38	92	49	60	386
Rail	21	53	152	596	96	198	233	1,349
Water	48	0	3	17	2	1	0	71
Freight forwarder	0	0	0	4	15	0	0	19
Other	2	0	13	0	51	0	0	66
Total	253	294	509	903	655	820	749	4,183
DAMAGES								
Air	0	2,853	5,104	4,511,708	9,159	20,512	28,636	4,578,022
Highway (for hire)	3,118,508	3,587,379	2,604,163	3,849,176	3,028,405	3,617,548	4,272,106	24,077,285
Highway (private)	1,661,475	2,701,366	1,713,815	924,980	2,574,211	2,057,017	4,356,545	15,989,409
Rail	1,491,745	1,549,358	3,021,685	11,965,143	1,481,995	2,294,633	7,815,243	29,619,802
Water	201,052	1,252,095	8,009	20,117	6,331	5,270	18,258	1,511,132
Freight forwarder	0	0	0	0	3,345	405	351	4,101
Other	136,005	223,925	14,439	13,035	182	3,788	19,700	401,074
Total	6,608,785	9,316,976	7,367,215	21,284,159	7,103,628	7,999,173	16,500,889	76,180,285

[1] Directly attributable to unintentional release of hazardous materials.
Data supplied by DOT.

EXHIBIT 2

REPORTS RECEIVED IN 1978

HMI report No.	Date and location	Carrier and mode	Commodity and shipper	Deaths	Injuries	Property damage over $50,000 and/or evacuation	Remarks
8010436	Dec. 28, 1977, Goldonna, La.	Louisianna & Arkansas Ry., rail.	Liquified petroleum gas, Wanda Petroleum.	2	8	$2,041,000	22 cars and 2 engines derailed after colliding with a log truck at the main street crossing in Goldonna. 1 tank car ruptured and exploded. A number of homes and 1 business were destroyed in the ensuing fires. As a result of the collision and subsequent explosion and fire, the engineer and 1 brakeman were killed. 1 brakeman was severely burned. The truck driver and 6 residents of the town received minor injuries. 800 people in a 10-mile radius were evacuated.
8010820	Jan. 10, 1978, Hertford, N.C.	Winslow Oil Co., H-P	Gasoline, fuel oil, Union Oil Co. of California.	0	3	750,000	2 cargo tanks were unloading at a bulk facility. For reasons unknown an explosion occurred and a fire ensued. 3 firemen were injured fighting the fire, none seriously. 6 trucks and 5 autos were destroyed. 2 of the carrier's buildings and a nearby business were destroyed. The houses of 2 nearby residents were damaged. 6 families were evacuated.
8030786	Jan. 14, 1978, Chicago, Ill.	Chemical Leaman Tank Lines, Inc., H-H.	Sodium sulfhydrate, PPG Industries.	8	30		The driver of a tank truck containing sodium sulfhydrate, a corrosive liquid, was mistakenly directed to unload into a storage tank containing chrome liquor at the Horween Leather Co. The mixture of the 2 chemicals resulted in the release of hydrogen sulfide gas which permeated the plant. In all, 8 persons died and 30 persons were injured from inhalation.

See footnote at end of table.

EXHIBIT 2

REPORTS RECEIVED IN 1978

HMI report No.	Date and location	Carrier and mode	Commodity and shipper	Deaths	Injuries	Property damage over $50,000 and/or evacuation	Remarks
8041536	Apr. 19, 1978, Port Allen, La.	Younger Bros, Inc., H-H	Anhydrous ammonia, Amoco Oil Co.	1	19		While a tank truck of anhydrous ammonia was being unloaded, the loading hose ruptured, releasing a cloud of gas. 1 person died from inhalation and 19 others were treated at local hospitals. The cause of the rupture is being investigated.
8050203	Jan. 26, 1978, Youngstown Fla.	Atlanta & St. Andrews Bay Railway Co., rail.	Chlorine, BASF Wyandotte	8	158	1,089,000	Train derailed due to vandalism of track structure Tank car ruptured during derailment releasing. chlorine gas.
8030669	Feb. 27, 1978. Detroit, Mich.	United Trucking, Service	Lacquer, paint and lacquer thinner, PPG Industries.	0	0	2,000,000	A forklift operator was transporting 14 cartons of paint products across the carrier's dock. As he rounded a corner, 12 of the 14 cartons fell off the skid and approximately half of them leaked, allowing a large slick to form on the dock. Two dockmen intentionally ignited the slick with a burning stick to remove the spilled material. Within minutes, flames engulfed the dock. The fire eventually reached 3-alarm magnitude, and totally destroyed the dock and terminal offices.
8030716	Feb. 22, 1978, Waverly, Tenn.	Louisville & Nashville Railroad Co., rail	Liquified petroleum gas, Amoco Oil Co.	[1] 13	[1] 50		A tank car of LPG was 1 of 23 cars derailed on Feb. 22. 2 days later, while rail crews were cleaning up the wreckage, the tank car exploded for reasons which are still being investigated. As a result of the explosion and subsequent fires, 13 persons were killed, and 50 were injured. High property damage occurred and 2,000 people were evacuated.

[1] In May, 2 additional people died as a result of injuries making the total 15 dead and 48 injured.



FIGURE 1. Derailment of an Atlanta and St. Andrews Bay Railway freight train at Couch, near Youngstown, Fla., on February 26, 1978, followed by release of chlorine.



FIGURE. 2. Aerial view of Waverly, Tenn., on February 24, 1978, following an L. & N. train derailment, accompanied by the release, explosion, and fire of LPG.



FIGURE. 3. Eagle Pass. Aerial view of accident site showing burned out vehicles and blackened section of highway where LPG fireball occurred.

SOURCE. Texas Highway Patrol.



FIGURE. 4. View of accident site at Eagle Pass, Tex. less than an hour after accident looking west along U.S. Route 277. Shows damaged vehicles parked on north shoulder of roadway. One vehicle is overlapping the improved shoulder.



FIGURE 5. Photograph of remains of Surtigas tractor after the explosion and fire at Eagle Pass, Tex. accident.

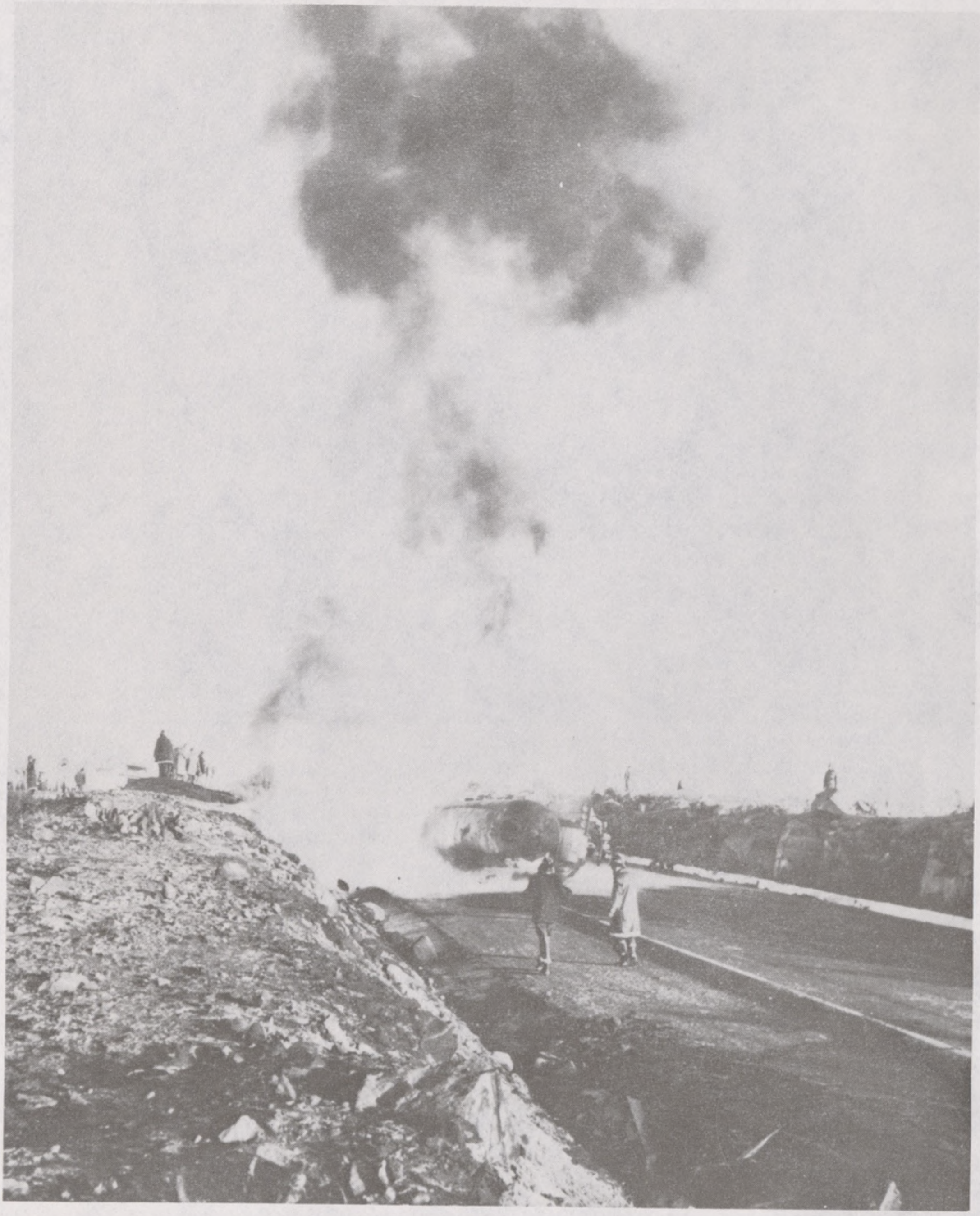

FIGURE 6. Scene on July 14, 1978, following the overturn of a propane cargo-tank, explosion and fire on the Queratarо Highway, 53 miles north of Mexico City, Mexico.

HAZARDOUS MATERIALS INCIDENTS

There are a large number of incidents involving hazardous materials reported each year to DOT. Graph I provides historical data on the number of such incidents (as well as fatalities and injuries) from 1971–76.

During 1977, carriers reported 15,950 incidents that resulted in the unintentional release of hazardous materials. According to reports filed with the DOT, of the hazardous materials accidents occurring in 1977, 14,250 were from highway situations. In 1976 and 1977, highway and rail modes accounted for 100 percent of the deaths of these accidents and for about 99 percent of the resulting injuries. In 1976, 89 percent of all fatalities involving the transportation of hazardous materials occurred in the highway mode; whereas, in 1977, this figure was 97 percent. In 1978, the relative percentage of fatalities occurring in the railroad mode is expected to increase substantially, because of those killed in the Waverly, Tenn., and Youngstown, Fla., rail accidents that were previously discussed.

The accident record of the hazardous materials industry needs to be considered in perspective with other transportation or risk situations. As Ralph Engel, president of the Chemical Specialties Manufacturers Association, stated:

> In viewing the accident situations, it must be remembered that the volume of hazardous materials shipped is in the hundreds of thousands of tons, annually representing over 250,000 individual shipments tended daily with the ton-miles of movement running into the billions. This is not to say that improvements should not be sought nor critical critiques taken of accident situations but merely that they be kept in proper perspective. The deaths and injuries attributable to hazardous materials over the last 5 years should be compared with those incurred in such public exposed areas as automobile and commercial and private air transportation as well as others. We believe it indicative of the disproportionate criticism of the transportation of hazardous materials that the hazardous material causing the greatest number of deaths each year is gasoline. The record will disclose that the transportation of gasoline causes more deaths annually than all of the other hazardous materials combined.[8]

FUNCTIONS IN A SAFETY REGULATORY PROGRAM

What does DOT do to regulate the industry that has just been described? What are the various functions involved in a Federal safety regulatory program? An understanding of the functions is requisite to an analysis of DOT's administration of the program.

The basic functions of DOT's program are (1) issuing regulations that state the requirements that industry must meet, (2) educating industry as to the regulatory requirements, and (3) getting industry to comply with the regulatory requirements. There are subsidiary functions, but these are basic.

The initial function must be to issue regulations; and for a new regulatory program, this is the only function to be carried out. Then, as the regulations are issued, the regulatory agency begins the education and compliance functions. However, until the initial regulations are complete, the regulatory agency must focus its energy on issuing regulations.

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[8] Written communication from Chemical Specialities Manufacturers Association, 1978.

As the regulations are issued, the regulatory agency begins educating industry about the requirements. The object of the education program is to insure that the requirements are known to every affected person. Until each person who performs a regulated function knows what is required on that job, the regulations will not be fully effective. Knowledge is requisite to compliance. The DOT program complements the educational program that each company is required to conduct for its own employees.

As the regulations are issued and industry has had time to learn and to implement them, DOT begins the compliance function: surveillance and enforcement. The regulations serve their purpose only when industry fully complies with them.

Surveillance consists of onsite inspection, accident investigation, and analysis of the reports that industry submits on accidents and incidents. Onsite inspection is the most effective—and the most expensive—means of surveillance. The primary purpose of surveillance is to determine whether industry is complying with the regulations. Most companies voluntarily comply with the regulations, but an active surveillance program enhances their disposition to comply. Other purposes of surveillance are to determine whether the regulations are adequate, whether the DOT education program is adequate, whether enforcement action is necessary to secure compliance; and to identify problem areas that need priority attention.

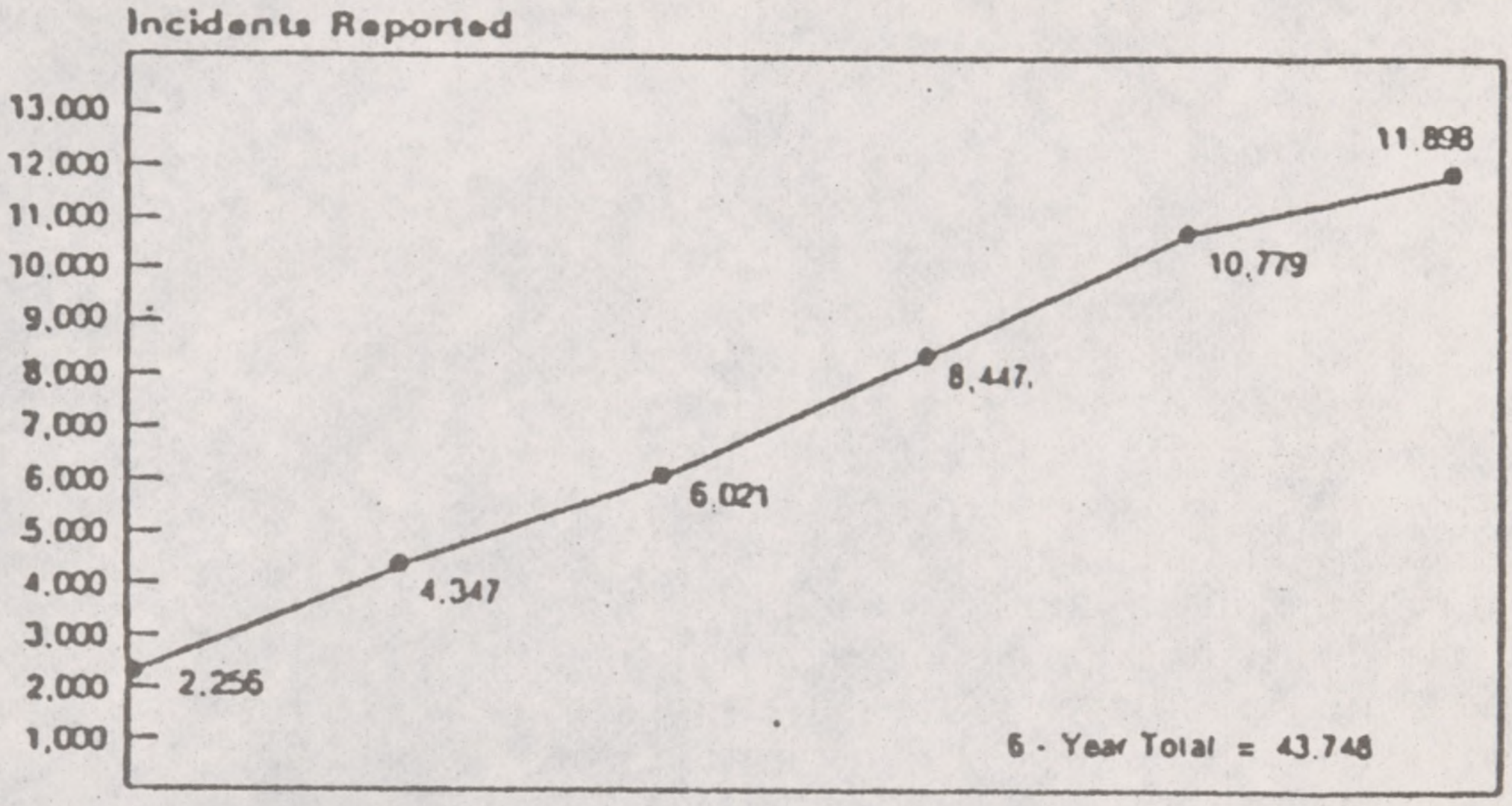
DOT has authority to enforce its regulatory requirements by means of civil penalties; and, for willful violations, criminal prosecutions. Legal enforcement is DOT's "muscle" in getting industry to comply with the regulations. For maximum effect, enforcement action must be designed to encourage compliance. DOT is unable to identify and prosecute every infraction of its regulations. The Department can only hope to promote voluntary compliance by prosecution of selected cases that serve as examples and "reminders" to the hazardous materials industry that the regulations must be adhered to.

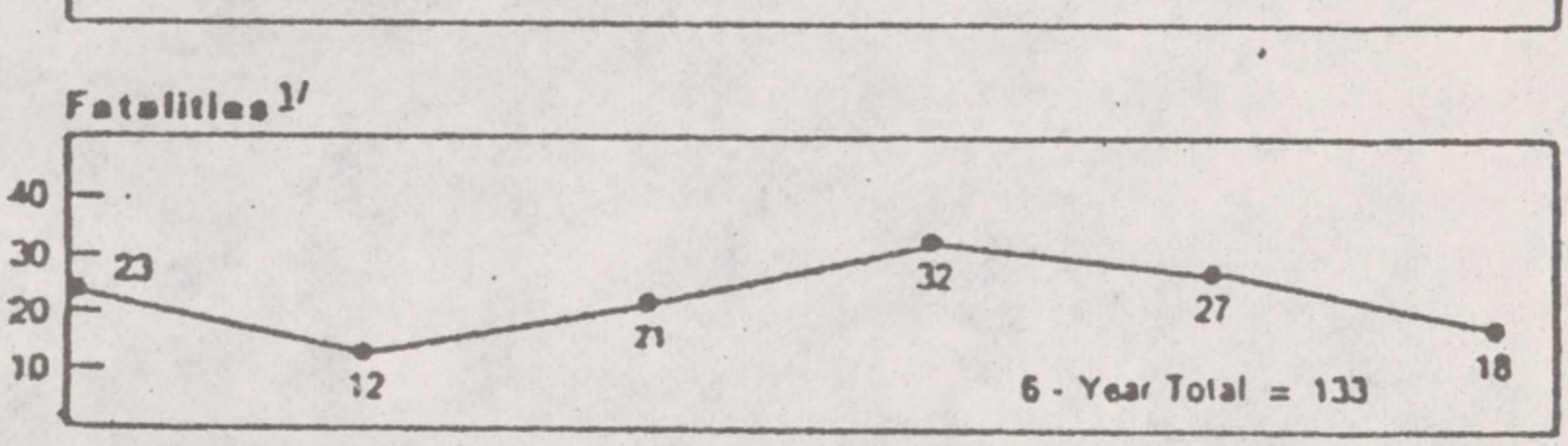
Thus, DOT's regulatory function includes the formulation of regulations; the education of industry of the regulations, and the promotion of compliance. These are never-ending functions. Over the years, DOT's emphasis on one or another of the functions has varied from time to time. During the development of the program, DOT officials spent considerable time on the function of regulatory formulation. In recent years, increasing emphasis has been placed on the education and compliance functions. DOT has been continually reviewing the regulations and amending them as necessary. Because there is a constant turnover in industry personnel, the education function is never-ending.

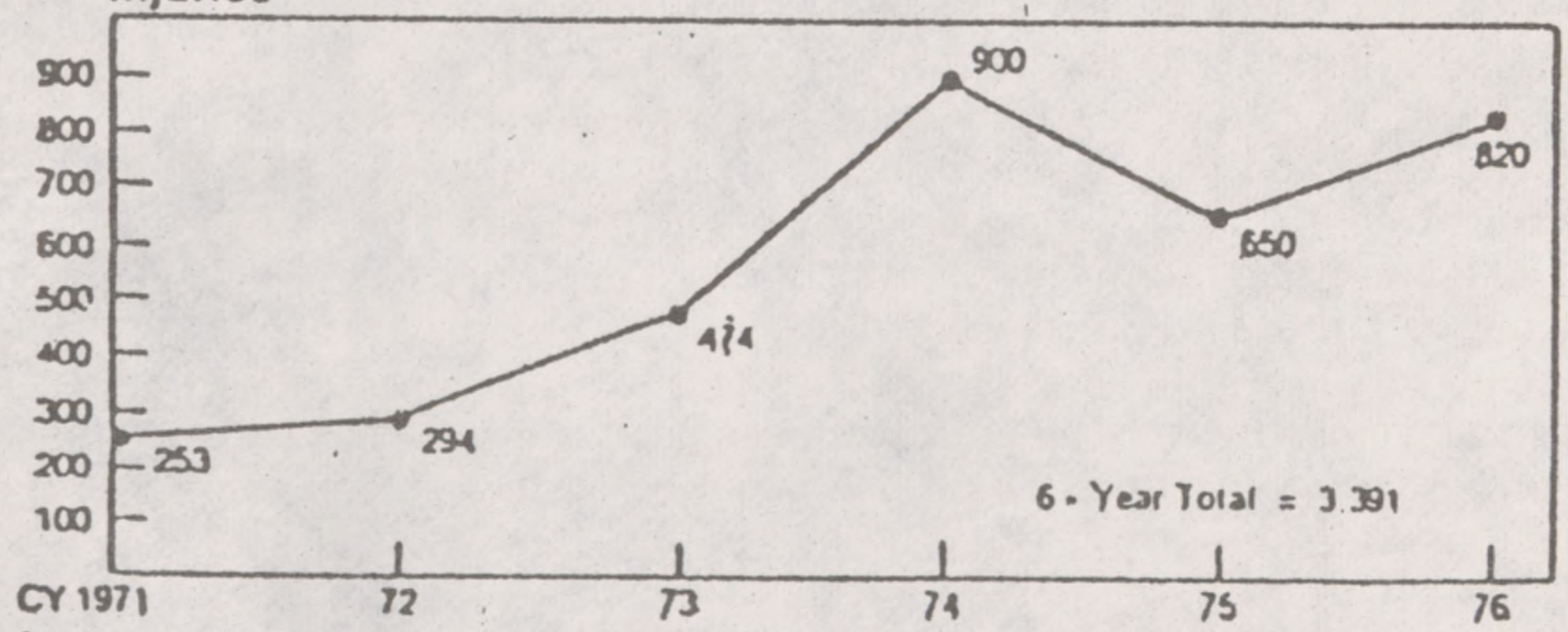
As part of the analysis of the current DOT hazardous materials program, the next three chapters recount the development of this program.

Graph I

HAZARDOUS MATERIALS INCIDENTS, FATALITIES AND INJURIES: 1971-1976







1/ Directly Attributable to Unintentional Release of Hazardous Materials

Source: DOT

CHAPTER 2—LEGISLATION AND REGULATORY ORGANIZATION BEFORE ESTABLISHMENT OF THE DEPARTMENT OF TRANSPORTATION (1871–1966)

This chapter summarizes the history of the Federal Government's program to regulate the transportation of hazardous materials before the function was transferred to the Department of Transportation; discusses relevant laws and regulatory organization; and documents the delegation of Federal regulatory authority to the Bureau of Explosives and to the Association of American Railroads (AAR) Tank Car Committee. These delegations of regulatory authority to non-Federal entities are important, because many are still in effect.

LEGISLATION COVERING SHIPMENTS BY WATER

In 1871 Congress passed the first Federal law requiring safety standards for the transportation of hazardous materials (16 Stat. 441). This law made it a crime to transport certain explosives, flammables, and acids on passenger-carrying vessels in the navigable waters of the United States, except as provided by safety regulations issued by the Secretary of the Treasury. Administration of this law was delegated to the U.S. Coast Guard (USCG), which was then part of the Department of the Treasury.

Subsequent acts of Congress enlarged the Federal authority to regulate the transportation of hazardous materials by water and delegated the authority to first one and then another Federal agency (e.g., ICC, Departments of Commerce and Labor, and USCG).[1] When USCG was transferred to DOT in 1967, USCG had authority to set safety standards for the transportation of "all explosives and other dangerous articles or substances" in the navigable waters of the United States (46 U.S.C. 170).

USCG SET SAFETY STANDARDS FOR WATER TRANSPORTATION

Hazardous materials are transported by water in bulk and in portable containers. Materials are transported in bulk when the vessel (ship or barge) is the container for the material. Both before and after creation of DOT, authority to regulate the design, construction, maintenance, and operation of vessels that transport hazardous materials in bulk was delegated to USCG. [This report does not cover the bulk transportation of hazardous materials by water.]

After USCG was transferred to DOT, the Secretary of Transportation delegated to USCG the authority to set safety standards for transportation of hazardous materials by water in portable containers.

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[1] See the Historical and Revision Notes in 46 USCA chapter 7.

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LEGISLATION COVERING SHIPMENTS BY LAND AND AIR

In 1908 Congress passed the Transportation of Explosives Act (35 Stat. 554), which made it a crime for a common carrier to transport explosives by land, except as provided by safety regulations issued by the Interstate Commerce Commission. Congress authorized ICC to issue safety standards for packing, marking, loading, and handling hazardous materials in transit.

From time to time, Congress amended the Transportation of Explosives Act to cover other hazardous materials, such as flammable liquids, flammable solids, oxidizing materials, corrosive liquids, compressed gases, poisons, etiological agents, and radioactive materials. These amendments also brought shippers, contract carriers, and private carriers under the coverage of the act and its regulations.[2]

The Federal Aviation Act of 1958 (Public Law 85–726) delegated to the Federal Aviation Agency the authority to set safety standards for the air transportation of hazardous materials.

ICC SET SAFETY STANDARDS FOR LAND TRANSPORTATION

Hazardous materials are transported on land in bulk (tank cars and tank trucks) and in portable containers. The ICC set the safety standards for highway and railroad transportation of hazardous materials.

The ICC regulations also affected the USCG regulations covering water shipments. USCG was required to adopt the ICC regulations for classifications of hazardous materials and the packing, marking, and labeling requirements for shipments in portable containers.[3]

Through an evolutionary process, the ICC became the lead agency in setting safety standards for the transportation of hazardous materials by all modes. By the time this regulatory authority was transferred to DOT, all modes of transportation were working to make their regulations compatible, but differences remained.

ICC TECHNICAL COMPETENCE TO SET SAFETY STANDARDS

When its safety regulations function was transferred to DOT in 1967, ICC had only 11 professionals and 3 clerical workers on its hazardous materials regulations staff.[4]

This small staff had an enormous workload. Setting safety standards for the transportation of hazardous materials involves a number of functions that required professional knowledge, such as:

—Classification and determination of the kind and degree of hazard that is involved in transporting a wide range of materials, including poisons, liquefied flammable gases, solid and liquid flammables, oxidizing agents, corrosives, radioactive materials, and etiologic agents;

—Determination of the design, construction, maintenance, and test requirements that are appropriate for the various kinds of containers, such as cryogenic tanks, tank cars, tank trucks, cylinders, drums, and carboys;

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[2] See the Historical and Revision Notes in 18 USCA Chapter 39.
[3] 46 USC 170(7)(a).
[4] Information supplied by DOT.

—Evaluation of the technical aspects of industry's petitions for special permits;
—Selection of the container, or containers, appropriate for each material, considering the kind and degree of hazard that the material poses during transportation in each mode; and
—Collection and analysis of technical information and information about accidents and incidents to (1) determine the causes of transportation accidents and the resulting damage, and (2) devise means of preventing future accidents.

A comparison of the qualifications of the ICC staff with the knowledge required to perform its regulatory functions revealed that the ICC staff did not have the professional knowledge required to perform the functions adequately. As noted in the following sections, the ICC relied on industry to provide most of the expertise for its regulatory program.

DELEGATIONS OF FEDERAL AUTHORITY TO THE BUREAU OF EXPLOSIVES

The ICC regulations appear to be an accretion of specific requirements, based on special permits that the ICC issued to industry on a product-by-product, container-by-container, procedure-by-procedure basis. The ICC issued few objective standards that would cover the introduction into transportation of new products, new containers, or new procedures. So industry kept petitioning for, and the ICC kept granting, special permits to authorize the introduction of new products, new containers, and new procedures.

In 1921 Congress authorized the ICC to use the services of the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles of the Association of American Railroads (AAR) in its hazardous materials safety program.[5] The AAR had established the Bureau of Explosives (to use its popular name) in 1906 to classify the various kinds of hazardous materials and set safety standards for transporting them by rail. As documented below, the ICC took this congressional authorization literally; it practically turned the hazardous materials transportation safety program over to AAR's Bureau of Explosives.

The ICC delegated to the Bureau of Explosives the authority to perform a variety of governmental functions, such as:

—Approving the type, location and quantity of safety relief devices on cylinders used for shipping hazardous materials such as liquefied flammable gases and poisons;
—Approving new explosives as being safe for transportation;
—Approving containers for solid and liquid propellant explosives and pyroforic liquids;
—Approving procedures for transporting hydrocyanic acid in tank cars; and
—Approving portable containers for arsenic cyanides, and class A explosives.

The ICC also delegated to the Bureau of Explosives authority to take regulatory action that affected carriers in nonrail modes of transportation.

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[5] 41 Stat. 144.

By the time that the hazardous materials safety program was transferred to DOT, the ICC had made hundreds of delegations such as these to the Bureau of Explosives. Exhibit 3 is an illustrative list of the kinds of authority that ICC delegated to the Bureau of Explosives. As a result of these delegations, a non-Government entity was carrying out governmental functions. In fact, the Bureau of Explosives is still performing many of these governmental functions, as outlined later.

DELEGATION OF FEDERAL AUTHORITY TO THE COMMITTEE ON TANK CARS

In 1960 Congress authorized the ICC to use the services of carrier and shipper associations, in addition to the Bureau of Explosives, in its hazardous materials safety program.[6] The ICC took this authorization literally, turning to the trade associations for assistance, particularly in the development of the requirements for the larger containers, such as tank cars and tank trucks.

EXHIBIT 3

Section	Paragraph	Comment
173.1	(b)	Certain methods of manufacture, packing, and storage must be open to inspection by authorized inspector of the Bureau of Explosives.
173.21	(b)	Bureau of Explosives authorized to approve refrigeration as a means of stabilization.
	(d)	Bureau of Explosives must approve method and design of packaging cigarette lighters charged with fuel and equipped with ignition device.
173.28	(h)	Bureau of Explosives authorized to give permission for reuse and approve methods of retesting of single-trip containers.
173.31	(c) (10), retest table footnote 1/(f) (2)	Bureau of Explosives authorized to prescribe test procedures and approve retesting of tanks and safety devices in hydrocyanic acid service. After alterations of tank cars and equipment, a certificate of compliance with respect to specification must be filed with the Bureau of Explosives.
173.32	(b) (3)	Bureau of Explosives is authorized to approve character, size, number, and physical properties of fusible plugs, on spec. 51S portable tanks.
173.34	(b)	Bureau of Explosives authorized to change marked service pressure of cylinders.
	(c) (3)	Bureau of Explosives authorized to approve changes of serial numbers and identification symbols on cylinders.
173.34	(d)	Bureau of Explosives authorized to approve type, location and quantity of safety relief devices on cylinders.
	(c) (1)	Bureau of Explosives authorized to approve apparatus for testing of cylinders.
173.86	(a)	Bureau of Explosives authorized to approve new explosives as safe for transportation, other than Army, Navy, or Air Force explosive or chemical ammunition of a security classification.

Source: Internal DOT memorandum, 1969.

An example of a delegation of regulatory authority is found in the 1967 edition of title 49 of the CFR, part 178—"Specifications for Tank Cars;" subpart A is reproduced in exhibit 4. This subpart gives the Committee on Tank Cars, which is sponsored by the AAR the right to approve designs and construction materials for tank cars. In this context, the committee's approval established the regulatory equipment. These sections require that proposed changes in tank car specifications be submitted to the Committee on Tank Cars which then recommends appropriate action to the ICC. Since it did not have any tank car expertise on its own staff, the ICC essentially had no choice, after giving "due consideration" to the expert opinion" of the committee, but to accept whatever recommendation that the committee might make. In short, the Association of American Railroads set the

[6] Public Law 86–710.

safety standards for tank cars. Subpart A is substantially the same today.

The role of the trade associations was not expressly stated in other parts of the hazardous materials transportation regulations as it was in part 179, but their role was only a little less pervasive.

The ICC regulatory staff had little expertise in the technology of cryogenic tanks, portable tanks, and cyclinders, the containers that are used to transport some of the especially hazardous materials. The ICC had little choice but to accept the proposals submitted by industry groups. The functions delegated to the AAA Tank Car Committee during the 1960's are still being carried out by this nongovernmental organization.

EXHIBIT 4

[From the 1967 Code of Federal Regulations, Title 49, Chapter 1.]

SUBPART A—INTRODUCTION, APPROVAL AND REPORTS

§ 79.1 General.

(a) The specifications in this part apply to tanks which are to be mounted on or form part of a tank car. Tanks when built shall comply with all applicable requirements of the specifications in effect at the time of construction. Tanks built to earlier specifications may continue in use as prescribed in § 73.31 of this chapter.

§ 79.2 Definitions and abbreviations.

(a) The following apply in Part 79:
(1) "AAR" means Association of American Railroads.
(2) "Approved" means approval by the AAR Committee on Tank Cars.
(3) "ASTM" means American Society for Testing and Materials.
(4) "Commission" means Interstate Commerce Commission.
(5) Definitions in part 73 of this chapter also apply.
(6) "F" means degrees Fahrenheit.
(7) "NGT" means National Gas Taper Threads.
(8) "NPT" means American Standard Taper Pipe Thread.
(9) "psi" means pounds per square inch gauge.
(10) "Tanks" means tank car tanks.

§ 79.3 Procedure for securing approval.

(a) Application for approval of designs, materials and construction, conversion or alteration of tank car tanks under these specifications, complete with detailed prints, shall be submitted in prescribed form to the Secretary, Mechnical Division, AAR, for consideration by its Committee on Tank Cars and other appropriate committees. Approvals or rejections of applications, based on appropriate committee action, shall be issued by said Secretary.

(b) When, in the opinion of the Committee, such tanks or equipment therefor are in compliance with effective regulations and specifications of the Commission, the application will be approved.

(c) When, in the opinion of the Committee, such tanks or equipment therefor are not in compliance with effective regulations and specifications of the Commission, the Committee may recommend service trials to determine the merits of a change in specifications. Such service trials may be authorized by the Commission under the terms of "ICC Special Permits."

§ 79.4 Changes in specifications for tank cars.

(a) Proposed changes in or additions to specifications for tanks shall be submitted to the Secretary, Mechanical Division, AAR, for consideration by its Committee on Tank Cars. An application for construction of tanks to any new specification may be submitted with proposed specification. Construction should not be started until the specification has been approved or special permit has been issued. When proposing a new specification, the applicant shall furnish information to justify a new specification. This data should include the properties of the lading and the method of loading and unloading.

(b) The Subcommittee on Specifications of the Committee on Tank Cars shall review the proposed specification at its earliest convenience and report its recommendations to the Commitee on Tank Cars for prompt consideration. The Committee on Tank Cars shall report its recommendations through said Secretary to the Commission; such reports may be submitted to the Bureau of Explosives for its recommendation before action by the Commission. Expert opinion thus obtained will be given due consideration by the Commission in determining appropriate action.

§ 79.5 Certificate of construction.

(a) Except as provided in paragraph (b) of this section, before a tank car is placed in service, the party assembling the completed car shall furnish to the Bureau of Explosives, to the Secretary, Mechanical Division, AAR, and to the car owner, a Certificate of Construction in prescribed form certifying that the tank, equipment and car complete, comply with all the requirements of the specifications.

(b) Before a tank of Class ICC–106, 107A or 110A is placed in service, the builder shall furnish to the Bureau of Explosives, to the Secretary, Mechanical Division, AAR, and the owner, a Certificate of Construction in prescribed form certifying that the tank and appurtenances comply with all the requirements of the specifications.

(c) If the owner elects to furnish the appurtenances such as valves and safety devices, the owner shall furnish to the Bureau of Explosives, to the Secretary, Mechanical Division, AAR, a report in prescribed form, certifying that the appurtenances comply with all the requirements of the specifications.

(d) When cars or tanks which are identical in all details are built in groups, one certificate shall suffice for each group.

§ 79.6 Repairs and alterations.

(a) For procedure to be followed in making repairs or alterations, see § 73.31 (f) of this chapter.

SPECIAL PERMITS ESTABLISHED THE REGULATORY REQUIREMENTS

As discussed previously, the ICC did not make a practice of issuing general requirements; that is, setting objective standards for industry to meet. A comparison of ICC regulations with industry recommendations indicated that ICC responded to industrial initiatives rather than playing a determining role in setting standards and procedures. Each shipper or carrier petitioned the ICC for a special permit—which was in effect a special regulation—for each product that it wanted to ship and each container that it wanted to use in shipment. The ICC then issued the special permit.

A special permit issued to one company could give it an economic advantage over its competitors. To avoid this, the ICC routinely issued the same permit to other companies upon request. In this way, the special permit became a general permit. After a few years of experience under the widely issued special permit, the conditions of the permit would be written into the regulations.

To understand the special permit method of regulation, it is important to note that a special permit was not a device for avoiding a regulatory requirement. The regulatory requirement was the same, whether it was stated in a special permit or incorporated into the general regulations. A special permit was not a departure from an established requirement; rather, a special permit was used to establish a requirement. DOT still regulates in many cases by special permit, particularly in establishing container requirements. Special permits are now called exemptions. The problems of regulating by special permit, or exemption, is discussed in appendix 1.

CHAPTER 3—LEGISLATION AND REGULATORY ORGANIZATION SINCE ESTABLISHMENT OF THE DEPARTMENT OF TRANSPORTATION

This chapter reviews the laws enacted since 1966 that affect DOT's hazardous materials safety function and discusses the organizational changes and delegations of authority that have occurred within DOT. A history of the organizational and staffing problems that this program has faced is essential to an understanding of the present program.

DEPARTMENT OF TRANSPORTATION ACT

The Department of Transportation Act (Public Law 89–670), which became effective April 1, 1967, transferred to the Department of Transportation the authority to set safety standards for all modes of transportation (sec. 6). This was the first time that total authority for transportation standards, including hazardous materials safety, had been assigned to a single Federal Department.

Although DOT now had total authority for transportation standards, the Secretary of Transportation was only assigned direct regulatory authority over one transportation mode. In Public Law 89–670, the Congress directed that:

—The Federal Aviation Administrator (FAA) carry out the aviation safety functions (sec. 6(c)(1));

—The Federal Railroad Administrator (FRA) carry out the railroad and pipeline safety functions (sec. 6(f)(3)(A)); and

—The Federal Highway Administrator (FHWA) carry out the motor carrier safety functions (sec. 6(f)(3)(B)).

The act did not have any such requirement for marine safety (sec. 6(b)), so the Secretary did have direct control over that program.

Congress also directed that the safety duties "specified in this act to be carried out by each Administrator shall not be transferred elsewhere in the Department." (sec 3(e)(4)). By this means, Congress effectively precluded the Secretary from directly administering any of the Department's safety regulations programs, except marine safety. Since the overall delegations of safety authority included hazardous materials safety authority, the Secretary was precluded from administering the entire Department's hazardous materials safety program.

As noted in the preceding chapter, the ICC had been the lead agency in setting safety standards for transporting hazardous materials by all modes. When this function was delegated to the modal administrators in DOT, there was no longer a lead agency; each administrator was his own boss. With each administrator independently setting his own standards, there was a possibility that the regulations would differ from mode to mode.

Many, if not most, of the commodities that bear the hazardous materials label are essential to the national well-being.[1] A single shipment of one of these commodities may move by more than one mode of transportation on the way from the shipper to the consumer. To expedite the movement of these commodities, it is important that all modes have the same classifying, packaging, and labeling requirements. To help the administrators develop compatible regulations, the Secretary created the Hazardous Materials Regulations Board.

HAZARDOUS MATERIALS REGULATIONS BOARD

Soon after DOT began operation, the Secretary of Transportation created the Hazardous Materials Regulations Board to coordinate the Department's hazardous materials safety program. The Secretary directed the Board to develop regulations that, to the extent practicable, (1) would be the same for all modes of transportation, (2) would be adopted under the same procedures, and (3) would be published in the same document or series of documents. Exhibit 5 shows the organizational relationships that resulted from creation of the Board.

Hazardous Materials Regulations
Organizational Relationships

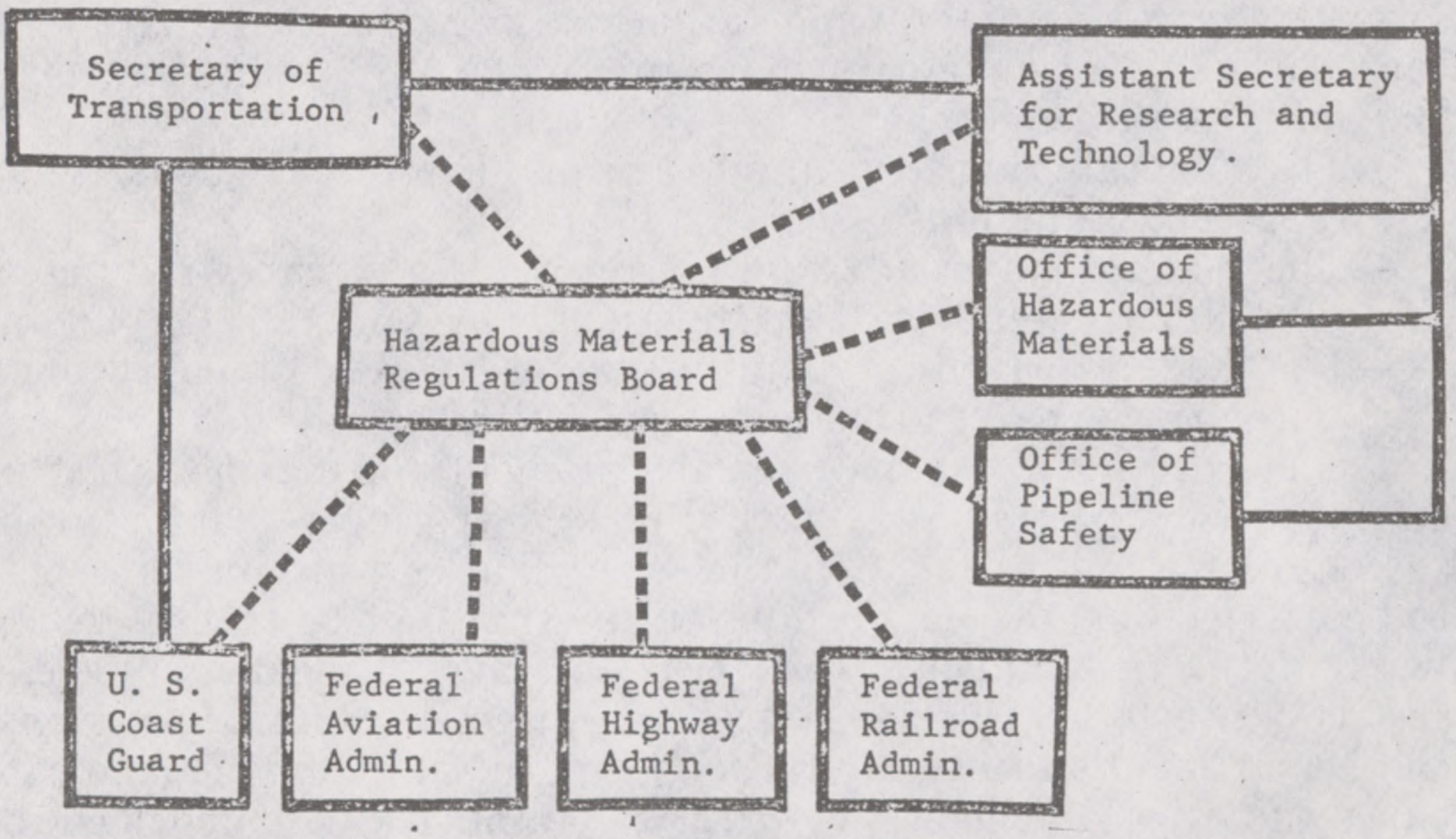

EXHIBIT 5.—The solid lines show the authority of the Secretary over those who have a part in setting safety standards for the transportation of hazardous materials. The chart reflects the statutory direction that the three administrators exercise the Secretary's authority in this area.

The dotted lines show staff and coordination relationships. Note that the Hazardous Materials Regulations Board has no authority, but is a device for coordinating the multiple rulemaking authorities. The nominal members of the Board have designated staff members to represent them at Board meetings, but (with one exception) have retained signature authority over the Board's regullatory actions.

The Office of Hazardous Materials, aided by liaison representatives from the Board members, does the staffwork for the Board's regulatory actions and special permits.

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[1] For example, huge quantities of chlorine must be transported to water purification centers; explosives are transported for national defense purposes; LPG must be moved to distribution or consumption sites.

The Office of Pipeline Safety exercises the Secretary's authority under the Natural Gas Pipeline Safety Act and does the staff work for the Federal Railroad Administrator in his administration of the liquid pipeline safety program.

SOURCE.—Internal DOT document, 1969.

As noted earlier, each modal administrator had independent regulatory authority. The Secretary had no authority to set standards or to issue regulations for the air, highway, and railroad modes. The Secretary did the best he could to prevent the development of incompatible modal regulations under the legislative constraint; he set up a collegial body, representing all interested DOT agencies, to develop the regulations.

PLAN TO REVISE THE REGULATIONS

In 1968 the Hazardous Materials Regulations Board published a notice of its plan to revise completely the hazardous materials safety regulations. The Board planned to:

Eliminate the modal differences in the requirements, except where the inherent characteristics of an individual mode required a difference;

Make the regulations consistent with international requirements, except where national needs required a difference;

State the container requirements in performance standards, rather than manufacturing specifications; [2]

Provide labels on packages that would give cargo handlers information as to the kind of hazard that the material posed during transportation; and

Provide placards on vehicles that would inform policemen and firemen as to the hazards that would result from a spill of the product.

When this notice was published, the fiscal year 1970 budget was in preparation. The Office of Hazardous Materials, which conducted the staff work for the Board, expected to have 100 people to do this work, see exhibit 6. However, at the end of the budget process, the staff was 30 instead of 100. As a result of this staff allocation, the regulations were not revised then; today, 10 years later, major parts of the proposed revision have not been done.

Rewriting the container regulations, and stating the requirements in terms of performance standards, was a major part of the Board's proposed revision. (A performance standard prescribes what a container must be capable of doing after it is built, but not how to build it. Any container, no matter how it is built, that can meet the performance requirements would be in compliance with Federal regulation.) As long as the container standards are written in terms of manufacturing specifications, as they now are, DOT will have to continue to issue a special permit—or exemption, as it is now known—for each new container. As discussed in chapter 14, there are major problems in regulating by special permit.

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[2] Performance standards are defined in the text; manufacturing specifications prescribe the materials and manufacturing processes.

OFFICE OF HAZARDOUS MATERIALS

When the ICC's hazardous materials transportation safety program was transferred to DOT, ICC's staff of 11 professionals and 3 clericals was also transferred. This staff constituted the initial personnel of the Office of Hazardous Materials which conducted the staff work for the Hazardous Materials Regulations Board. When the DOT fiscal year 1970 budget was prepared in 1968, the Secretary requested a staff of 100 for this office, see exhibit 6.

The President's budget for fiscal year 1970 requested 35 positions for the Office of Hazardous Materials (OHM). While this budget request was before Congress, the Director of the Office of Hazardous Materials, at the request of the Under Secretary, wrote a memorandum, outlining the hazardous materials regulatory function and projecting the staffing required to perform the function. He advised the Under Secretary of Transportation that:

> The present staff is able to do little more than process industry requests for regulatory action. We have not been able to change the product-by-product, container-by-container, procedure-by-procedure system which the Department inherited from the Interstate Commerce Commission. This system is cumbersome and costly to the Department and also the shippers and carriers subject to our regulations.[3]

He then outlined to the Under Secretary the proposed regulatory program that if implemented probably would have resulted in major improvements in the DOT program,

Withdraw the regulatory authority that had been delegated to the Bureau of Explosives;

Establish a centralized system for collecting information on hazardous materials accidents as the basis for a rational regulatory program;

Revise the regulations;

Monitor shippers of hazardous materials and manufacturers of containers to ensure that they comply with the regulations;

Develop the technical capacity required to set safety standards;

Make domestic and international standards compatible to facilitate international shipments; and

Provide educational programs for industry, departmental field inspectors, and policemen and firemen.[4]

To this day, DOT has not completed the work outlined in that program. As discussed elsewhere in this report, (1) the Bureau of Explosives still has some regulatory authority, (2) most of the container standards have not been rewritten in performance standards, (3) surveillance of shippers and container manufacturers is minimal, and (4) firemen and other emergency response personnel still do not receive adequate information to enable them to handle all transportation emergencies involving hazardous materials.

This exhibit shows the personnel positions that the Office of Hazardous Materials requested and received since 1968.

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[3] Internal DOT memorandum.
[4] *Ibid.*

EXHIBIT 6—NUMBER OF OHM PERSONNEL POSITIONS FISCAL YEARS 1969 TO 1978

Fiscal years	OHM request	DOT request	President's budget	Congress approved
1969	25	25	25	20
1970	137	[1] 100	[1] 35	30
1971	80	65	65	35
1972	83	68	38	38
1973	115	55	42	39
1974	147	47	37	37
1975	147	44	40	40
1976	[2] 270	59	88	67
1977	143	111	67	67
1978	83	83	74	70

[1] The DOT budget for fiscal yer 1970 was submitted before the November 1968 election. The President's budget was submitted to Congress after the election.
[2] The OHM budget request was made after the House had passed Public Law 93–633.

Source: DOT supplied data.

The following statement, prepared as a part of the Office of Hazardous Materials' budget request for fiscal year 1974, describes the conditions of the program 5 years after it was transferred to DOT:

Ever since the inception of hazardous materials control in transportation by passage of the Transportation of Explosives Act of 1908, there has been no real direction or coordination in this important safety function. Parts and pieces have been added when the needs were demonstrated by severe accidents and catastrophies, or to accommodate the needs of individual manufacturers and shippers. The body of laws and regulations has grown like "Topsy," piece by piece, packages by package, rule by rule. As a result, the structure today is an ill-fitting, ramshackle, largely out-dated set of confusing and conflicting requirements. The diffusion of authority among and between the four modal administrations for carriers, and the Office of Hazardous Materials for shippers, results in overlapping, gaps, and different treatment of the same materials in different transportation situations. In the past, decisions were made by "knowledgeable persons' who performed more as practitioners than technical experts. The Bureau of Explosives of the Association of American Railroads furnished all technical input and proposed most new regulations. This accounts for the inclusion in the regulations of over 200 specific delegations of authority to the Burea of Explosives to act for the U.S. Government.[5]

To improve this situation, the Office of Hazardous Materials (OHM) requested 143 people for fiscal 1974. The Department of Transportation requested 47; the President's budget requested 37; and Congress approved 37. This was less than the number of people that OHM had in the 2 prior years. Faced with an increasing workload, OHM had a smaller staff. As indicated in the next section, Congress issued new legislative mandates that added responsibilities to the DOT program.

HAZARDOUS MATERIALS LEGISLATION, 1970 AND 1974

The Hazardous Materials Transportation Control Act of 1970—Public Law 91–458—imposed four new duties on the Secretary of Transportation, requiring him to:

Establish facilities and technical staff within the Federal Government capable of evaluating the hazards involved in the transportation of hazardous materials;

Establish a central system to provide technical advice to law-enforcement and firefighting personnel and others involved in meeting emergencies arising out of the transportation of hazardous materials;

[5] Internal DOT document.

Review all aspects of hazardous materials transportation to determine what can be done immediately to provide greater safety; and

Make a comprehensive report each year to Congress on the transportation of hazardous materials.

The act required the Secretary to complete the first three of these assignments by April 16, 1971. As noted in exhibit 6, Congress did not provide the additional manpower to comply with these requirements. The Secretary did not—could not—comply.

The most significant and recent legislation in this area is the Hazardous Materials Transportation Act, title I of Public Law 93–633, which became effective January 3, 1975. It delegated broad authority to the Secretary. The major provisions of the act are listed below; the provisions that create new authority or impose new requirements on the Secretary are in italics. The act:

Authorizes the Secretary to issue regulations for the safe transportation in commerce of hazardous materials. Such regulations may cover anything that is involved in the safety of transportation of hazardous materials, such as classification by kind and degree of hazard, container standards, labeling and placarding, handling and stowage, routing of shipments, speed limits, vehicle and operator qualifications (sec. 105(a));

Makes the Secretary's regulations applicable to shippers, carriers, *and those who furnish containers for the shipmnet of hazardous materials (sec. 105(a));*

Requires the Secretary to consult with the Interstate Commerce Commission before issuing any regulation covering the routing of hazardous materials (sec. 105(b));

Prohibits any person from marking or otherwise representing a container to be suitable for the transportation of hazardous materials, unless the container meets the Secretary's regulatory requirements (sec. 105(c));

Authorizes the Secretary to require shippers, carriers, and persons who furnish containers for hazardous materials to register with the Secretary (sec. 106(b));

Prohibits any person from shipping, carrying, or furnishing containers, unless that person has filed such registration statement as the Secretary may have prescribed (106(c));

Authorizes the Secretary to issue exemptions from the requirements of the act and from any regulations issued under the act, *provided such exemption does not decrease the established level of safety (sec. 107(a));*

Requires each person requesting an exemption to provide a safety analysis to justify the grant of the exemption. Requires the Secretary to publish a notice of the requested exemption in the Federal Register (sec. 107(a));

Authorizes the Secretary to maintain surveillance (conduct investigations, hold hearings, inspect records and properties) over the regulated companies and to require the companies to maintain such records as may be necessary for effective surveillance (sec. 109);

Requires the Secretary to establish in the Federal Government the technical capacity to evaluate the risks involved in transporting hazardous materials (sec. 109(d)(1));

Requires the Secretary to establish a central reporting system and data center capable of furnishing technical advice to law enforcement and firefighting personnel to aid them in meeting emergencies arising out of the transportation of hazardous materials (sec. 109(d)(2));

Provides civil penalties for violating the act or any regulation issued under the act. Authorizes the Secretary to compromise civil penalties. Provides criminal penalties for willful violations (sec. 110);

Preempts State requirements that are not consistent with the act or any regulation issued under the act. *Authorized the Secretary to waive the preemption, if the State requirements provide an appropriate level of safety and do not unreasonably burden interstate commerce (sec. 112);*

Eliminates the requirement (found in sec. 6(c)(1) and (f)(3) of the Department of Transportation Act) that the modal administrators must carry out the Department's safety programs (sec. 113(d) and (e)).

With respect to increasing the authority of the Secretary of Transportation, the most important results of this legislation are that: (1) the Secretary otbained control of the Department's hazardous materials program and could set Department-wide regulations without going through the modal administrators, (2) the Secretary obtained authority to collect civil penalties as an enforcement tool, and (3) the Secretary obtained regulatory authority over those who manufacture, test, and recondition containers used for transporting hazardous materials.

MATERIALS TRANSPORTATION BUREAU

In July 1975 the Secretary began to make the administrative changes that Congress authorized in the Hazardous Materials Transportation Act. By secretarial order, he created the Materials Transportation Bureau (MTB) and made it the lead agency in the Department's hazardous materials transportation safety program. This order dissolved the Hazardous Materials Regulations Board and transferred the Office of Hazardous Materials (OHM) to the MTB.

In the order creating MTB, the Secretary delegated to the MTB Director the authority to issue all hazardous materials safety regulations except those relating to bulk transportation by water. To insure Department-wide coordination under the new structure, the Secretary directed the MTB Director to consult with the modal administrators, on matters affecting them, before issuing regulations.

The Secretary's delegations made MTB responsible for issuing regulations covering such responsibilities as:

—Designating the quantity and form of materials that are to be subject to the hazardous materials regulations;

—Classifying hazardous materials as to the kind and degree of hazard that the material posed to public safety during transportation;

—Prescribing safety standards for the containers (such as boxes, barrels, drums, cylinders, portable tanks, tank cars, and tank trucks) that are used to transport the various classes of hazardous materials;

—Prescribing the labels for the containers and the placards for the vehicles that are used to transport the various classes of hazardous materials; and
—Prescribing the handling, stowing, and other in-transit requirements for the various classes of hazardous materials.

The Secretary delegated to the Coast Guard the authority to issue regulations relating to the design, construction, and operation of ships and barges that transport hazardous materials in bulk.

The Secretary has made a clear delegation of authority to issue regulations. USCG issues regulations covering bulk transportation by ship and barge; MTB issues regulations covering all other hazardous materials transportation. Under Public Law 93–633, there is no overlap of authority within DOT for the promulgation of hazardous materials transportation regulations.

The hazardous materials safety function does not end with issuance of regulations. The next step is to get the regulated industries to comply with the regulatory requirements. DOT does this by (1) inspecting industry operations to find out whether the industry's employees know the regulatory requirements and comply with them and (2) taking enforcement action against those companies whose violations of the regulations are serious enough to justify punitive action. The Secretary has delegated inspection and enforcement authority to:

—MTB over (1) all manufacturers of containers and (2) shippers of hazardous materials that are transported by more than one mode of transportation;
—USCG over (1) shipments of hazardous materials by domestic or foreign ships and barges in the navigable waters of the United States and (2) hazardous materials in port areas;
—FAA over (1) shipments of hazardous materials on domestic and foreign air carriers operating into U.S. airports and (2) hazardous materials in airport areas;
—FHWA over (1) shipments of hazardous materials in interstate commerce by highway (trucks and buses) and (2) hazardous materials in depots and transshipment points; and
—FRA over (1) shipments of hazardous materials by railroad and (2) hazardous materials in depots and freight yards.

When the Hazardous Materials Transportation Act became effective in January 1975, it substantially increased the workload of DOT. For example, for the first time, (1) container manufacturers were subject to regulation and (2) a prescribed regulatory procedure had to be followed before an exemption could be granted.[6] These additional duties were delegated to MTB.

For the 1977 budget, the first prepared after this act became effective, MTB requested 143 personnel positions; DOT reduced the request to 111, the President's budget requested 67, and Congress approved 67.

With the passage of the 1974 hazardous materials law, the Secretary of Transportation essentially had complete authority to regulate the transportation of hazardous materials. Before the current program and structure can be discussed (chapter 5), it is necessary to review in chapter 4 the 1969 National Academy of Sciences-National Resource Council's report on hazardous materials, which helped to guide the formulation of the Department's program.

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[6] An exemption is a special permit.

CHAPTER 4—NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL REPORT (1969)

Chapter 4 presents a summary of the 1969 National Academy of Sciences-National Research Council (NAS–NRC) report on hazardous materials transportation. The issues examined in this report and its recommendations are still relevant to DOT's hazardous materials program.

PURPOSE OF THE NAS–NRC STUDY AND REPORT

From the preceding chapters, it is apparent that DOT did not initially have the expertise to develop an adequate hazardous materials safety program. To help chart a regulatory course, DOT asked the National Academy of Sciences to (1) conduct a study of the transportation of hazardous materials, appraising the existing knowledge, practices, and procedures of all transportation modes, (2) recommend a technology-oriented safety regulations program, and (3) project the cost of the recommended program. The National Research Council of the Academy convened a group of 90 people, specialists in the various functions and disciplines involved in the transportation of hazardous materials, to make the study. The study group met for a brief introductory session and then divided into five panels to investigate different aspects of the overall subject.[1]

Panel I studied the transportation environment. In his opening remarks to the group, the Director of OHM discussed the need for a definition of the transportation environment:

> In order to develop these standards, we need to know the transportation environment. Environmental conditions include heat, cold, shock and vibration, abrasion, compression, impact, puncture, pressure, moisture, and whatever else may affect safety. We need to know the conditions of transportation in each of the modes of transportation, because they differ.
>
> Further, we must know the forces that result from accidents, because accidents are a normal condition of transportation when it comes to setting safety standards. If you have read the newspapers lately, you cannot doubt that derailments are a normal condition of transportation in rail transportation. Although the headlines are smaller because the individual events are less spectacular, we have a considerable volume of accidents in highway transportation as well.[2]

Panel II studied the classification of hazardous materials. Discussing this subject, the Director of OHM told the group:

> We need to establish classifications of hazards and prescribe tests that will determine the classification into which future chemicals will fit. We need classifications as the basis for packaging, labeling, placarding, handling, and stowing.[3]

Panel III studied the containment of hazardous materials during transportation. Addressing this subject, the Director of OHM discussed the existing deficiencies:

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[1] National Academy of Sciences-National Research Council. A Study of Transportation of Hazardous Materials. Washington, D.C. 1969.
[2] *Ibid.*, p. 14.
[3] *Ibid.*

Our present packaging standards are manufacturing specifications. They are not general standards at all. Each container is specifically described in detail. If someone wants to develop a new container, he has to come in with a new set of specifications; until the specifications are approved, either by special permit or by amendment to the regulations, he is not permitted to use the new container. Further, there is some inhibition to the development of new containers because of the possibility that the container will not be approved once it is developed. We intend to establish performance standards for containers, and to devise tests that will determine whether the containers meet the performance standards.[4]

Panel IV studied hazardous cargo identification. As to the need for an improvement in this area, the Director of OHM said:

> We need to develop a scheme for identifying the hazards of the materials being transported by means of labels on individual packages and placards on vehicles. At present, we have different labeling and placarding requirements for the different modes of transportation. This is folly, because the hazard relates to the materials, not the mode of transportation. The label on the package should be the same for all modes. The placard or label should relate to the hazard of the material being carried, not to the mode of transportation.[5]

Panel V studied a reporting system for accumulating data. On this subject, the Director of OHM told the group:

> A regulation is a solution to a problem. We need information to define problems and devise their solutions. Our objective is, in the first place, to prevent the spill of hazardous materials and, in the second place, to minimize the ill effects of those spills. To do this, we need to have a great deal of information on the happening of spills, the causes, and the aftereffects, so that we can devise a means of preventing recurrences.[6]

Well in advance of the meeting, each member of the study group was advised of the overall nature of the study and the work of the panel on which he would be serving. The group's report, based on a wealth of knowledge leavened by 2½ days of discussion, was a blueprint for the development of a Federal regulatory program to govern the transportation of hazardous materials.

CONCLUSIONS AND RECOMMENDATIONS

The Academy's report is too long to reproduce in full, but the summary report is reproduced as appendix 2. Selected conclusions and recommendations of each panel are presented below.

Panel I, studying the transportation environment, found that there was a "definite lack of the scientific data accurately defining critical limits of the transportation environment that are required as a base for effective performance standards." The panel also concluded that a long-range research program must be completed before DOT could expect to have a scientific and reproducible base on which to establish performance standards.[7]

Panel II, studying the hazard classification system, found that the "regulations, developed largely empirically over the last 60 years, are not based on a rational system for classifying hazards." A classification theory was needed to provide a framework for the changes required to accommodate the demands of current and future technology. Discussing the purpose of classification, the panel found that:

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[4] Ibid., p. 15.
[5] Ibid., p. 15.
[6] Ibid.
[7] *Ibid.*, pp. 32–33.

> The objective of the hazardous materials classification system is to identify the type and degree of potential hazard that materials represent to life and property in transportation by air, road, rail, or water, so that adequate controls (packaging, identification, handling, emergency procedures, etc.) may be provided to limit that hazard.

The panel recommended a new system of classifying hazardous materials, using health, flammability, and reactivity classifications. The panel recommended that the following programs be undertaken to overcome present classification system deficiencies, providing a system that will meet the needs of a sound hazards management program:

1. Adopt the classification system suggested in this report with its concepts as the basis for developing changes in the present classification system.
2. Make a comparative evaluation of present hazardous materials classification systems to determine their adequacy or deficiencies with respect to ideal classification system criteria, and identify specific changes required to meet these criteria.
3. Develop graphic system models for transportation modes that can be used in analyzing hazards posed by the inherent characteristics of the commodities considered as possible hazardous commodities, taking into account the environmental, handling, operational, and other pertinent elements.
4. Develop specific, quantifiable, standardized testing criteria and procedures for each hazardous material category and degree, and prepare recommended regulatory changes to accommodate each.[8]

Panel III, studying containment of hazardous materials, concluded that "the establishment of a performance standard approach to hazardous materials packaging regulations is feasible." However, the panel cautioned that "it must be tied to a system analysis of such factors as environment, classification of the hazard, labeling, and the feedback from the critical aspects of accident information reporting." The panel further cautioned:

> Present regulations on containers are essentially descriptive specifications combined with limited tests whose prime functions are to confirm the integrity of the design. Such specifications, while restrictive and relatively inflexible in concept, identify specific containers that have proved successful in the shipping environment. Therefore, these specifications should continue in effect until suitable performance standards can be created and implemented.[9]

The panel evaluated the advantages, disadvantages, and limitations of performance standards:

> Some advantages of performance standards appear to be (a) simplified introduction of new containers, (b) probable time savings, (c) more logical approach to requirements, (d) relationship to international practice, (e) ease in absorbing technology advances, (f) establishment of positive criteria for new product design, (g) simplification of test shipping programs, (h) basis for evaluation of dissimilar containers, and (i) possible simplification of written regulations.
>
> Disadvantages include (a) introduction of greater probability of inadequate containers appearing in channels of commerce, (b) initially more difficult enforcement and management, (c) possibility that total number of specifications may not be appreciably reduced, (d) lack of quantified standards or test methods, and (e) increased difficulty in assignment of responsibilities for compliance.

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[8] *Ibid.*, pp. 46–47.
[9] *Ibid.*, p. 57.

> The large spectrum of size and use of containers was considered (e.g., ship, barge, tank car, tank truck, drum) with respect to overall application and effectiveness of performance standards. It was agreed that "large unit containment" will require a mixture of code design, engineering, and manufacturing specifications and performance standards.[10]

Panel IV, studying hazardous cargo identification, found that the labeling and placarding requirements vary with the mode of transportation and quantity of material shipped. Illustrating the differing modal requirements, a shipment of methanol was followed from a manufacturer to a user using truck, rail, air, and water. The regulation variations require several different labels and placards at different intermodal transfer points in the journey. The panel concluded that one of the serious deficiencies of the system was that different placards result in confusion for emergency personnel who may be confronted with a given hazard under two or more types of placards. After discussing the procedures for establishing an identification system, the panel recommended the development of:

> A uniform identification system for all modes of transportation. This system should enable fire, law-enforcement, and medical officials to identify at a distance those hazards associated with specific explosives and dangerous articles being transported so that reasonable safety is provided to the public and to the personnel responsible for controlling the incident through maximization of permissible countermeasures in the event of an emergency.[11]

Panel V, studying the data accumulation system, found that serious deficiencies exist in present hazardous materials report requirements and practices, including different modal reporting criteria, unenforceable requirements, and failure to use data. The panel recommended:

> There is a need to develop an adequate reporting system to provide workable procedures for determining the actual experiences involving in the handling, transportation, and storage of hazardous materials and to develop the basis for more effective countermeasures. Such a system would concentrate attention on the accumulation of systematic data on the nature, causes, frequency, distribution, and effects of transportation incidents.[12]

The findings and recommendations (pp. vi–ix, Appendix 5) are summarized as follows:

A regulatory system based on technically standardized criteria and encompassing all transportation modes appears achievable and highly desirable;

Such a system requires substantial research to fill current gaps and keep up with future developments;

A systems-management approach is probably essential to realization of the full potential of the system;

The critical transportation environment (i.e., the extremes to be defined) for all transportation modes can be identified and quantified;

A simple, effective, all-mode system for classifying hazardous materials (that is, identifying the kind and degree of hazard in a specific material) can be developed;

Performance-based regulations for containers can be developed;

A uniform all-mode system of hazardous materials identification should be developed;

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[10] *Ibid.*, p. 58.
[11] *Ibid.*, p. 72.
[12] *Ibid.*, p. 81.

A reporting system should be developed to collect data on the nature, cause, frequency, distribution, and effects of transportation incidents and accidents involving hazardous materials;

An advisory system should be developed to provide specialized advice local emergency personnel handling hazardous materials accidents;

DOT should form a broad-based advisory group to assist in developing this program; and

The proposed program would cost about $10 million per year.

DOT ADOPTED THE REPORT

DOT adopted the Academy report and planned to follow the Academy's recommendations in developing the hazardous materials program. The Secretary of Transportation, appearing before the House Committee on Government Operations in September 1969, outlined his intentions in this statement:

> I would say this, Mr. Chairman, that if we have this money:
>
> 1. We would establish environmental standards to identify and quantify the transportation parameters of shock, vibration, pressure, puncture impact, heat, cold, humidity, et cetera.
>
> 2. We would develop an all-mode, simple, effective system for classifying hazardous materials by type and degree of potential hazard (health hazards, flammability, reactivity, radioactivity, retained energy).
>
> 3. We would develop and establish testing criteria to measure the degrees of hazard of those materials.
>
> 4. We would conduct research, and testing to study still unexplored hazards from mixed cargoes.
>
> 5. We would develop performance-based regulatory standards for containers and packaging that reflect the influences of hazard classification, the transport environment, and container size.
>
> 6. We would develop standard test standards for package testing and qualification, based on performance criteria.
>
> 7. We would establish an effective reporting system to collect data on the nature, cost, frequency, distribution, and effects of transportation accidents.
>
> 8. We would establish a unified information facility which would accumulate and digest accident experiences and scientific data, provide reports and analyses for the operating administrations, and disseminate precautionary advisory and technical reports to the public.
>
> 9. We would develop a rapid response information system for emergencies that would operate down to the local level.
>
> 10. We would set up a uniform system for identifying shipments of hazardous materials. The system must emphasize the needs of emergency personnel, those with an accident prevention role, and must also recognize international needs.[13]

In the fiscal year 1971 budget, the first budget prepared after receipt of the Academy's report, the Secretary requested 65 personnel position for the Offive of Hazardous Materials. The President's budget requested 65. Congress authorized 35.[14] As a result, DOT was unable to implement the Academy's recommendations and even to this day has not yet completed these objectives.

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[13] U.S. Congress. House, Committee on Government Operations. Government Activities Subcommittee. Transportation of Hazardous Materials. Hearing, 91st Congress, First Session, Washington, D.C. Government Printing Office. September 19, 1969.

[14] See Exhibit 6.

CHAPTER 5—MTB STRUCTURE, FUNCTIONS, AND WORKLOAD

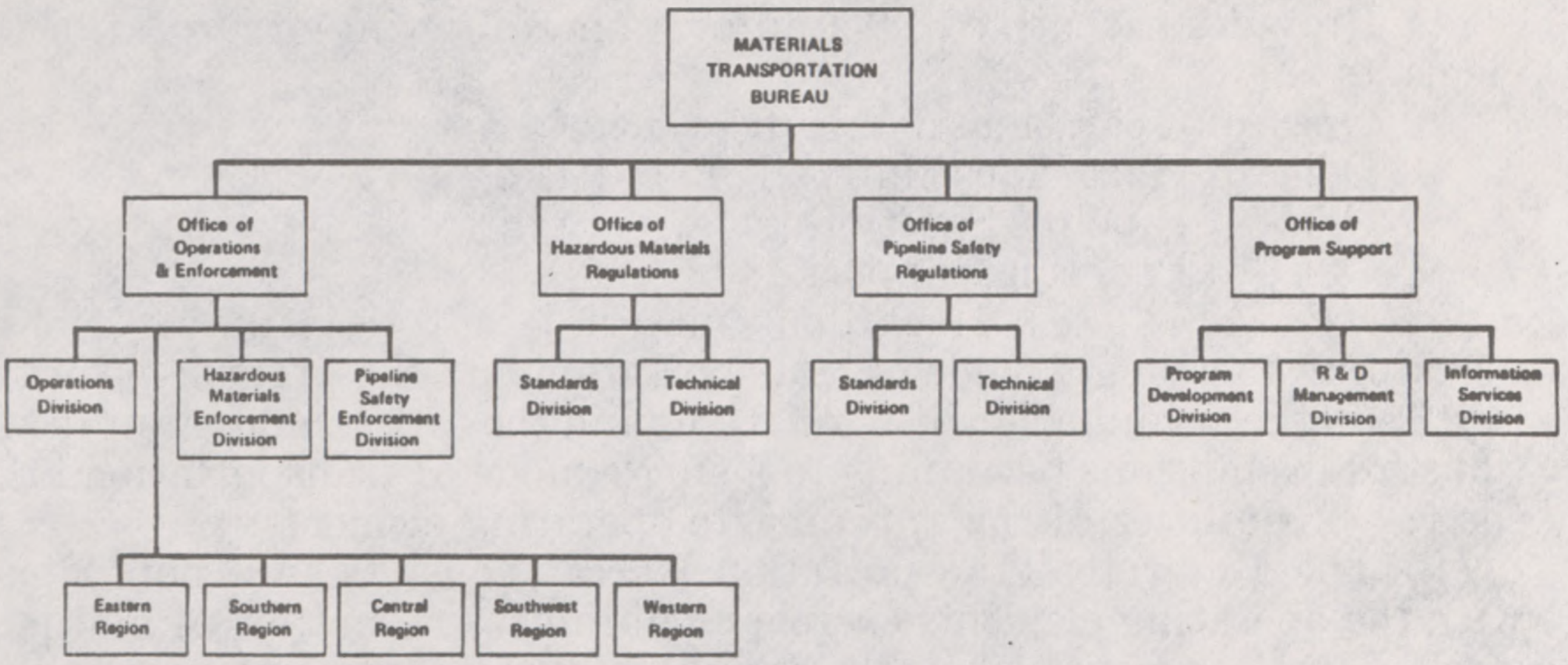
The Materials Transportation Bureau is the central agency within the DOT hazardous materials program. In order to analyze this program, it is essential that the structure, functions, and workload of MTB be discussed.

MTB'S CURRENT ORGANIZATION AND FUNCTIONS

MTB has been the national focal point for coordination and control of domestic and international shipments of hazardous materials, and has been responsible for issuing the Department's hazardous materials transportation regulations, with the exception of those covering bulk cargoes shipped in the marine mode. (In addition to its hazardous materials safety responsibilities, MTB also conducts the DOT's pipeline safety program.)

The following information details MTB's organizational structure and presents its missions and functions.[1]

RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION



Materials Transportation Bureau—Director

1. Mission.—To carry out under the executive direction of the Director of the Research and Special Programs Directorate:

(*a*) A national regulatory program to protect against the risks to life and property inherent in the transportation of hazardous materials in commerce by formulating and issuing hazardous materials regulations and acting on applications for exemptions—other than the bulk transportation of hazardous materials which are located or carried on board a vessel without benefit of containers or labels and received and

[1] Information furnished by DOT.

handled by the vessel carrier without mark or count, and ships hazardous materials stores and supplies—in coordination with the other operating elements with regard to matters pertaining to the individual modes of transportation; enforcing hazardous materials regulations other than those applicable to the separate modes of transportation; and collecting, compiling, and analyzing hazardous materials data.

(*b*) A national regulatory program to protect against the risks to life and property inherent in the transportation of natural gas, petroleum, and other hazardous materials by pipeline by prescribing and enforcing Federal safety regulations, administering Federal grants to aid State pipeline safety programs, and monitoring State safety enforcement programs and interstate gas transmission operations.

2. Functions.—(*a*) Advises the Director, Research and Special Programs Directorate, on all pipeline safety and hazardous materials transportation safety matters as they relate to the safe transportation of gases or hazardous liquids by pipeline and the transportation of other hazardous materials by vessels, aircraft, highway vehicles, and railroad.

(*b*) Develops and carries out pipeline safety and hazardous materials programs.

(*c*) Obligates funds budgeted for Federal financial grant-in-aid to individual States in order to aid State enforcement activities relating to intrastate gas pipeline safety programs.

(*d*) As approved by the Director, Research and Special Programs Directorate, provides representation to United Nations committees and other international organizations dealing with hazardous materials and pipeline safety transportation matters.

(*e*) Provides executive direction over the following organizational elements:

Office of Operations and Enforcement,
Office of Hazardous Materials Regulation,
Office of Pipeline Safety Regulation, and
Office of Program Support.

3. Relationships.—(*a*) Hazardous materials enforcement functions pertaining to a single mode of transportation and the provision of expertise in the formulation of regulations and the processing of applications for exemptions pertaining to a single mode of transportation are the responsibilities of the appropriate operating elements.

(*b*) The Materials Transportation Bureau consults and cooperates with the operating elements exercising authority in matters of mutual interest and concern, such as the annual budget, resource requests, and research initiatives.

Office of Operations and Enforcement

1. Mission.—To plan and perform inspection, testing, registration, approval and enforcement functions necessary to assume compliance with Materials Transportation Bureau (MTB) hazardous materials transportation and pipeline safety regulations.

2. Functions.—(*a*) Conducts inspections necessary to aid in the enforcement of MTB hazardous materials regulations in coordination

with related inspection activities of the U.S. Coast Guard, Federal Aviation Administration, Federal Highway Administration, and the Federal Railroad Administration and conducts inspections necessary for the enforcement of MTB pipeline safety standards.

(*b*) Prepares and processes hazardous materials and pipeline safety compliance actions and provides assistance to the Chief Counsel in effecting enforcement action as appropriate, either at the administrative level or in court.

(*c*) Receives and acts on requests for approvals and registrations required by the MTB hazardous materials regulations.

(*d*) In conjunction with the Office of Chief Counsel, reviews and develops responses to requests for inconsistency rulings and nonpreemption determinations under the Hazardous Materials Transportation Act.

(*e*) Administers the pipeline safety program being conducted by State agencies under the Natural Gas Pipeline Safety Act and develops and administers grant-in-aid agreements with States for Federal funds to support intrastate natural gas pipeline safety programs, including recommendations to the Director, MTB for approvals and allocations of Federal grant funds to State agencies.

(*f*) Plans and conducts field investigations of hazardous materials transportation and pipeline accidents as may be necessary for determining noncompliance with MTB regulations and the possible need for regulatory action.

(*g*) Maintains liaison with other Federal, State, and local agencies concerned with enforcement of standards relating to the transportation of hazardous materials.

(*h*) Maintains liaison with the National Transportation Safety Board (NTSB) regarding hazardous materials transportation and pipeline accident investigations, reviews NTSB reports, and develops for the Director, MTB responses to NTSB safety recommendations.

(*i*) Collects and maintains records of completed hazardous materials and pipeline safety enforcement actions (including those hazardous materials actions taken by other DOT operating elements).

(*j*) In conjunction with the MTB Office of Program Support, conducts hazardous materials and pipeline safety training programs for Government and industry personnel.

Office of Operations and Enforcement

Operations division

Conduct operational studies to help assure enforcement of hazardous materials transportation safety and pipeline safety regulations.

Develop long-range plans and processes for hazardous materials and pipeline safety enforcement actions; assist in their implementation.

Review National Transportation Safety Board reports on hazardous materials and pipeline safety accident investigations; recommend changes to enforcement efforts to assure compliance with violated regulations; review NTSB safety recommendations and determine DOT response.

Determine the proficiency requirements of COE compliance and enforcement specialists; recommend training courses and materials.

Conduct special studies, investigations and reviews of hazardous materials transportation and pipeline safety enforcement operations; participate in intermodal and interdisciplinary task forces and teams.

Maintain liaison with Office of Pipeline Safety Field Offices, elected and appointed Government officials at all levels of Federal, State, and local government, and others concerned with operational aspects of the enforcement of hazardous materials and pipeline safety regulations.

Office of Operations and Enforcement

Hazardous materials enforcement division

Conduct inspections and investigations necessary to insure enforcement of hazardous materials regulations, without emphasis on the origination of the transportation of hazardous materials; focus on the intermodal safety and packaging of hazardous materials transportation.

Conduct investigations on exemptions issued by the Office of Hazardous Materials Regulations; take appropriate action on findings.

In conjunction with the Office of Chief Counsel, review and develop responses to requests for inconsistency rulings and nonpreemption determinations under the Hazardous Materials Transportation Act.

Conduct field investigations of hazardous materials transportation accidents in coordination with the National Transportation Safety Board to determine noncompliance with regulations and the need for regulatory action.

Processes hazardous material compliance action; interact with the chief counsel in processing civil and criminal compliance cases; provide technical and enforcement expertise at the administrative level and in court.

Conduct enforcement activities with other administrations to insure coverage of hazardous materials transportation movements; periodically assess enforcement results and recommend and implement changes to intermodal enforcement activities.

Develop the capability to perform delegations previously held by the Bureau of Explosives (BOE); perform registration activities required by the hazardous materials regulations; conduct safety tests necessary for approvals and for insuring compliance with the hazardous materials transportation regulations; provide test facilities; conduct field investigations in connection with approvals and registrations.

Maintain liaison with Federal, State, and local agencies on the enforcement of hazardous materials regulations.

Office of Operations and Enforcement

Pipeline Safety Enforcement Division

Direct the national pipeline safety enforcement program; conduct inspections to insure enforcement of pipeline safety regulations in coordination with field offices and State agencies; provide advice and technical guidance to field offices.

Administer the pipeline safety program being conducted by State agencies participating under section 5 of the National Gas Pipeline Safety Act, including the coordination of grant-in-aid.

Prepare, review, and process pipeline safety compliance actions and provide assistance to the chief counsel in effecting enforcement action as appropriate, either at the administrative level or in court.

Conduct accident investigations in coordination with State agencies and the National Transportation Safety Board for the purpose of determining noncompliance with regulations and the possible need for regulatory action.

Identify requirements for research and development conducted in support of the pipeline safety enforcement program; maintain a knowledge of developments in the safety field; develop and implement policies to increase the effectiveness of the pipeline safety program.

Maintain liaison with Federal, State, and local agencies on the enforcement of pipeline safety regulations.

Office of Hazardous Materials Regulations

1. Mission. To plan, develop, recommend, and maintain a national regulatory program to protect against the risks to life and property inherent in the transportation of hazardous materials in commerce (other than bulk transportation on board vessels).

2. Functions. a. Develops long-range plans and schedules for hazardous materials regulatory actions and carries out those actions in accordance with that plan.

b. In accordance with the long-range hazardous materials regulatory plan and schedule, and based on its own initiative or on proposals from interested members of the public or other Government agencies, develops, processes, and recommends for issuance, revision, or revocation regulations governing the transportation of hazardous materials by railroad, highway vehicle, aircraft, or vessel (except bulk transportation of hazardous materials loaded or carried onboard vessels without benefit of containers or labels and received and handled by vessels without mark or count and ships' stores and supplies).

c. With respect to proposed regulations applicable exclusively to a single mode of transportation, develops and coordinates those regulations with the appropriate DOT operating administration before issuance. With respect to proposed regulations developed by a single operating administration, reviews and coordinates those regulations as necessary before issuance.

d. Reviews, coordinates with operating administration(s) concerned, and recommends action to be taken on petitions for reconsideration of regulatory actions taken.

e. Processes, analyses, and after coordinating with DOT operating administration(s) concerned, acts on applications for exemptions from hazardous materials transportation regulations over which the MTB exercises issuing authority and recommends action to be taken on petitions for reconsideration of exemption denials.

f. In conjunction with the Office of the Chief Counsel and any DOT operating administration(s) concerned, responds to requests for interpretations of the hazardous materials transportation regulations over which the MTB exercises issuing authority.

g. Conducts public hearings as required in connection with proposed issuance, modification, or revocation of regulations.

h. Monitors and maintains liaison with international bodies which establish international standards relating to the transportation of hazardous materials to insure that U.S. Government and private interests are aware of current and scheduled future activities so that the U.S. position on the issues involved can be developed on a timely and informed basis, and conducts public meetings and briefings, and distributes written matter from other nations to interested members of the public, in connection with U.S. participation in the activities of international hazardous materials standards-setting bodies.

i. With the approval of, or in support of the Department of State, provides technical representation on behalf of the United States before international bodies concerned with the establishment or revision of international standards relating to the transportation of hazardous materials.

j. Maintains the technical capability necessary to provide day-to-day support for the regulatory, international standards, exemption, and interpretations activities of the office with specific regard to explosives, gases, flammable and combustible liquids, flammable solids, oxidizing materials, organic peroxides, poisons, irritating materials, etiologic agents, radioactive materials, corrosive materials, toxic substances, and the containment and packaging of those materials and substances.

k. Maintains liaison with other Federal departments and agencies and non-Government standards-setting bodies regarding materials transportation concerns and activities of those organizations as they relate to MTB hazardous materials transportation regulations.

Office of Hazardous Materials Regulations

Standards Division

Prepares hazardous materials transportation regulations for issuance or revision.

Evaluates applications for exemptions, issues notices of applications and denials, and prepares exemptions.

Prepares interpretations of hazardous materials regulations.

Examines and evaluates existing regulations and exemptions and issues proposals for revocation when deemed appropriate.

Conducts public hearings in connection with proposed issuance, modification, or revocation of regulations.

Maintains liaison with other Federal agencies and other organizations concerning hazardous materials standards.

Office of Hazardous Materials Regulations

Technical Division

Provides technical evaluations of petitions for rulemaking and exemptions.

Prepares technical reports on specific aspects related to the development of regulations needed to improve hazardous materials transportation safety.

Prepares technical input related to interpretations of the regulations.

Prepares technical reports relating its review and analysis of accidents and incidents investigations to recommendations for changes or improvements to the regulations.

Participates in industry standards meetings on a selective basis when such participation contributes to carrying out the mission of the office.

Provides technical support to representatives at international meetings.

Maintains a continuing technical capability in regard to the identification, classification, and effects of hazardous materials, and the packaging standards for such materials.

Office of Program Support

1. Mission.—To provide administrative and research and development support for the Materials Transportation Bureau (MTB) hazardous materials and pipeline safety regulatory and compliance and enforcement programs.

2. Functions.—(*a*) In conjunction with the Office of Policy, Plans, and Administration, RSPD, develops budget estimates and assists in the presentation of such estimates to the Office of the Director, RSPD, the Office of the Secretary, Office of Management and Budget and the Congress.

(*b*) In conjunction with the Office of Policy, Plans, and Administration, RSPD, develops and administers a system for controlling MTB resources and perform reviews and evaluations of MTB programs to assure that such programs meet MTB goals and objectives.

(*c*) Establishes and maintains a reporting system and data center which provides comprehensive, centralized accident reporting and analysis for hazardous materials and pipeline operational failures.

(*d*) Plans and conducts internal and external hazardous materials and pipeline safety research and development projects (exclusive of vehicles transporting hazardous materials exclusively by a single mode in bulk form).

(*e*) Develops cost-benefit and economic impact analyses and studies for MTB hazardous materials and pipeline safety regulatory and program proposals.

(*f*) Develops and conducts hazardous materials and pipeline safety training programs for Government and industry personnel.

(*g*) Maintains a centralized MTB dockets and information service for all hazardous materials and pipeline safety official matters which require formal docket procedures and action.

(*h*) Administers communications program to insure that all MTB offices are informed of policies, plans, and decisions through briefings, meetings and other communications media and analyzes and disseminates to MTB personnel public and other inquiries concerning the transportation of hazardous materials and pipeline safety.

(*i*) Manages the preparation of and provides for the review, editing, and writing of all MTB congressional reports and the hazardous materials and pipeline safety newsletter and advisory bulletin.

(*j*) Develops and administers an executive correspondence program including the preparation of replies to public and governmental inquiries, renders advice to MTB offices on correspondence, and serves as MTB liaison with the Research and Special Programs Directorate Executive Secretariat with respect to MTB correspondence.

Office of Program Support

Program Development Division

Formulates Bureau goals, plans, and programs.

Evaluates relationships of MTB programs to organizational elements within MTB and with programs administered by other agencies.

Studies the economic impact of hazardous materials and pipeline safety regulation and enforcement programs on the regulated industry, energy users, and concerned public.

Develops MTB budgets and assists in their presentation to the Office of the Director, RSPA, the Office of the Secretary, Office of Management and Budget, and the Congress.

Receives and coordinates, inquiries relative to MTB missions, plans, programs and resources, and coordinate, review and consolidate MTB positions and responses.

Prepares and coordinates MTB reports responding to congressional, OMB, and other reports of the nature of policy, program planning, budgeting, and accomplishments.

Develops and administers a system for controlling MTB resources and performance reviews, and evaluates MTB programs to assure that such programs meet MTB goals and objectives.

Establishes and maintains reporting systems that gather, process, and analyze accident and operations data from pipeline operators and carriers, and shippers and carriers transporting hazardous materials by rail, roads, air, and water (packaged materials only), and of manufacturers of containers used in transporting hazardous materials.

Administers communication programs to insure that all MTB Offices are informed of policies, plans, and decisions through briefings, meetings, and other communication media.

Develops and administers an executive correspondence program.

Office of Program Support

R. & D. Management Division

Develops and evaluates research and investigation of technology that supports the regulatory mission of MTB.

Identifies priority of needs and develops plans for obtaining technical solutions.

Monitors the R. & D. activities of other organizations to assess the applicability of their planned research to MTB requirements.

Establishes and administers programs for promoting research by industry to support the safe transportation of hazardous materials by all modes.

Develops and administers programs for participating with other agencies in technology development and application to the problem of transporting hazardous materials.

Initiates and manages research testing programs by using outside contractors, other Government agencies, and in-house resources.

Maintains liaison with Federal agencies, research institutions and technical groups interest may aid the acceleration of technical advances in pipeline transportation and the safe transportation of hazardous materials.

Participates in international bodies concerned with the technology of transporting hazardous materials.

Identifies requirements for gathering and analyzing data to support R. & D. goals.

Office of Program Support

Information Services Division

Develops and conducts training and public programs for dissemination of safety information and Federal standards requirements.

Develops, monitors, and evaluates the MTB sponsored training conducted by the Transportation Safety Institute.

—Develops, monitors, and evaluates the MTB sponsored training conducted by the Transportation Safety Institute.

—Participate as a national expert in conducting training.

—Establishes and maintains a national roster of experts and coordinates referrals to promote programs designed to advance the safe transportation of hazardous materials.

—Maintains contact with State, local governments, associations, and other interest groups to coordinate, conduct, and assess efforts to develop and conduct safety programs.

—Develops materials to meet a multitude of safety objectives and directed to a wide range of audiences and assists local organizations in establishing programs for promoting safety.

—Develops and manages contracts for the development of materials such as documents, films, and slides, and conducting training programs.

Establishes and maintains a centralized MTB docket and information service for all hazardous materials and pipeline safety official matters which require formal docket procedures and action.

Establishes and administers procedures for the handling of materials in accordance with the Freedom of Information Act.

Prepares and distributes on a scheduled basis assistance and information on hazardous materials and pipeline safety regulatory requirements and safety programs.

The organization structure and functions just described were instituted during April 1978. Prior to this reorganization, essentially all of MTB's hazardous materials transportation safety functions were performed by the Office of Hazardous Materials (Operations) of MTB. This latest reorganization divides these responsibilities into three offices within MTB:

1. Office of Program Support;
2. Office of Operations and Inspection; and
3. Office of Hazardous Materials Regulations.

Although it is too early to evaluate the result of this reorganization, this new division of labor is likely to increase the effectiveness and efficiency of the hazardous materials operations of the MTB.

Under this new structure, specific and similar functions are grouped under individual offices each headed by a senior MTB official. Under this arrangement efforts can be concentrated on specific tasks. Some individuals can now devote their attention almost exclusively to operation and inspection activities; some can now concentrate on regulatory formulation and exemption processing; and some can concentrate on program support activities, thus freeing others of these responsibilities.

FUNDING AND PERSONNEL LEVELS FOR MTB'S HAZARDOUS MATERIALS PROGRAM

Exhibits 7 and 8 provide data on funding and personnel levels of MTB's hazardous materials program. Authorization and appropriation figures were supplied by MTB; statistical figures were calculated by the Congressional Research Service (CRS).

These data indicate:

1. Congress has never appropriated more than 75 percent of the funds authorized for MTB. With the exclusion of the 1976 transition period, MTB's hazardous materials program has received an average of 48.3 percent of authorized funds over the last 5 fiscal years.
2. Appropriations for the MTB have been steadily increasing.
3. The proportion of MTB's funds allocated for its research and development activities has significantly decreased since 1975; it has now leveled off to about 15 percent of budgeted funds.
4. For fiscal year 1978 and fiscal year 1979, MTB received 85 percent and 70 percent, respectively, of its (internal) manpower request originally submitted to DOT.
5. Congress appropriated in the fiscal year 1978 budget, 97.5 percent of the sum requested in the President's budget. For fiscal year 1979, Congress appropriated the level requested in the President's budget.
6. In the fiscal year 1979 budget cycle, DOT reduced MTB's budget request by about 20 percent, both in terms of manpower and money.

EXHIBIT 7

MTB AUTHORIZATIONS AND APPROPRIATIONS FOR HAZARDOUS MATERIALS

[Dollar amounts in millions]

Fiscal year ending	Hazardous materials authorization appropriations					Ratio of appropriation to authorization (in percentage of authorization)	Proportion of budget spent on research and development
	Programs	Public Law	Salaries and expenses	Transportation program, research and development	Total		
June 30, 1975	$7.0	93-633	$1.065	$0.582	$1.647	23.5	35.4
June 30, 1976	7.0	94-56	1.528	.500	2.028	29	28.5
Sept. 30, 1976	1.75	94-56		.109	.109	[1] 6.05	
Sept. 30, 1977	5.0	94-474	2.006	.325	2.331	[2] 46.7	14.0
Sept. 30, 1978	5.0	94-474	2.859	.525	3.384	[3] 67.8	15.5
Sept. 30, 1979	5.0	95-	3.202	.525	3.727	74.5	14.05

[1] Transition period.
[2] 2-yr authorization.
[3] Part of 2-yr authorization noted above.

Note: "Salaries and expenses" is equivalent to operations.

EXHIBIT 8

MTB's HAZARDOUS MATERIALS FUNDING AND PERSONNEL LEVELS

[In thousands of dollars]

	1978	1979
MTB requested:		
Positions [1]	(86)	(108)
Operations	([2])	4,100
Research and development	1,200	650
DOT to OMB:		
Positions [1]	(86)	(84)
Operations	3,050	3,225
Research and development	1,150	525
Total	4,200	3,750
President's budget:		
Positions [1]	(77)	[3] (76)
Operations	2,898	3,202
Research and Development	575	525
Total	3,473	3,727
Appropriation:		
Positions [1]	(73)	(76)
Operations	2,859	3,202
Research and development	525	525
Total	3,384	3,727

[1] Includes 3 postions in the Office of the Director, MTB.
[2] Figures not available from MTB.
[3] Decrease attributable to reorganization within DOT.

MTB'S CURRENT MANPOWER FOR HAZARDOUS MATERIALS

As a result of the April 1978 reorganization of MTB, there are a number of employees in management and support positions who work on both the hazardous materials and pipeline safety programs of MTB. The following breakdown takes this into consideration, but accounts for all 76 positions authorized for the fiscal year 1979 hazardous materials program.[2]

	Authorized	Onboard
Office of MTB Director	2	2
Office of Operations and Enforcement	16	14
Office of Hazardous Materials Regulation	39	35
Office of Program Support	19	17
Total	76	68

MTB'S WORKLOAD

On the basis of several public comments received in response to Senator Cannon's letter soliciting views on the DOT program, it seems that MTB is generally pictured as a hard working agency, doing the best it can with a workload beyond its capacity.[3] Review of MTB's

[2] Data supplied by MTB, October 20, 1978.
[3] An overview of selected comments is also presented in appendix 3.

program schedule and personal observations of MTB's work force confirmed many of the public's comments. As indicated by the following list of 1977 major activities conducted by the MTB, this agency is able to document a busy schedule of activities.

MTB's rulemaking actions included issuance of 19 amendments to the Hazardous Materials Regulations, issuance of 16 notices of proposed rulemaking, docketing of 811 exemption applications (including requests to be parties to exemptions), grants of 906 exemptions, denial of 257 and elimination of over 109 exemptions through conversion of their provisions to regulations of general applicability. Amendments of particular note included those to:

1. Require owners of specification 112 and 114 tank cars to install head and thermal protection and new safety couplers as a means to reduce the numbers of serious incidents involving hazardous materials carried in these cars (docket HM–144).

2. Provide for the first time a packaging specification for an open-head plastic drum for use in the transportation of certain dry and paste materials (docket HM–119).

3. Extend the service life of DOT–3HT specification compressed gas cylinders from 15 to 24 years (docket HM–146).

4. Incorporate in the Hazardous Materials Regulations changes based on data and analysis supplied in selected exemption applications or from existing exemptions. Under this conversion program, 109 exemptions or special permits were eliminated (docket HM–139).

LONG-RANGE PLANNING AND MANAGEMENT

In April 1977 MTB adopted its first "Annual Regulatory Review and Development Plan" to improve its long-range planning and management. This was the first effort of this kind for the DOT hazardous materials safety program. The document was designed to promote a rational plan of activities, to specify a broad statement of objectives, and to detail actions to be implemented. This plan contains three major elements:

1. Statements of policy, regulatory review and development strategies and major regulatory objectives for achieving safety in hazardous materials and pipeline transportation, based on the Bureau's current perceptions and available resources;

2. Identification of the overall scope and direction of the Bureau's regultory programs, and a description of the factors the Bureau takes into consideration in setting rulemaking priorities; and

3. A detailed 1-year action schedule—to be revised and updated each following year—containing 20 major functional program areas and 34 specific rulemaking actions to be either initiated, carried forward or completed by March 31, 1979.

As identified in the regulatory plan, the current priority listing of the major safety program areas for hazardous materials transportation is as follows:

Cargo tank safety and integrity (highways);
Tank car safety and integrity (rail);
Hazardous materials emergency response/communication;
Radioactive materials classification;

Hazardous materials classification;
Portable tank safety and integrity;
Modal operator's safety (rail/highway/water/air); and
Packaging safety and integrity.

In addition to its first annual plan, MTB has recently developed a multiyear planning process to aid the agency in moving away from the practice of handling many problems on an ad hoc basis. As MTB envisions it, the multiyear plan will provide a continuing cycle of (1) reviewing the program and relating it to the transportation scene to determine problem areas that should receive priority treatment, (2) making plans and allocating resources to the priority problem areas, and (3) insuring that the plans are carried out on a scheduled basis. The projects scheduled for action in each succeeding annual plan will be determined by reference to the longer range planning process.

Chapters 1–5 have laid the foundation for understanding DOT's hazardous materials program. With this background in mind, DOT's regulations are discussed in chapter 6, MTB's research and development activities are listed in chapter 7; DOT's education and training progam is reviewed in chapter 8; the compliance and inspection program is discussed in chapter 9; and the international hazardous materials program is summarized in chapter 10.

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CHAPTER 6—DOT'S HAZARDOUS MATERIALS SAFETY REGULATIONS PROGRAM AND PROCEDURES

This chapter summarizes DOT's hazardous materials regulations, identifying and describing the separate parts, and presents selected public comment on DOT's regulatory procedures and plans.

DOT'S HAZARDOUS MATERIALS REGULATIONS

When the hazardous materials transportation safety function was transferred to DOT, the regulations were in three different titles of the Code of Federal Regulations (CFR). The regulations for transportation by water were in title 46; for transportation by air, title 14; and for transportation by highway and railroad, title 49. In 1976 all of the DOT hazardous materials regulations, except for bulk transportation by water, were consolidated into 49 CFR parts 171–179. In addition to consolidating the regulatory requirements, the 1976 revision standardized and organized the requirements so that they could be more readily understood. Current regulations now occupy more than 1,000 pages in the CFR. Further details on the parts of this regulatory system are presented below.

Part 171 states the overall requirement for compliance with the regulations, defines the terms used in the regulations, and requires reporting of accidents and incidents involving hazardous materials. Section 171.2 states the general requirements:

—Paragraph (*a*), with an exception for certain export and import shipments, provides that no person may offer or accept a hazardous material for transportation in commerce within the United States unless that material is classified, described, contained, marked, labeled, and in condition for shipment as required by the regulations;

—Paragraph (*b*), with an exception for certain export and import shipments, provides that no person may transport a hazardous material in commerce within the United States unless that material is handled and transported in accordance with the regulations; and

—Paragraph (*c*) provides that no person may represent, mark, certify, or sell a container as meeting the requirements of the regulations unless the container was manufactured, marked, maintained, reconditioned, or repaired (as the case may be) in accordance with the regulations.

Part 172 lists and classifies the materials that have been designated as hazardous materials and prescribes the requirements for shipping papers, markings for containers, labels, and placards. Subpart B contains a table of about 1,200 materials that have been classified as hazardous, giving the description, shipping name, hazard classification, and such special instructions as may be appropriate for the in-

dividual material; it also references the hazardous materials container and label requirements. Subpart C specifies the requirements for preparing shipping papers. Subpart D gives the markings that are required on the different kinds of containers. Subpart E lists the requirements for intermodal containers. Subpart F gives the requirements for placards for portable tanks, freight containers, motor vehicles, and railroad cars.

Part 173 contains regulations for shippers—general requirements for shipments and packagings. Part 174 deals with carriage by rail; Part 175, carriage by aircraft; Part 176, carriage by vessel; Part 177, carriage by public highway; Part 178, shipping container specifications; and Part 179, specifications for tank cars.

SELECTED PUBLIC COMMENT ON DOT'S REGULATIONS AND REGULATORY PROCEDURES

Public comment on DOT's regulations and regulatory procedures were mixed.[1] Selected points of view are presented below.

The State fire marshal of Maryland found the regulatory procedures to be satisfactory, particularly the "reduced influence on the part of manufacturers and shippers, and increased influence on the part of public safety officials in the rulemaking procedure." He said that DOT had competent staff personnel in regulatory procedures, responded in timely fashion to requests, and used regulatory functions in a satisfactory manner.

The chairman of the Committee on Hazardous Materials of the International Association of Fire Chiefs said that the "Federal Government regulatory process leaves a great deal to be desired," particularly the short time for public comment on proposed rulemaking procedures. Also, there is a lack of feedback from DOT regarding comments, so the commenters "never really know what impact our comments have unless a careful reading of the new regulations reveals a change." He maintained that the staff of DOT was technically competent.

The Chlorine Institute commented that DOT lacked a method of systematically identifying the most pressing problem areas.

> As a general observation, we believe the regulatory system has suffered from an excessive concern for procedural formality with respect to ex parte contacts with industrial technical experts in advance of formal publication of proposed rulemaking. We believe that such concern, while perhaps theoretically sound, is unwarranted by experience and, in fact, has damaged the credibility of the regulatory system by sometimes generating regulatory proposals so technically inadequate or empirically unsound as to be unworthy of serious consideration and wasteful of public energies in the preparation of responsive statements. We believe, therefore, that it is important for the Congress, DOT and MTB itself to somehow restore a climate in which MTB will not be constrained to avoid responsible contact with the expertise available in industrial trade organizations, technical committees and societies, and others, within or without the formal procedural structure, while at the same time not impairing the integrity of the regulatory process or public confidence therein.
>
> The foregoing discussion of procedural deficiencies which we perceive is not, by any means, intended to convey a negative impression of the overall adequacy and fairness of MTB procedures and personnel since, in general, we believe that

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[1] See appendix 3 for additional documentation and details of these responses. Because it was not possible to include all comments, only selected—several interesting, and sometimes diverging—views are presented.

current procedures facilitate reasonably effective implementation of DOT's hazardous materials responsibilities, and that MTB personnel are exemplary public servants.

The Air Transport Association, an air carrier association, was quite critical of the Federal safety standards for transporting hazardous materials by air. The air carriers established a Restricted Articles Board in March 1976 to develop their own hazardous materials program. Noting that the regulations pertaining to air transportation were derived from the rail express regulations, this association said that the carriers have thought for quite some time that the unique characteristics associated with transportation by air have never received the attention they deserved, though the situation may be changing. The carriers file tariffs with the Civil Aeronautics Board that set more restrictive requirements than the DOT regulations. They criticized the inadequate coordination between MTB and FAA and expressed the belief that the DOT regulations applicable to air could be improved through increasing reliance on FAA personnel.

CHAPTER 7—MTB'S RESEARCH AND DEVELOPMENT ACTIVITIES

RESEARCH AND DEVELOPMENT PROJECTS

This chapter presents a list of MTB's current research and development projects. Actually, this activity could more accurately be described as an effort to collect state-of-the-art information and put it into a form that will be useful in MTB's current regulatory projects. With few exceptions, MTB has let the contracts to Federal agencies, asking for information that is readily within the areas of expertise of the agencies.

This list is current as of November 3, 1978: [1]

MTB's Research and Development Activities

Project title	*Fiscal year 1978 funding*
Classification of oxidizers and flammable solids	$15,315
Thermally unstable materials hazard classification	95,000
Spontaneously combustible materials classification	8,100
Materials of construction, specification packaging and failure analysis	11,585
Toxicological and skin corrosion testing of hazardous materials	10,000
DOT/NRC/State program for observational surveillance of radioactive materials (RAM) in transportation	87,000
Development of performance-oriented container standards for packaging of carboys and bags	None
Permeation and mechanical properties affecting re-use of plastics packages	70,000
Cost-effective methods of reducing leakage from overturns of MC 306 and similar liquid-carrying cargo tanks	25,000
Comparative risk assessment of air versus other modes for the shipment of class A explosives and liquid hydrogen	80,000
New approaches to controlling pressurized liquefied flammable gas releases	60,000
Hazard classification of new explosives	40,000
Classification of substances corrosive to metals	50,000
Emergency response training course for handling emergencies involving radioactive materials	64,912
Classification of nonsolid explosives	[1] None

[1] These are the current fiscal year 1978 hazardous materials projects. Pipeline projects are not included. When this study was written, fiscal year 1979 funding decisions had not been made, so no contracts had been made. This information was supplied by DOT. The research and development activities of the modal administrations are not considered in this study.

CHAPTER 8—DOT'S HAZARDOUS MATERIALS EDUCATION AND TRAINING PROGRAM

This chapter summarizes DOT's education and training program related to hazardous materials transportation, lists the DOT's facilities offering education and training courses, summarizes the type of education and training, and notes the views of selected industry and public officials concerning this effort.

DESCRIPTION OF DOT'S PROGRAM

The Department of Transportation has an active program for educating and training Government (Federal, State, and local) and industry employees. Except for the training courses for firemen and other emergency response personnel, the objective of the program is to provide information on the requirements of the regulations covering the transportation of hazardous materials.

The Transportation Safety Institute, located in Oklahoma City, is DOT's center for formal training courses. Most of DOT's safety programs are covered in the training offered at the Institute. An overview of the 1977 hazardous materials training program at the Institute is provided in exhibit 9. These courses are of varying lengths, but most are 1-week courses running from noon Monday to noon Friday. To supplement the institute's staff, MTB and the modal administrations furnish instructors for these courses.

EXHIBIT 9

TRAINING CONDUCTED BY THE TRANSPORTATION SAFETY INSTITUTE

Course	Participants	Number of Classes	Number of Students
Air transportation of hazardous materials	FAA safety inspectors	4	63
Motor carrier transportation of hazardous materials	FHWA investigators; State personnel	3	69
Air transportation of hazardous materials (industry)	Air carrier, air taxi, air shipper personnel	5	92
Intermodal transportation of hazardous materials	Industry and State personnel	2	37
Rail transportation of hazardous materials	FRA inspectors	1	16
Transportation of hazardous materials seminars	Industry and State personnel	9	748
Nonresident programed instruction (consumer commodities)	Industry and Government personnel	NA	157
Emergency services workshop	State training officials and emergency services personnel	22	983
Total		46	2,165

Source: DOT 8th Annual Report on Hazardous Materials Transportation.

MTB and the modal administrations sponsor informal education programs for Government and industry employees whose work requires a knowledge of hazardous materials regulations. Exhibit 10 lists the training sponsored by the modal administrations in 1977.

These were 1- and 2-day sessions. Exhibit 11 lists the training sponsored by MTB in 1977. These were also 1- and 2-day sessions.

MTB provides about 30 educational materials, mainly pamphlets and posters, that it distributes at trade association meetings, training sessions, union meetings, and other meetings where there is an interest in the subject. DOT distributed more than 750,000 documents in 1977.

Among MTB's publications are guides to help the hazardous materials industry comply with the regulations. Reprinted below are three examples, a guide for manufacturers and vendors of hazardous materials containers, a guide for shippers, and a marking guide.

EXHIBIT 10

HAZARDOUS MATERIALS EDUCATIONAL PROGRAM

Sponsor	Orientation	Sessions	Attendees
FAA	Aviation safety inspectors	198	1,584
	Air carriers, freight forwarders, shippers, aircraft operators, other industry personnel.	426	24,000
USCG	Industry	13	950
	Coast Guard personnel	18	360
FHWA	Industry and State personnel	1,044	64,320
FRA	States, rail carrier operating personnel, shippers	58	4,800
MTB	Industry, State and Federal personnel	11	1,679
	Emergency services personnel	8	479
	Trade associations, other industry meetings	5	236
	Total	1,781	98,408

Source: DOT 8th Annual Report on Hazardous Materials Transportation.

EXHIBIT 11

HAZARDOUS MATERIALS AWARENESS SEMINARS IN 1977

Date	Location	Attendees
Multimodal:		
Mar. 8–9	Anchorage, Alaska	150
Mar. 11–12	Fairbanks, Alaska	100
Sept. 28–29	San Antonio, Tex	85
Dec. 13–14	Newark, N.J	225
Dec. 15–16	do	140
Government agencies:		
Apr. 19–21	Cape Kennedy, Fla. (National Aeronautics and Space Administration)	92
May 17–19	Oakland, Calif. (General Services Administration)	600
May 24–26	Sunnyvale, Calif. (National Aeronautics and Space Administration)	95
June 20	Richmond, Va. (Defense Logistics Agency)	60
July 26–27	Huntsville, Ala. (National Aeronautics and Space Administration)	95
	Arlington, Va. (General Services Administration)	25
Sept. 14	Alexandria, Va. (Cameron Station, Headquarters U.S. Army DSLOG)	12
Emergency service:		
Jan. 25	Kensington, Md. (fire department)	37
Feb. 1	Baltimore, Md. (fire academy)	80
Feb. 3	do	80
Feb. 15	do	80
Feb. 17	do	80
March	Washington, D.C. (pesticide)	27
Mar. 10	Anchorage, Alaska (fire department)	60
Mar. 13	Prudhoe Bay, Alaska	35
Other organizations:		
March	Atlanta, Ga. (National Conference of Transportation Specialists)	15
March	Burlington, Mass	49
Apr. 20	Olean, New York (Enchanted Mountain Trafflc Club)	65
May 2	Lexington, Ky. (explosive seminar, Commonwealth of Kentucky Department of Mines and Minerals).	32
May 11	Montreal, Canada (American Society of Cleaners and Solvents Lubrication Engineers)	75
Total seminars		24
Total attendees		2,394

Source: DOT 8th Annual Report on Hazardous Materials Transportation.

HAZARDOUS MATERIALS TRANSPORTATION GUIDE FOR

MANUFACTURERS AND VENDORS OF HAZARDOUS MATERIALS CONTAINERS

GUIDE FOR MANUFACTURERS AND VENDORS OF
HAZARDOUS MATERIALS CONTAINERS

YOU'RE ALL INVOLVED....If you make and/or sell containers for hazardous materials, you may be held liable for their integrity in transportation. As a direct result of the Transportation Safety Act of 1974, Title 49 CFR, has been amended to directly regulate manufacturers and vendors of hazardous materials containers for the first time. Section 171.2(c), effective January 3, 1977, states:

> "No person may represent, mark, certify, or sell a packaging or container as meeting the requirements of this subchapter governing the use of that packaging or container in transportation in commerce of a hazardous material unless the packaging or container is manufactured, fabricated, marked, maintained, reconditioned, or repaired, as the case may be, in accordance with this subchapter."

Anyone who makes or sells a container for hazardous materials, whether to a DOT specification or not, is subject to these regulations.

This Guide is intended to serve as an aid for in-house use when reviewing your compliance in the manufacture of containers. It does not include or refer to all applicable DOT requirements. Container manufacturers are legally obligated to comply with the applicable DOT regulations. An available up-to-date copy of the regulations, and use of it, are essential to protect you and your employer.

Sales Personnel

1. When calling on shippers, determine whether they ship hazardous materials and, if so, what materials (by proper shipping name and class).

2. Work with the shippers concerning the shipping requirements and act as liaison with the shippers when improper containers are ordered. If you knowingly provide a container not authorized for a hazardous material, you may share in the liability for that container's non-compliance, even though it may meet the specification marked on it. Proper servicing of hazardous material accounts not only achieves compliance, but may also increase sales.

Packaging Engineers

1. When presented with the specifications for design of a hazardous materials container, assure yourself that the container is authorized for the material and that it meets applicable specifications. For example, if you have an order for a DOT 12B65 box, to be made of 175 lb. test singlewall fiberboard or a 55 gallon DOT 17E drum to be made of all 20-gauge steel, you should know that these containers will not meet the specifications and must not have them made. Work with the shipper and advise him of any discrepancies between the packaging ordered and the specifications for the packaging as stated in 49 CFR.

2. You should inform the purchaser of any specification requirements that have not been met at the time of transfer (Ref. § 178.0-2(c). For example, if bung plugs for a drum will be supplied by another source, advise the shipper or jobber that these plugs must meet certain standards.

Quality Control Inspectors

1. Make sure that containers required to be tested meet not only the standard requirements for all containers (§ 173.24), but that, as a minimum, the tests required by a specification are done and that marked containers which do not stand up are not sold.

2. Even if a purchaser tells you that substandard containers will not be used for hazardous materials, do not sell them if they are marked by a DOT specification. Marking a DOT specification certifies compliance with that specification (§ 178-2(b)). That certification applies in all cases. If you mark an improper container to a specification, it may be used as a specification container, even though that was not your intent at the time of sale. For example, drums marked DOT 17E might not be used for hazardous materials the first time, but they may be reconditioned and then used for hazardous materials. Some containers may be reused without reconditioning. If these containers fail, and a discrepancy is found in the specification, you may be liable for civil or criminal action.

Tests

One of the most important parts of the DOT specifications is the criteria for testing of completed containers. If your company completes the packaging, including closing for shipment, then it is your responsibility to perform those tests in strict adherence to the regulations. If you do not complete the container, you should advise your customer, either the shipper or vendor, of the tests which have not been performed as required by the specification (§ 178.0-2(c)).

Vendors

Even though you do not make containers, you are a supplier of hazardous materials containers and are covered by § 171.2(c) by the wording, "...represent, mark, certify, or sell...". You represent and sell containers to your customers as meeting the regulations. It is your responsibility to ascertain whether these containers meet the specifications and if not, what has to be done to them to bring them into compliance, i.e., bung plugs on drums, liners and/or fill-in pieces on boxes, etc. This information may be provided by the containers manufacturer, but it is your responsibility to verify compliance of the containers you sell.

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U.S. Department of Transportation
Materials Transportation Bureau
Office of Hazardous Materials
Operations
Operations Division, MTH-30
Washington, D.C. 20590

March 1977

HAZARDOUS MATERIALS TRANSPORTATION
GUIDE FOR SHIPPERS

YOU'RE ALL INVOLVED...It is the duty of each person who offers hazardous materials for transportation to instruct each of his officers, agents, and employees having any responsibility for preparing hazardous materials for shipment as to applicable regulations in this subchapter (Ref. Title 49 CFR Sec. 173. 1(b)).

This Guide is intended to serve as an aid for in-house use when reviewing your shipping procedures. It does not include or refer to all applicable DOT requirements. Both shippers and carriers of hazardous materials are legally obligated to comply with the applicable DOT regulations. An available up-to-date copy of the regulations and use of it, are essential to protect you and your employer.

A. TECHNICAL PERSONNEL

1. Need to be familiar with the definitions of hazardous materials as defined in the DOT Hazardous Materials Regulations.

2. Must determine or obtain the DOT proper shipping name and hazard class for each material shipped falling within any of the hazardous materials classes.

3. Must determine or obtain complete information as to the DOT authorized containers that may be used for the quantities and chemical characteristics of the hazardous materials to be shipped.

4. Prepare any specific instructions needed by carrier personnel to handle transportation emergencies involving the hazardous material being shipped.

B. PACKAGING & SHIPPING PERSONNEL

1. Need to be familiar with, and have available for reference, the packaging, labeling and marking regulations for hazardous materials.

2. Must have accurate information indicating what DOT containers must be used for each hazardous material shipped.

3. Must determine the DOT proper shipping name, hazard class, label(s) and required container marking.

4. When repacking or breaking down shipments received from others for further distribution--do not assume that the original shipments were correct. Follow the same checking procedure as you would for a shipment originating in your plant.

5. When calling a carrier for pick-up of hazardous materials, give him specific information as to the DOT proper shipping name, hazard class, and quantity involved.

6. Before hazardous materials shipments are tendered to carriers, the following must be checked:

   (a) Make certain that DOT authorized containers have been used;

   (b) Proper closures have been used and no leaks are evident;

   (c) Outside packages are properly labeled and have required outside marking;

   (d) Shipping documents must include the DOT proper shipping name, hazard class, signed certificate, proper count and weight (Authorized abbreviations may be used subject to the requirements of Title 49, CFR, Sec. 172.308.).

   (e) Do not tender non-compatible materials in the same shipment. If non-compatible shipments are tendered to the same carrier, make certain that the carrier recognizes the situation. (Check the loading and storage charts.)

7. When tendering a hazardous material shipment to a carrier, make certain that the driver is made aware that it contains a hazardous material.

8. When hazardous materials are loaded by shipper personnel, make certain that a carrier representative has an opportunity to approve the placement, securing and blocking of the material before closing out and sealing the load, if seals are used.

9. When loading rail cars with hazardous materials you must placard when required. As of January 1, 1978, you are required to furnish placards to motor carriers when tendering hazardous materials requiring placards.

NOTE: Private Carrier Operations: If the shipper also operates as a private carrier of hazardous materials, refer to "GUIDE FOR CARRIERS."

* * * * * *

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U.S. Department of Transportation
Materials Transportation Bureau
Office of Hazardous Materials Operations
Operations Division, MTH-30
Washington, D.C. 20590

September 1977

HAZARDOUS MATERIALS TRANSPORTATION
MARKING GUIDE

Marking, as addressed in the Hazardous Materials Regulations, refers to application of descriptive information, instructions, cautions, weight, retest dates, or combination thereof on outside packages as required by Title 49, Code of Federal Regulations (49 CFR), Parts 100-199. Marking also means applying the specification marks for both inside and outside containers as required. This definition does not include the requirements for labeling and placarding, as set forth in 49 CFR, Parts 100-199.

DESCRIPTIVE INFORMATION

GENERAL (§ 172.300 - § 172.304)

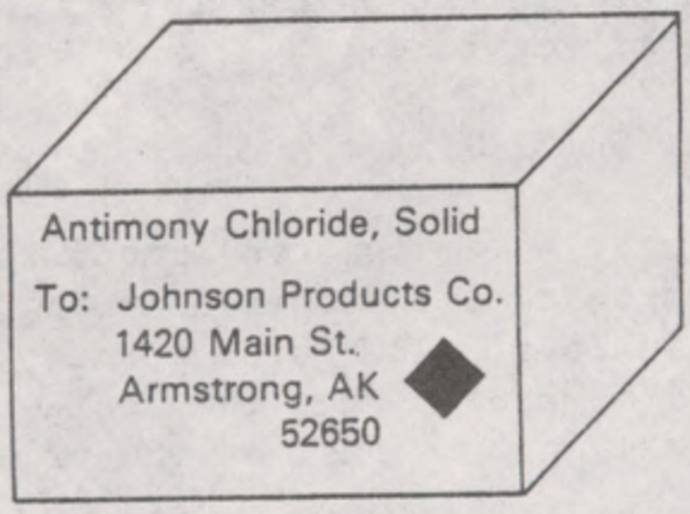
All containers of hazardous materials must, unless specifically excepted, be marked with the proper shipping name of the contents and the name and address of either the consignee or consignor. This marking must be:

1. Durable, in English, and printed on or affixed to the surface of a package or on a label, tag, or sign.

2. In a sharply contrasting color to its background.

3. Unobscured.

4. Away from other markings which will reduce its effectiveness.

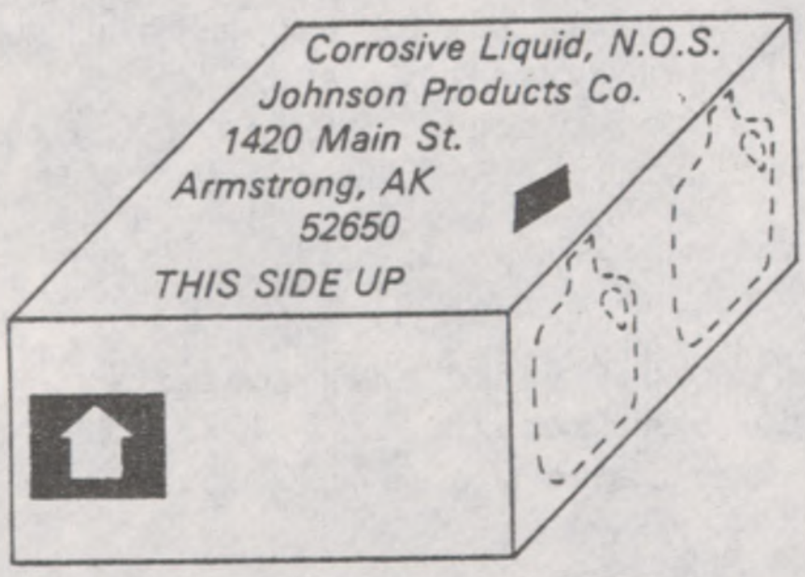


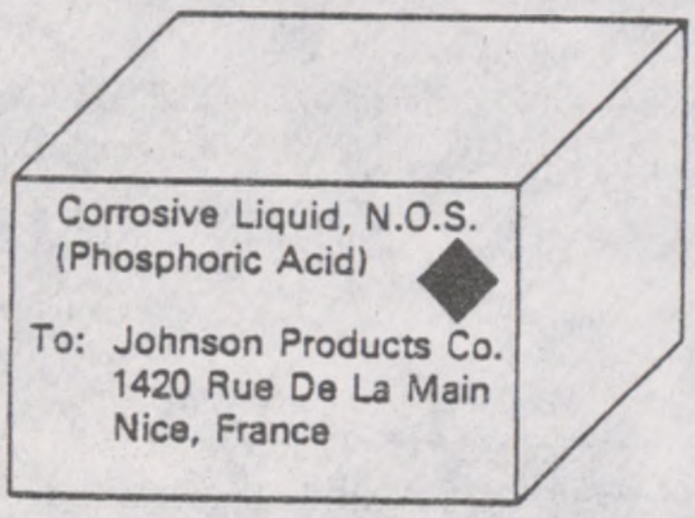
PACKAGES CONTAINING INSIDE CONTAINERS WHICH HOLD LIQUID HAZARDOUS MATERIALS (§ 172.312)

1. Inside containers must be oriented with closures up.

2. Must be marked on outside "This End Up" or "This Side Up".

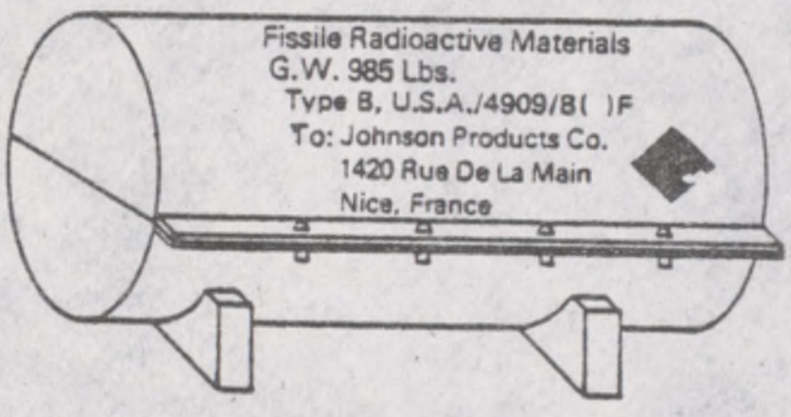
3. Arrows other than those which show package orientation must not be used. The use of ANSI standard MH6.11968 "This Way Up" arrows is recommended.





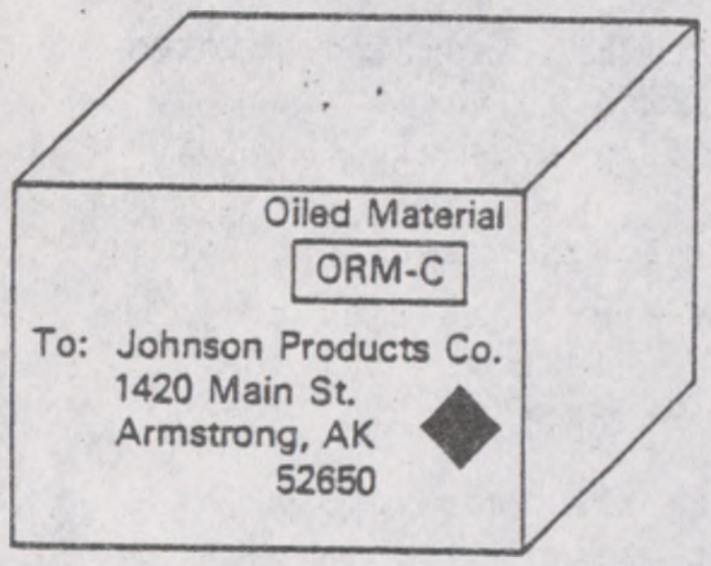
EXPORT BY WATER (§ 172.302)

All n.o.s. entries must have the technical name of the commodity immediately following the (proper shipping name) for export by water. (For mixtures, only the hazardous materials which give the mixture its hazard need be identified.)



RADIOACTIVE MATERIALS (§ 172.310)

1. If over 110 lbs. the gross weight must be marked on the container.
2. Must be marked "TYPE A" or "TYPE B" as required in letters at least 1/2" high.
3. For export, the letters USA must follow the specification marking or package certification.



ORM MATERIALS (§ 172.316)

ORM materials must be designated immediately following or below the proper shipping name marking within a rectangular border approximately 1/4" larger than the designation. This designation must be one of the following:

1. ORM-A
2. ORM-B-Keep Dry
3. ORM-B
4. ORM-C
5. ORM-D
6. ORM-D-Air

(This marking is the certification, for surface transportation, by the shipper that the materials is properly described, classed, packaged, and labeled and in proper condition for transportation, etc.)

AUTHORIZED CONTAINERS IN OUTSIDE PACKAGES

When a DOT specification container is required for a commodity and that container is further overpacked in another container meeting the requirements of §§ 173.21 and 173.24, the outside container must be marked in compliance with § 173.25.

CYLINDERS

All cylinders must be marked in compliance with § 173.34 and § 173.301. Those cylinders having been periodically tested and qualifying for reuse must be marked according to the requirements of § 173.34(e)(6).

PORTABLE TANKS (§ 172.326)

For portable tanks, the proper shipping name, in letters at least 2" in height, must be displayed on two opposing sides. The name of the owner or lessee must be displayed. The contents of the tank may not be changed and offered for transportation without changing the proper shipping name on the tank. Portable tanks carrying compressed gases (DOT 51) must have all inlets and outlets, except safety relief devices marked to indicate whether they communicate with liquid or vapor (§ 178.245-6(b)).

CARGO TANKS CONTAINING GASES (§ 172.328(c)(d))

Cargo tanks must be marked, in letters of at least 2" in height, with either the proper shipping name or an appropriate common name, such as "Refrigerant Gas". Each cargo tank made to Specification MC 330 and MC 331 must be marked near the Spec. plate, in letters of at least 2" in height, NQT or QT, as appropriate, to designate whether made with quenched and tempered steel or not. Cargo tanks must only be marked for the material contained therein. DOT MC 331 tanks must have inlets and outlets, except safety relief devices, marked to designate whether they communicate with vapor or liquid when the tank is filled to its maximum allowable filling density (§ 178.337-9(c)).

TANK CARS (§ 172.330)

Tank cars, when required to be marked with the proper shipping name by Part 173 and 179, must be marked in letters at least 4" in height with at least a 5/8" stroke, with the proper shipping name or appropriate common name such as "Refrigerant Gas". These markings must be on both sides of the tank car and clearly visible from either side. Tank cars must only be marked for the material contained therein. See the referenced section for special application for 106 and 110 tank car tanks.

OTHER MARKING REQUIREMENTS

REQUALIFIED CONTAINERS

Reusable cylinders, portable tanks, cargo tanks, and tank cars are required to be either visually inspected or retested at periodic intervals. When so inspected or tested, the date of requalification must be shown on the container as stated in §§ 173.24, 173.31, 173.32, 173.33, and 173.34.

42-112 O - 79 - 6

REUSE OF CONTAINERS

Some single trip containers in the DOT 17 Series may be qualified for reuse by a reconditioner registered with the Department of Transportation. These drums must have their old labels, exemption numbers (if any) and descriptive markings removed and must be marked as reconditioned. Specific rules for this removal of markings and re-marking are contained in § 173.28.

CARGO HEATERS

Cargo heaters authorized for use with flammable liquids must be marked in accordance with § 177.834(1)(2)(i).

MARKING OF MOTOR VEHICLES

The requirements for marking of motor vehicles is addressed in § 177.823, as well as specific relief in emergency situations from these requirements.

SPECIFICATIONS ON CONTAINERS

The marking of specification containers must generally identify: (1) the specification to which a container is made; and (2) the manufacturers name and address or symbol (registered with the Bureau of Explosives). All containers made to a specification must comply with the marking provisions of § 173.24. Certain exceptions for Canadian and other import/export situations may be found in §§ 171.12 and 173.8. In some cases, specific detailed information, such as original test date information and type of material, may be required by the applicable section of Parts 178 and 179.

Additional marking requirements may be found in Parts 173 and 179, either in general terms or specifically by commodity.

This publication is intended to be used solely as a guide. It does not include all the required markings required in 49 CFR, Parts 100-199. To assure total compliance, use of the current regulations is required.

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U.S. Department of Transportation
Research & Special Programs Directorate
Materials Transportation Bureau, DMT-15
Washington, D.C. 20590

February 1978

Through the years, accidents involving bulk shipments of highly volatile liquids (such as propane, vinyl chloride, and anhydrous ammonia), poisons, and explosives have been headline news. DOT has sought ways to minimize the damage resulting from accidents involving these materials. "The Emergency Action Guide for Selected Hazardous Materials," first published in 1973 and recently updated by MTB, contains technical information that will help emergency response personnel during the first 30 minutes following a spill of bulk materials. Over 600,000 copies have been distributed. Sample pages from the guide are reprinted below.

Realizing that this guide did not provide enough information to handle a variety of situations, MTB contracted with the National Fire Protection Association to develop a comprehensive training course for local emergency response personnel. NFPA developed a 20-hour course that was designed to equip local officials to handle hazardous materials accidents. The course covers the characteristics and classification of materials, sources of technical information, and situation analysis and decisionmaking. The course is now available for distribution at $350 per course for the instructional material. As of December 1978, more than 1,300 training units have been distributed.[1]

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[1] Information furnished by DOT.

Ethylene

(Flammable Gas)



Potential Hazards

Fire: —Highly flammable.
—Flammable vapors may spread from spill.

Explosion: —Container may explode due to heat of fire.

Health: —Vapors indoors may cause dizziness or suffocation.
—Contact with liquid may cause burns to skin and eyes.

Immediate Action

—Get helper and notify local authorities.
—If possible, wear full protective clothing.
—Eliminate all open flames. No smoking. No flares. Keep internal combustion engines at least 50 yards away from vapor cloud.
—Keep upwind. Isolate hazard area.
—Evacuate by *at least* 2,000 feet.

Immediate Follow-up Action

Fire: —Let burn unless leak can be stopped immediately.
—**Small Fire:** Dry chemical or CO_2.
—**Large Fire:** Water spray or fog.
—Move containers from fire area if without risk.
—Cool containers with water from *maximum distance* until well after fire is out. Apply water from sides of tank.
—For massive fire in cargo area, use unmanned hose holder or monitor nozzles. If this is impossible, withdraw from area.
—Stay away from ends of tanks.
—Withdraw immediately in case of rising sound from venting safety device.

Spill or Leak: —Do not touch spilled liquid.
—Stop leak if without risk.
—Isolate area until gas has dispersed.

First Aid: —Remove victim to fresh air.
—Use standard first aid procedures.

For Assistance Call Chemtrec toll free (800) 424-9300

In the District of Columbia, the Virgin Islands, Guam, Samoa, Puerto Rico and Alaska, call (202) 483-7616.

Additional Follow-up Action

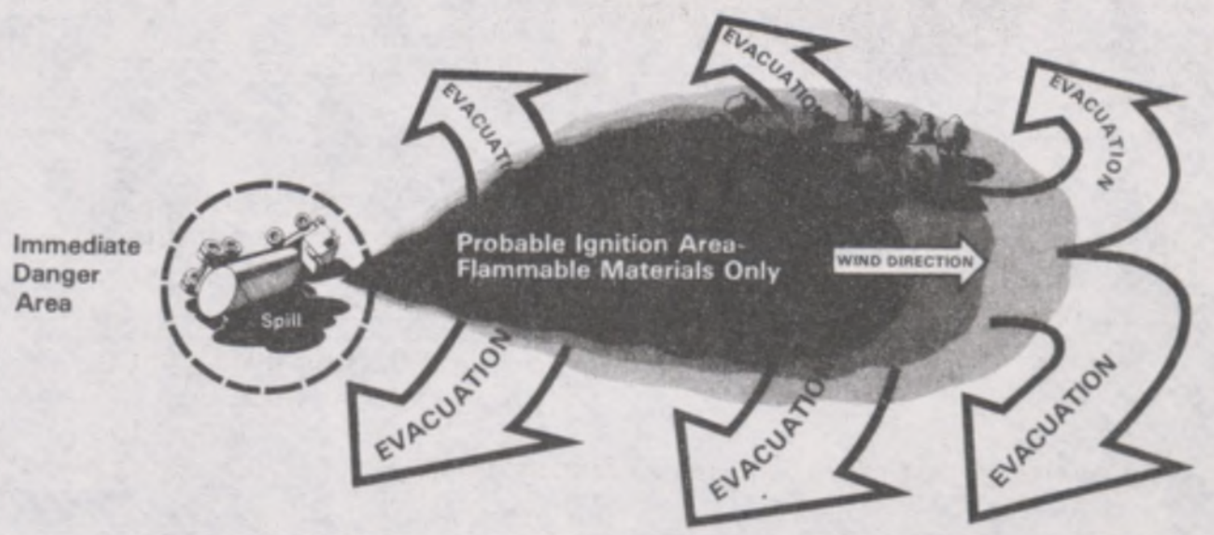
—For more detailed assistance in controlling the hazard, call Chemtrec (Chemical Transportation Emergency Center) toll free (800) 424-9300. You will be asked for the following information:

- Your location and phone number.
- Location of the accident.
- Name of product and shipper, if known.
- The color and number on any labels on the carrier or cargo.
- Weather conditions.
- Type of environment (populated, rural, business, etc.)
- Availability of water supply.

—Adjust evacuation area according to wind changes and observed effect on population.

Water Pollution Control

—Epichlorohydrin is water soluble and can kill fish. Prevent runoff from fire control or dilution water from entering streams or drinking water supply. Dike for later disposal. Notify Coast Guard or Environmental Protection Agency of the situation through Chemtrec or your local authorities.



Evacuation Table — Based on Prevailing Wind of 6-12 mph.

Approximate Size of Spill	Distance to Evacuate From Immediate Danger Area	For Maximum Safety, Downwind Evacuation Area Should Be
200 square feet	26 yards (32 paces)	528 feet long, 528 feet wide
400 square feet	37 yards (45 paces)	1,056 feet long, 528 feet wide
600 square feet	46 yards (56 paces)	1,056 feet long, 528 feet wide
800 square feet	54 yards (64 paces)	1,056 feet long, 1,056 feet wide

In the event of an explosion, the minimum safe distance from flying fragments is 2,000 feet in all directions.

Hydrogen Cyanide

(Flammable Gas, Extremely Hazardous, Poisonous)



Potential Hazards

Fire:
- —Highly flammable.
- —Flammable vapors may spread from spill.

Explosion:
- —Container may explode due to heat of fire.
- —Gas explosion and poison hazard indoors, outdoors or in sewers.

Health:
- —Vapors nonirritating, deaden sense of smell. Skin contact poisonous.
- —*Vapors may be fatal if inhaled.*
- —Runoff may pollute water supply.

Immediate Action

- —Get helper and contact local authorities.
- —If possible, wear self-contained breathing apparatus and full protective clothing.
- —Eliminate all open flames. No smoking. No flares. Keep internal combustion engines *at least* 20 yards away from vapor cloud area.
- —Keep upwind and estimate *Immediate Danger Area.*
- —Evacuate according to *Evacuation Table.*

Immediate Follow-up Action

Fire:
- —Let burn unless leak can be stopped immediately.
- —**Small Fire:** Dry chemical or CO_2.
- —**Large Fire:** Water spray or fog.
- —Move containers from fire area if without risk.
- —Cool containers with water for *maximum distance* until well after fire is out.
- —Stay away from ends of tanks.
- —Fight fire from maximum distance.

Spill or Leak:
- —Do not touch spilled liquid.
- —Stop leak if without risk.
- —Use water spray to reduce vapors.
- —Isolate area until gas has dispersed.

First Aid:
- —Remove victim to fresh air. Call for emergency medical care. *Effects of contact or inhalation may be delayed.*
- —If victim is not breathing, give artificial respiration. If breathing is difficult, give oxygen.
- —If victim contacted material, immediately flush skin or eyes with running water for *at least 15 minutes.*
- —Remove contaminated clothes.
- —Keep victim warm and quiet.

For Assistance Call Chemtrec toll free (800) 424-9300

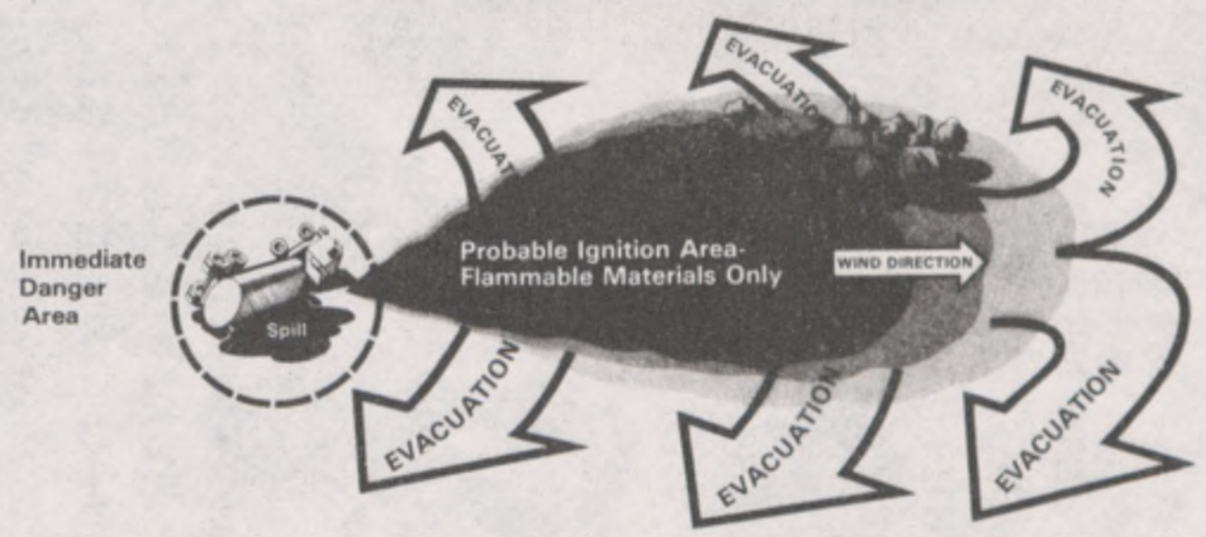
In the District of Columbia, the Virgin Islands, Guam, Samoa, Puerto Rico and Alaska, call (202) 483-7616.

Additional Follow-up Action

- —For more detailed assistance in controlling the hazard, call Chemtrec (Chemical Transportation Emergency Center) toll free (800) 424-9300. You will be asked for the following information:
  - Your location and phone number.
  - Location of the accident.
  - Name of product and shipper, if known.
  - The color and number on any labels on the carrier or cargo.
  - Weather conditions.
  - Type of environment (populated, rural, business, etc.)
  - Availability of water supply.
- —Adjust evacuation area according to wind changes and observed effect on population.

Water Pollution Control

- —Prevent runoff from fire control or dilution water from entering streams or drinking water supply. Dike for later disposal. Notify Coast Guard or Environmental Protection Agency of the situation through Chemtrec or your local authorities.



Evacuation Table — Based on Prevailing Wind of 6-12 mph.

Approximate Size of Spill	Distance to Evacuate From Immediate Danger Area	For Maximum Safety, Downwind Evacuation Area Should Be
200 square feet	60 yards (72 paces)	1,584 feet long, 1,056 feet wide
400 square feet	90 yards (108 paces)	2,112 feet long, 1,584 feet wide
600 square feet	110 yards (132 paces)	3,168 feet long, 1,584 feet wide
800 square feet	130 yards (156 paces)	3,696 feet long, 2,112 feet wide

In the event of an explosion, the minimum safe distance from flying fragments is 2,000 feet in all directions.

HAZARDOUS MATERIALS EDUCATION AND TRAINING COURSES OFFERED OUTSIDE DOT

DOT is not alone in its educational efforts. Hundreds of universities and colleges offer courses and seminars concerning the transportation of hazardous materials, usually as part of a fire science or other emergency service training curriculum. Education and training courses and seminars are also offered by Federal, State, and local governments, trade associations, and individual business organizations.

PUBLIC COMMENT ON DOT'S TRAINING AND EDUCATION PROGRAM

Public comment on DOT's training and education program ranged from high praise to severe criticism. Apparently, DOT's program ranges from success to failure, depending on the differing needs of various segments of the public. Based on numerous statements received by CRS, it appears that DOT's program is doing a better job of meeting the needs of industry than it is in meeting the needs of firemen and other emergency response personnel.

The general tenor of industry opinion is reflected in the following two comments. The Manufacturing Chemists Association stated:

> DOT appears to recognize the importance of educational activities. We agree with DOT's posture of directing the necessarily limited resources to the education of public officials rather than industry. We agree with DOT's view that industry has the responsibility to educate itself, with some help from DOT. We perceive that local governments and public officials need a much better understanding of DOT regulations. DOT could well enhance its effectiveness in this education by better utilization of available help and participation.

The American Petroleum Institute stated:

> DOT personnel have regularly held seminars and participated in industry-sponsored conferences and schools to discuss the Department's philosophy of regulation and to inform industry of current, pending or proposed regulations. The MTB publishes various reports and newsletters which have been helpful in keeping the industry apprised of new regulatory efforts and which, in some cases, have been useful in in-house employee safety programs. We believe that its educational effort for industry has been adequate.

The chairman of the committee on hazardous materials of the International Association of Fire Chiefs, presented the firemen's view:

> The educational activities of DOT are very poor. First the need is to disseminate information in an understandable manner. Second, special training of emergency response personnel is necessary so that they can use this information to handle an incident. Third, technical training by experts in the tactics of handling a hazardous materials incident are necessary. In each of these areas DOT does not perform satisfactorily.
>
> 1. DOT publishes a great many booklets, books, and folders on the regulations yet many individuals in the emergency services are unaware of its existence. No list of available publications is published. The only way to know that a document is available is by word of mouth. No attempt is made to get the information out to the people who need it. In fact, in many cases the attitude seems to be to withhold the documents so that a stock of the material is always kept on hand.
>
> 2. Training of emergency services personnel by DOT representatives on the rules, regulations, and procedures is necessary. While some attempt has been made in this area, only small numbers of fire service personnel have been reached. The interpretation of the shipping documents, knowledge of the required containers, and information on what help can be expected from DOT are all important. With the need to reach 35,000 different fire departments, all of whom

could be the supervisor of an incident, DOT must develop a better delivery system.

3. The training of fire service personnel in the correct tactics for handling an incident is a critical need for protecting lives and property. Here the instructors need creditability with their fire service peers as well as the technical knowledge to conduct the class. In addition, with over 90% of the fire departments in our country depending on volunteers, the cost must be kept reasonable and the schedules convenient. DOT must keep in mind that the objective is to reach the individuals who will be in charge of the incident. The current DOT slide tape program is a beginning toward this effort but the cost puts it out of reach of many fire departments. In addition, the decision making process neds an instructor present to answer questions and carry the discussion further. Much more work needs to be done in this area.

Many of the responses to Senator Cannon's letter contained favorable comments about DOT's publications, particularly the Hazardous Materials Newsletter. This newsletter serves an educational function by informing industry of regulatory proceedings, compliance efforts, and so forth.

CHAPTER 9—DOT'S COMPLIANCE PROGRAM

This chapter describes DOT's hazardous materials compliance program and presents relevant statistics, comments, and analysis. First, an overview of the program is presented. Several types of inspection activity are identified: Inspection of carriers, State inspections, and inspections of shippers and suppliers. DOT's enforcement effort is summarized. Selected public comments on the compliance program are detailed.

OVERVIEW OF THE DOT PROGRAM

The Department's hazardous materials compliance and enforcement program is designed to reduce the number of transportation incidents and the risk of catastrophic occurrences that may result from violation of the hazardous materials regulations. The two principal parts of this activity are: (1) surveillance (primarily on-site inspection) to determine whether industry is complying with the regulations, and (2) enforcement to give legal "muscle" to the compliance program. Through the use of inspection and surveillance, coupled with appropriate enforcement actions, DOT aims to encourage compliance and to deter industry from knowingly violating the regulations.

DOT field inspectors monitor the transportation industry's activities. In theory, these inspectors could implement a variety of functions. They could:

(1) Determine whether the regulations are adequate, (2) evaluate whether the educational program is adequate, (3) determine whether the regulations are being complied with, (4) recommend enforcement action for significant violations, and (5) seek out problem areas which need priority attention. However, DOT inspectors are not implementing all of these functions; they are concerned principally with surveillance and enforcement. In view of the relatively small size of DOT's inspection force (except that of USCG), this emphasis seems to be the most appropriate allocation of resources, since these two functions are the most crucial ones.[1]

Under the present DOT organization, discussed in chapters 3 and 5, the Secretary of Transportation has delegated inspection and enforcement authority to MTB over all container manufacturers and over the shippers who make intermodal shipments. Each modal administration has inspection and enforcement authority over its modal carriers and over the hazardous materials that are in their loading and unloading areas. Apparently, the DOT agencies have a flexible approach to compliance; explaining their approach, the MTB Director told the Senate Commerce Committee on April 20, 1978:

> The Bureau exercises compliance and enforcement authority primarily over those entities, as well as over shippers of hazardous materials that are moved by a combination of two or more modes of transportation.

---

[1] Data on the size of the industry in relationship to the size of the DOT's inspection force is presented in this chapter.

The Department's four major modal administrations, the Federal Aviation Administration, Federal Highway Administration, Federal Railroad Administration, and the Coast Guard, have responsibility for enforcing regulations pertaining to their respective modes of transportation.

They plan and carry out their own enforcement programs in this regard.

There were several considerations that lead to having the Operating Administration retain this responsibility. First was that adequate inspection requires that hazardous materials inspectors have a working knowledge of the mode by which the shipment is carried.

Second, the Operating Administrations already had existing Federal forces with considerable experience in inspecting hazardous material movements.

However, there is not a rigid line drawn around the enforcement administrations and the Bureau, respectively. Rather, there is sufficient flexibility to allow, for example, a Bureau technical expert on hazardous materials and containers to participate in an enforcement case together with the operating administrations involving a carrier.

Similarly, should an inspector, say, from the Federal Railroad Administration detect a violation by a container manufacturer concerning a shipment by rail, he is authorized to pursue that investigation back to its source and conclusion.[2]

As noted in chapter 1, there are 20,870 container manufacturing/supplying facilities; DOT agencies inspected 261 facilities in 1977. There are 104,370 shipping facilities; DOT agencies inspected 1,915 in 1977. There are 160,000 railroad tank cars regularly transporting hazardous materials; FRA inspected 9,700 in 1977. There are 412,800 tank trucks regularly transporting hazardous materials; FHWA inspected 3,447 in 1977. A summary of all DOT hazardous materials inspections and investigations in 1976 and 1977 is found in exhibit 12.

These data indicate that for some aspects of the transportation sector DOT makes no more than a token number of inspections. DOT's program appears to be especially deficient in the inspection of container manufacturers and shipping facilities, both of which are essential components of a safe transportation system. This area of concern is elaborated on in chapter 14.

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[2] U.S. Congress. Senate. Committee on Commerce, Science, and Transportation. Authorize Appropriations for the Hazardous Materials Transportation Act. 95th Congress, 2d sess. Washington, D.C. : U.S. Government Printing Office, p. 46.

EXHIBIT 12

HAZARDOUS MATERIALS INSPECTIONS AND INVESTIGATIONS

	USCG		FAA		FHWA		FRA		MTB		Total	
	1976	1977	1976	1977	1976	1977	1976	1977	1976	1977	1976	1977
Operation facilities:												
Carriers			11,796	11,892	2,963	1,662	3,131	2,208	34	20	17,924	15,782
Shippers					2,744	1,267	682	613	114	35	3,540	1,915
Container												
Manufacturers					178	194	44	41	80	26	302	261
Freight forwarders							89	93	21	2	110	95
Waterfront	6,770	7,290								3	6,770	7,293
Vehicles/vessels:												
Railroad tank cars							8,744	9,700			8,744	9,700
Railroad freight cars							3,763	5,040			3,763	5,040
Vessels	40,853	40,842									40,853	40,842
Motor vehicles					2,087	3,447					2,087	3,447
Accidents/incidents			100	130	317	269	373	314			790	713
Totals	47,623	48,132	11,896	12,022	8,289	6,839	16,826	18,009	249	86	84,883	85,088

Source: DOT 8th Annual Report on Hazardous Materials Transportation.

INSPECTION OF CARRIER ACTIVITIES

As discussed in chapter 3, USCG is responsible for inspection of those who transport hazardous materials by water; FAA, by air; FHWA, by highway; and FRA, by railroad. The enforcement actions and the size of the inspection force of each of these agencies is described in exhibit 13. This exhibit indicates that about 80 percent of the man-years of inspection time is done by part-time inspectors. As indicated below, DOT has recognized that these part-time inspectors pose a management problem.

In its September 1978 report, the Secretary's Task Force on Hazardous Materials found a need for "focusing inspection efforts on part-

EXHIBIT 13

HAZARDOUS MATERIALS INSPECTORS

Operating administration	Full time inspectors	Part time			Total person-years
		Inspectors	Percent of time	Person-years	
USOG	0	717	15	107.6	107.6
FAA	18	109	35	38.2	56.2
FHWA	9	221	21	46.4	55.4
FRA	16	42	15	6.3	22.3
MTB	5	3	6	2	5.2
Totals	48	1,092	----------	198.7	246.7

HAZARDOUS MATERIALS REGULATIONS VIOLATIANS AND ENFORCEMENT ACTIONS

Operating administration and action	1976	1977	Change	Percent change
USCG (bulk and nonbulk):				
Civil penalty actions initiated	988	1,836	+848	+86
Civil penalty actions completed	240	430	+190	+79
Total collected	$85,660	$130,620	+$44,860	+52
Average penalty collected	$357	$304	−$53	−15
FAA:				
Civil penalty actions initiated	116	105	−11	−9
Civil penalty actions completed	94	103	+9	+10
Total collected	$81,675	$72,600	−$9,075	−11
Average penalty collected	$869	$705	−$164	−19
FHWA:				
Criminal cases initiated	42	55	+13	+31
Criminal cases completed	32	48	+16	+50
Fines collected	$41,150	$121,975	+$80,825	+196
Average fine	$1,286	$2,541	+$1,255	+98
FRA:				
Criminal cases initiated	1	18	+17	----------
Criminal cases completed	0	5	+5	----------
Fines collected	0	$4,350	+$4,350	----------
Average fine	0	$870	+$870	----------
Prosecution declined by Department of Justice	1	9	+8	----------
Civil penalty actions [1]	10	14	+4	+40
Total collected	$15,500	$23,225	+$7,725	+50
Average penalty collected	$1,550	$1,660	+$110	+7
MTB: [2]				
Civil penalty actions initiated	0	14	+14	----------
Civil penalty actions completed	0	7	+7	----------
Compliance orders initiated	0	1	+1	----------
Compliance orders completed	0	0	0	----------
Total collected	0	$3,850	+$3,850	----------
Average penalty collected	0	$550	+$3,850	----------
Warnings	133	42	−91	−68

[1] Actions undertaken by FRA, under the Federal Railroad Safety Act of 1970, for alleged violations of Emergency Order No. 5 prohibiting humping and cutting off while in motion DOT 112A and 114A placarded tank cars.
[2] RSPA/MTB initiated its enforcement program in September 1977, No. enforcement work had been accomplished by MTB prior to that date.

Source: DOT. 8th Annual Report on Hazardous Materials Transportation.

time inspectors so that they are more deeply aware of hazardous materials regulations." Most of the Department's hazardous materials transportation inspectors are responsible not only for hazardous materials inspections, but also for other safety functions within their respective modes. The task force maintained that these part-time inspectors cannot always be fully aware of various hazardous materials regulations and procedures, particularly for intermodal shipments.

INSPECTION OF ACTIVITIES OF SHIPPERS AND SUPPLIERS OF SHIPPING CONTAINERS

Safety starts with the shipper, because safety in transportation depends on proper preparation of the material for transportation. The shipper is required to (1) determine the hazard classification of the material, (2) choose a container that is appropriate for that classification, (3) put the proper label on the container to warn of the nature of the hazard in the container, and (4) prepare the shipping papers. There are 104,370 locations throughout the country from which hazardous materials are shipped; most of these are for intermodal shipments. MTB has primary responsibility for inspection of the facilities that handle inter- or multimodal shipments.

Perhaps the most important aspect of transporting hazardous materials is containment, because a hazardous material seldom does any damage so long as it stays in its container. To this end, the quality of the container is of prime importance. There are 20,174 locations throughout the country where portable containers are manufactured, reconditioned, and tested. MTB has primary responsibility for inspection of the facilities that manufacture, recondition, and test these containers.

MTB has 6 full-time inspectors to inspect the 20,174 portable container facilities and the multimodal facilities among the 104,370 shipping facilities. MTB also has a few part-time inspectors, but their cumulative time amounts to less than 1 man-year.

The following DOT publication is a checklist for shippers to aid them in complying with the regulations.

HAZARDOUS MATERIALS TRANSPORTATION

INDICATORS OF HAZARDOUS MATERIALS SHIPMENT VIOLATIONS

This is a partial checklist of things which you as a shipper, container manufacturer, or carrier may use to spot check on your compliance with the DOT Hazardous Materials Regulations. As stated in the title, these are indicators of violations and not necessarily violations in and of themselves.

The hazardous materials regulations for shippers are organized in Parts 171, 172, 173, and 178 of 49 CFR as communication regulations and general requirements. When a compliance inspection is made, documentation, marking, labeling and packaging are observed for discrepancies. With this checklist as a guide, you may spot check your own documentation, marking, labeling, and packaging for compliance. This list is intended to be used as an aid and does not cover all aspects of the regulations.

SHIPPING PAPERS

A. No proper shipping name and/or classification.

B. Proper shipping name and/or classification abbreviated.

C. Lack of certification.

D. Lack of wording "Limited Quantity" on shipments excepted from specification packaging and labeling.

E. No Exemption number on shipments moving under DOT Exemptions.

F. Color of labels used in lieu of classification.

MARKING OF CONTAINERS

A. No commodity description (proper shipping name) on container.

B. No Exemption number on containers shipped under DOT Exemptions.

C. No name and address of consignee (or consignor) on the container.

LABELING

A. No label on container of hazardous materials larger than "Limited Quantity".

B. Label on the container not compatible with the classification on the shipping papers.

C. Obsolete labels.

D. No label on "Limited Quantities" offered for air transportation.

E. Less than two Radioactive materials labels on containers.

CONTAINERS

A. STEEL

1. Labeled containers (without further overpack) with no DOT specification marking. (Commonly found are 5 gallon 29 gauge metal pails and 5 gallon rectangular cans.)

2. Containers of hazardous materials with temporary repairs.

   a. Damaged, sealed with tape, putty, chewing gum, or screws.

   b. Shipped upside down.

3. Labeled containers in improper condition.

   a. Dented.

   b. Rusted or corroded.
   (NOTE: These are judgmental decisions.)

4. Labeled containers on which specification markings are illegible.

5. Labeled reused containers marked "NRC" (look for old date of manufacturer, dents, rust, and paint layers).

6. Labeled reused containers marked "STC" and/or 17C, 17E, and 17H with no reconditioner's marking.

7. Labeled reused containers with a reconditioner's marking that are not DOT 17C, 17E, or 17H containers.

8. Labeled 55 gallon open-head drums with 2 rolling hoops and/or less than 5/8" ring bolt, non-drop forged ring lugs, and/or "lever lock" ring closures. (Good possibility of non-DOT specification.)

B. CORRUGATED FIBERBOARD

1. Boxes with no DOT specification marking when inside containers are larger than the limited quantity exception for the commodity.

2. Labeled box with DOT specification markings constructed of less than 175 lb. burst test single wall fiberboard.

3. Boxes marked with DOT specification markings which are poorly constructed (i.e., gaps, uneven closures, seams and joints separating).

4. Boxes damaged by water.

5. Improperly closed boxes (look for masking tape, cellophane tape, and string).

6. DOT Specification box loaded in excess of the marked authorized gross weight, e.g., a DOT 12-B-40 box weighing 56 pounds.

C. POLYETHYLENE CONTAINERS

1. Open-head polyethylene containers other than DOT Specification 35 (authorized only when specification containers are not required).

2. Illegibly marked containers.

D. FIBER DRUMS

1. Non-DOT specification fiber drums.

2. Fiber drums constructed of materials weaker than required by the specification.

E. CYLINDERS

1. Reused single-use cylinder such as Specification 39.

2. Cylinders beyond test date.

3. Cylinders in improper conditions.

a. No valve protection.

b. Dented or corroded. (See CGA Pamphlet C-6 for criteria.)

4. Cylinders re-filled by other than the owner of the cylinder without permission.

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Materials Transportation Bureau (DMT-15)
Research and Special Programs Directorate
Department of Transportation
Washington, D.C. 20590

Revised December 1977

ENFORCEMENT ACTIVITIES

Legal enforcement action is the last step in DOT's regulatory program; through the assessment of penalties, enforcement actions seek to promote compliance with the regulations. DOT's enforcement authority covers both civil penalties and criminal prosecutions.

Any person who knowingly violates Public Law 93–633 or any regulation issued under that law is liable for a civil penalty up to $10,000 for each violation; if the violation is a continuing one, the penalty is $10,000 for each day. Any person who willfully violates Public Law 93–633 or any regulation issued under that law is subject to a fine up to $25,000, imprisonment up to 5 years, or both.[3]

Prior to January 1975, the effective date of Public Law 93–633, the hazardous materials regulations for the highway and railroad modes were published under a criminal statute.[4] As a result, the only means to impose a penalty for violating the regulations was by criminal prosecution. The degree of proof and the time involved in prosecuting criminal actions is appreciably greater than for civil penalties. Perhaps that is the reason FHWA and FRA did not have a history of vigorous enforcement of the regulations. USCG and FAA had civil penalty authority under their original legislation.[5]

In January 1977 MTB reissued the hazardous materials regulations under the authority of Public Law 93–633, providing civil penalty authority for all modes, in addition to the criminal penalties. In April 1977 FHWA published its procedures for processing civil penalties and FRA published its civil penalty procedures in October 1977. As a result of these actions, all DOT agencies that are involved in hazardous materials compliance work now have the use of both civil penalties and criminal prosecution as enforcement tools.

When DOT agencies find violations of the regulations, they take such enforcement action as may be appropriate, ranging from a warning for minor infractions, through civil penalties, to criminal prosecution for willful violations. In determining the amount of a civil penalty, Congress has directed DOT to "take into account the nature, circumstances, extent, and gravity of the violation committed and, with respect to the person found to have committed such violation, the degree of culpability, any history of prior offenses, ability to pay, effect on ability to continue to do business, and such other matters as justice may require." [6]

The Secretary of Transportation has never issued guidelines or any other instructions for assessing civil penalties; perhaps as a result of this lack of guidance, the civil penalties vary appreciably, as noted below. In September 1978 the Secretary appointed a committee of senior DOT officials to oversee DOT enforcement activities and bring the civil penalties into equitable alinement.[7]

The following analysis of data from exhibit 13 shows the wide disparity in compliance activities among the modal administrations. It also raises a question as to the effectiveness of the compliance activities.

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[3] 49 U.S.C. 1809.
[4] 18 U.S.C. 831–835.
[5] 46 U.S.C. 170; 49 U.S.C.
[6] 49 U.S.C. 1809.
[7] See chapter 15.

42-112 O - 79 - 7

During 1977 USCG personnel spent 107.6 man-years of time inspecting hazardous materials operations. USCG initiated 1,836 new enforcement actions, completed 430 enforcement actions, and collected $130,620 in penalties. The penalties averaged $304, which does not appear to be much of a penalty when weighed against the $10,000 maximum provided in the statute. Nor is it as much as the penalties of other modal administrations, which are noted below. On an average man-year basis, each inspector initiated 17 new enforcement actions and collected $1,214 in penalties.

During 1977 FAA spent 56.2 man-years of inspector time, initiated 105 new enforcement actions, completed 103 enforcement actions, and collected $72,000 in penalties for a penalty average of $705. Each inspector—year inititated less than 2 new enforcement actions, and collected $1,281 in penalties.

During 1977 FHWA spent 55.4 man-years of inspector time, initiated 55 new enforcement actions, completed 48 enforcement actions, and collected $121,975 in penalties, for a penalty average of $2,541. Each inspector-year initiated 1 new enforcement action and collected $2,201 in penalties. (All FHWA enforcement action was by criminal prosecution.)

During 1977 FRA spent 22.3 man-years of inspector time, initiated 41 new enforcement actions, completed 19 enforcement actions, and collected $27,575 in penalties, for a penalty average of $1,451. Each inspector-year initiated less than 2 new enforcement actions and collected $1,237 in penalties. (FRA enforcement actions involved 18 criminal prosecutions and 14 civil penalties; the Department of Justice declined to prosecute 9 additional actions.)

These penalty figures indicate that in general DOT agencies do not take vigorous enforcement action. On the average, the effectiveness of the program (measured in terms of penalty assessed per violation noted) could be improved. This area of concern is further discussed in chapter 14.

AN EXAMPLE OF EFFECTIVE COMPLIANCE ACTION

The following DOT press release, issued November 3, 1978, illustrates that DOT enforcement procedures can be effective. It also shows the interrelationship between the modal safety requirements and the hazardous materials safety requirements:

The Department of Transportation today ordered ConRail to stop moving hazardous materials across 9.7 miles of unsafe track within the city of Buffalo, N.Y.

The track, connecting ConRail's Bison Yard with Black Rock Yard, was inspected by a Federal Railroad Administration track safety inspector on October 23 and 24. He found 67 specific violations of Federal track safety standards and numerous other unitemized defects in only one-half mile of the track. Further inspection revealed numerous defects throughout the branch line including bad cross ties and a broken rail.

The railroad was notified of the serious condition of the track and, although trains were slowed to 5 miles per hour, little action was taken to make the necessary repairs.

"This is a very dangerous situation," FRA Administrator John M. Sullivan said. "Highly flammable and toxic chemicals move right through the city over this line and the probability of a serious derailment is high," he said.

"I know that these chemicals must be transported and are vital to our every day lives," Sullivan added, "but the danger to life in this situation is much greater than the possibility of some small discomfort."

There are approximately 50,000 people living within one-quarter mile of the track. Within that area are approximately 15 schools and 1 hospital, a nursing home with 255 patients is located 100 yards from the track, and there are several factories in the vicinity employing thousands of workers.

The line carries an average of 14 trains per day, many 100 cars long. They often carry liquid petroleum gas, ammonium nitrate, carbolic acid and chlorine, all highly volatile substances. The line handles over 10 million gross tons of freight per year and is part of a principal freight route reaching Canadian points via the International Bridge over the Niagara River.

The emergency order prohibiting hazardous materials to be carried over this stretch of track became effective at 12:01 a.m. Friday, November 3 and will continue in force until ConRail makes the necessary repairs.

SELECTED PUBLIC COMMENT ON DOT'S COMPLIANCE PROGRAM

According to information received in response to Senator Cannon's letter, some industry spokesmen maintain that DOT enforcement action is not as vigorous as it should be. It appears that some companies that comply with the regulations may feel that they are at a competitive disadvantage against those that do not comply; it costs money to comply. For example, the president of the National Tank Truck Carriers, Inc., maintained that the regulations should be more vigorously enforced:

> There are, however, thousands of trucks, operated daily laden with (primarily) petroleum products which have (literally) no restrictions. They are independently owned, rarely have a sign on the door, and are driven under the aegis of brokers or commission agents. Technically, they are under DOT jurisdiction, however, the total lack of identification on the trucks makes safety enforcement a laughing matter. They don't acknowledge DOT regulations; their drivers know no hours of service regulations; they don't even report accidents.[7]

Some industry comment focused on the negative impacts of DOT's enforcement activities. For example, the Institute of Makers of Explosives said:

> In our experience, DOT's enforcement program has been sporadic and poorly organized and directed, which has a negative impact on both industry and the public.
>
> In order to be more effective, such compliance activities need to be educational in nature, as well as penalty-oriented. The past practice of allowing a time period for correction of violations before fines were levied is a good example of an educational approach. In this regard, availability and uniformity of regulations to the industry become of critical importance.[8]

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[7] Letter, National Tank Truck Carriers, Inc., to CRS, 1977.
[8] Letter, Institute of Makers of Explosives to CRS, 1978.

The National Agricultural Chemicals Association commented on the increase in DOT compliance activities.[9] The association then recommended that DOT place greater emphasis on the proper selection, use, and maintenance of shipping containers and transport vehicles:

> We feel it unfortunate, however, that what appears to us to be the greater area of concern to the regulators is, all too often, the minor and readily apparent infractions of the regulations such as a missing placard, misplaced label or marking or improperly prepared shipping documents. Of far more importance to safety and transportation would be to effect greater compliance and enforcement toward the proper selection, use, and maintenance of shipping containers and transport vehicles. It is in this area where the maximum benefits to safety are to be reaped. We do agree that broadly publicizing the results of enforcement actions on a regular basis serves as an educational tool and also is a deterrent through negative example. We would also comment that compliance activities must be educational in nature as well as penalty oriented.[10]

The Hazardous Materials Advisory Council also commented that DOT should focus more on violations that affect safety and less on the paperwork requirements:

> Compliance activities and penalties are increasing. An increase in attention should be directed to those violations that have an effect on safety in operations (packaging is an example) as contrasted with "proforma" violations. The objectives of regulations are to minimize risk in transportation and to communicate to those handling shipments and responding to emergencies, the hazards of the material and their potential for personal and property damage. Emphasis in compliance should be commensurate with those objectives, and compliance agents need to be thoroughly grounded in the practical aspects of the effects of such violations. Penalties and notices should follow promptly from the observance of non-compliance and should take into account the potential for increasing the risk of accident and damage and the record of the persons cited.[11]

SELECTED DOT VIEWS ON DOT'S COMPLIANCE PROGRAM

In 1978, the Department assembled its own task force to review the DOT hazardous materials transportation safety program. This group recognized that there is a need for continued refinement and coordination of the Department's compliance programs. Better information, increased intermodal communication, and development of enforcement aids were identified as means to strengthen the hazardous materials compliance efforts. The task force maintained that there is a need to determine the impact of a stronger Federal enforcement posture and the effect of monetary penalties as deterrents against violations of hazardous materials regulations.

The task force pointed out that despite the importance of enforcement as a means to increase compliance with DOT regulations, significant variations occur in the assessment of penalties by the modal administrations. According to DOT figures, during 1977, penalties ranged from $27 to $2,805 per case. Civil penalties ranged from $304 to $1,660 per case, and fines resulting from criminal cases ranged from $870 to $2,541. They noted that these disparities indicate possible inconsistency in applying the statutory enforcement provisions. The variations may, however, be explained by a statutory requirement in

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[9] Letter, National Agricultural Chemicals Association to CRS, 1978.
[10] *Ibid.*
[11] Letter, Hazardous Materials Advisory Council to CRS, 1978.

Public Law 93–633 which obligates DOT, in setting a civil penalty, to take into account the nature, extent, circumstances, and gravity of the violation. Additionally, the Department must assess the shipper's degree of culpability, history of prior offenses, ability to pay, effect on ability to continue to do business, and other such matters as justice may require.[12]

STATE INSPECTION EFFORTS

In addition to Federal inspection efforts, some State officials also participate in efforts to insure compliance with hazardous materials regulations. Most of the States have adopted regulations covering essentially the same safety requirements for the transportation of hazardous materials as are provided under the DOT regulations. Some States have adopted the Federal standards in full, others have adopted parts of the regulations, and a few have similar standards. DOT made a study of these State laws and regulations in October 1977; the results are shown in Exhibit 14. When the States enforce their own laws and regulations, they also are securing compliance with the Federal regulations. DOT found that while the vigor of enforcement varies, most of the States' highway patrols participate in enforcing the hazardous materials safety requirements. There is little State effort directed toward suppliers of containers, shippers, and the other modes of transportation. Reliable and valid data on the effectiveness and efficiency of State inspection efforts is limited and could be improved.

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[12] U.S. Department of Transportation. Report of the Hazardous Materials Transportation Task Force, Sept. 1978, pp. 38–39.

EXHIBIT 14

STATUS OF FEDERAL HAZARDOUS MATERIALS REGULATIONS ADOPTED BY STATES AS OF OCT. 31, 1977

State	Section Nos.				
	171	172	173	177	178
Alabama	B	B	B	B	B
Alaska	D	D	D	D	D
Arizona	A	A	A	A	A
Arkansas	A	A	A	A	A
California	A	A	A	A	A
Colorado	A	A	D	A	D
Connecticut	C	C	C	C	C
Delaware	D	D	D	C	D
District of Columbia	A	A	A	A	A
Florida	A	A	A	A	A
Georgia	C	C	C	C	C
Hawaii	A	A	A	A	A
Idaho	A	A	A	A	A
Illinois	B	B	B	B	B
Indiana	D	D	D	D	D
Iowa	A	A	A	A	A
Kansas	A	A	A	A	A
Kentucky	A	A	A	A	A
Louisiana	B	B	B	D	D
Maine	D	D	D	D	D
Maryland	D	D	D	A	D
Massachusetts	D	D	D	C	D
Michigan	D	D	D	C	C
Minnesota	A	A	A	A	A
Mississippi	B	B	B	B	B
Missouri	A	A	A	A	A
Montana	A	A	A	A	A
Nebraska	D	D	D	D	D
Nevada	A	A	A	A	A
New Hampshire	C	C	C	C	C
New Jersey	C	C	C	C	C
New Mexico	A	A	A	A	A
New York	A	A	A	A	A
North Carolina	A	A	A	A	A
North Dakota	C	C	C	C	C
Ohio	A	A	A	A	A
Oklahoma	D	D	D	C	C
Oregon	D	D	D	A	D
Pennsylvania	A	A	A	A	A
Rhode Island	A	A	A	A	A
South Carolina	B	B	B	B	B
South Dakota	A	A	A	A	A
Tennessee	A	A	A	A	A
Texas	A	A	A	A	A
Utah	A	A	A	A	A
Vermont	D	D	D	D	D
Virginia	D	C	D	C	D
Washington	A	A	A	A	A
West Virginia	D	D	D	D	D
Wisconsin	A	A	A	A	A
Wyoming	A	A	A	A	A

Key explanation: A—Adopted in toto; B—Adopted in part; C—has similar rule; D—Has no rule.

Note: Exhibit 14 is a list of States and their status with respect to adoption of the subject regulations as of Oct. 31, 1977. It indicates, for each State, the parts of the regulations adopted in toto or in part, or whether there is a similar rule. This list was prepared on the basis of DOT interviews with State regulatory officials, as opposed to actual comparison of the involved regulations. For this reason, and because State laws and regulations change regularly, DOT cannot guarantee that every provision of every regulation shown as having been adopted by a State will be in a form identical to its Federal counterpart. Similarly, there may be instances when States not shown as having adopted a Federal regulatioh may have some requirements similar to the Federal provisions.

Source: BUREAU OF MOTOR CARRIER SAFETY

CHAPTER 10—INTERNATIONAL SAFETY STANDARDS FOR HAZARDOUS MATERIALS

This chapter discusses the importance to the national economy of international sales of hazardous materials and describes DOT's role in developing international standards for the safe transportation of hazardous materials. Selected industry views on DOT's international activities are provided.

NEED FOR COMPATABILITY BETWEEN U.S. AND INTERNATIONAL SAFETY STANDARDS

The United States exports about $4 billion more hazardous materials each year than it imports. Since the United States is the overall beneficiary of the international hazardous materials business, the U.S. hazardous materials community (both industry and government) has an active interest in having its transportation safety standards compatible with international standards.

To illustrate the need for compatible regulations, consider the problem that would result from incompatible requirements. A U.S. manufacturer of hazardous materials, selling his product in Europe, has to ship his product under three different sets of safety standards: Those developed by the U.S. Department of Transportation, the International Maritime Consultative Organization, and the Inland Transport Committee of the Economic Commission for Europe. If each of these standards-setting bodies had different transportation requirements for the product, the manufacturer in the United States, having to meet three requirements during the course of shipment, would be at a conpetitive disadvantage against a manufacturer in Europe.

U.S. PARTICIPATION IN INTERNATIONAL STANDARDS-SETTING ACTIVITIES

The U.S. hazardous materials community participates in international standards-setting activities to (1) exchange technical information and discuss regulatory experience with the hazardous materials experts of other countries and (2) maintain compatability between the international standards and the U.S. standards. The Department of State is nominally in charge of these international activities, but the effective leadership comes from the Department of Transportation, assisted by representatives of the affected industries. DOT participation in the activities of international standards-setting bodies in 1977 is described in this excerpt from a DOT report: [1]

The MTB provided primary representation to the United Nations (UN) Economic and Social Council's Committee of Experts on the Transport of Dangerous Goods and its subsidiary bodies in developing international standards for identi-

[1] DOT. Eighth Annual Report on Hazardous Materials Transportation.

fying hazardous materials and communicating their hazards. The United States sponsored a number of proposals, including recommended criteria for the classification of liquids presenting toxic risks in transport as a result of their volatility, and a proposal for standard worldwide requirements pertaining to documentation, marking, labeling, and placarding of dangerous goods in international commerce.

The USCG has represented the United States on the Subcommittee on the Carriage of Dangerous Goods of the International Maritime Consultative Organization (IMCO). This body has developed the International Maritime Dangerous Goods Code, the worldwide standards for sea transport of packaged hazardous materials, which were to a large extent incorporated into the Department of Transportation's Hazardous Materials Regulations under Docket HM–112.

The FAA represented the United States in the International Civil Aviation Organization's Dangerous Goods Panel. The panel first met in 1976 and is preparing recommendations for worldwide standards for air transportation of hazardous materials. Completion of the development task is expected in 1978.

The MTB has participated actively in the development of the International Atomic Energy Agency's (IAEA) "Regulations for the Safe Transportation of Radioactive Materials." All major nations and international transport organizations have undertaken efforts to amend their standards to conform to the 1973 IAEA standards. In addition to such regulatory efforts, the MTB actively participates in IAEA seminars and advisory panels.

The Department has actively participated in the work of the Inland Transport Committee of the Economic Commission for Europe, which establishes requirements governing transport of hazardous materials by road, inland waterway, and to some extent rail. The Department's concern rests with insuring consistency between the Committee's requirements, the UN/IMCO recommendations, and domestic regulations in order to facilitate export shipment to Europe.

SELECTED INDUSTRY COMMENT ON DOT'S INTERNATIONAL ACTIVITIES

DOT participates in international standards-setting groups to help create a regulatory milieu in which shipments of hazardous materials will be able to move freely between regions of the world. Some U.S. industry spokesmen have frequently been critical of DOT's participation, claiming that industry is not permitted to have a more effective part in the Process. However, industry representatives now participate in DOT's international standards-setting activities, but it is evident that the participation is not as effective as some in industry would like it to be.

According to a recent article in Chemical Week, the U.S. chemical industry has had little input into the setting of international safety standards for the transportation of hazardous materials. "As a result, the existing regulations have been promulgated by such bodies as the Intergovernmental Maritime Consultative Organization (IMCO), with little regard to the opinions of U.S. chemical exporters and carriers." [2] This situation appears to be changing. The Hazardous Materials Advisory Council, an industry group, has recently obtained the right to participate as an observer at meetings of the United Nations' Committee of Experts on the Transport of Dangerous Goods.

The Hazardous Materials Advisory Council, while recognizing DOT's efforts to involve industry in international standards-setting activities, would like to see even greater private participation:

> The Department has taken steps to considerably increase public participation in and knowledge of the development of international regulations. Extension of this principle is exceedingly important because of the inter-relationship and im-

[2] "U.S. Shippers Seek Say in Global Rules," Chemical Week, September 27, 1978: 75.

pact of domestic and international regulations on each other and their potential for causing problems for U.S. shippers and carriers. Consideration needs to be given to public notices and participation prior to the development of official U.S. positions by authorized delegates to U.N. meetings. This will provide greater assurance that the United States meets its obligations both to the public and in its international relationships.[3]

The Institute of Makers of Explosives also favors increased private sector involvement in DOT's international activities:

Congressional support permitting trade association input to DOT and United Nations committees should be affirmed. Resolution of conflicts among the regulations of international organizations such as IMCO, IATA and others will require the strongest support for our country's position. Industry's participation is essential to promotion of safe transportation of hazardous materials in the United States and on an international scale.[4]

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[3] Letter, Hazardous Materials Advisory Council to CRS, 1978.
[4] Letter, Institute of Makers of Explosives to CRS, 1978.

CHAPTER 11—NATIONAL TRANSPORTATION SAFETY BOARD

This chapter describes the functions of the National Transportation Safety Board and discusses the manner in which it makes its safety recommendations.

NTSB LEGISLATION

The National Transportation Safety Board (NTSB) was created by Section 5 of the Department of Transportation Act (Public Law 89–670). NTSB's principal functions, insofar as they relate to hazardous materials transportation safety, were to (1) investigate transportation accidents, (2) make recommendations to prevent transportation accidents and promote safety, and (3) conduct special studies on matters pertaining to safety in transportation and the prevention of accidents.

NTSB's original staff consisted of aviation safety personnel who were transferred with the safety oversight function from the Civil Aeronautics Board. NTSB has increased its nonaviation staff to a limited extent, but well over half of the staff is still in the aviation area.

NTSB's functions were enlarged in the Independent Safety Board Act, title III of Public Law 93–633, which became effective January 1975. The major provisions of title III, insofar as they relate to hazardous materials transportation safety, are listed below; the provisions that create new authority or new requirements are in italics. The act directs NTSB to:

—*Establish an office to investigate and report on the safe transportation of hazardous materials (section 303(b)(5));*

—Investigate significant accidents involving hazardous materials (section 304(a)(1)(F));

—Report in writing on the facts, conditions, and circumstances of each accident investigated (section 304)(2));

—*Issue periodic reports to the Congress, Federal, State, and local agencies concerned with transportation safety and to other interested persons, recommending and advocating action to make transportation as safe as possible (section 304(a)(3));*

—Initiate and conduct special studies and investigations of matters pertaining to safety in transportaion (section 304(a)(4)); and

—*Evaluate the adequacy of safeguards and procedures concerning the transportation of hazardous materials and the performance of other Government agencies charged with assuring the safe transportation of such materials (section 304(a)(8)).*

The act requires the DOT agencies to respond to each of NTSB's recommendations; this is a new requirement:

> SEC. 307. Whenever the Board submits a recommendation regarding transportation safety to the Secretary, he shall respond to each such recommendation formally and in writing not later

than 90 days after receipt thereof. The response to the Board by the Secretary shall indicate his intention to—

1. Initiate and conduct procedures for adopting such recommendation;

2. Initiate and conduct procedures for adopting such recommendation in part, pursuant to a proposed time-table, a copy of which shall be included;

3. Refuse to initiate or conduct procedures for adopting such recommendation.

The important new provisions of the act, from the standpoint of hazardous materials transportation safety, are: (1) the requirement that NTSB establish an office to handle hazardous materials safety, (2) the requirement that NTSB evaluate the DOT agencies charged with hazardous materials safety functions, and (3) the requirement that the DOT agencies take action on each recommendation that NTSB makes.

NTSB HAZARDOUS MATERIALS STAFF

After passage of Public Law 93–633, NTSB established a Hazardous Materials Division in its Bureau of Technology. The division now has a staff of four, three professionals and one secretary.

In the transmittal letter supplying the above information, the NTSB Chairman noted that, since this staff regularly works with other NTSB staff members and knowledgeable persons outside NTSB, the Safety Board's capabilities in this field should not be viewed narrowly as being the effort of only four persons.

The NTSB organizational chart is reproduced as exhibit 15.

NATIONAL TRANSPORTATION SAFETY BOARD

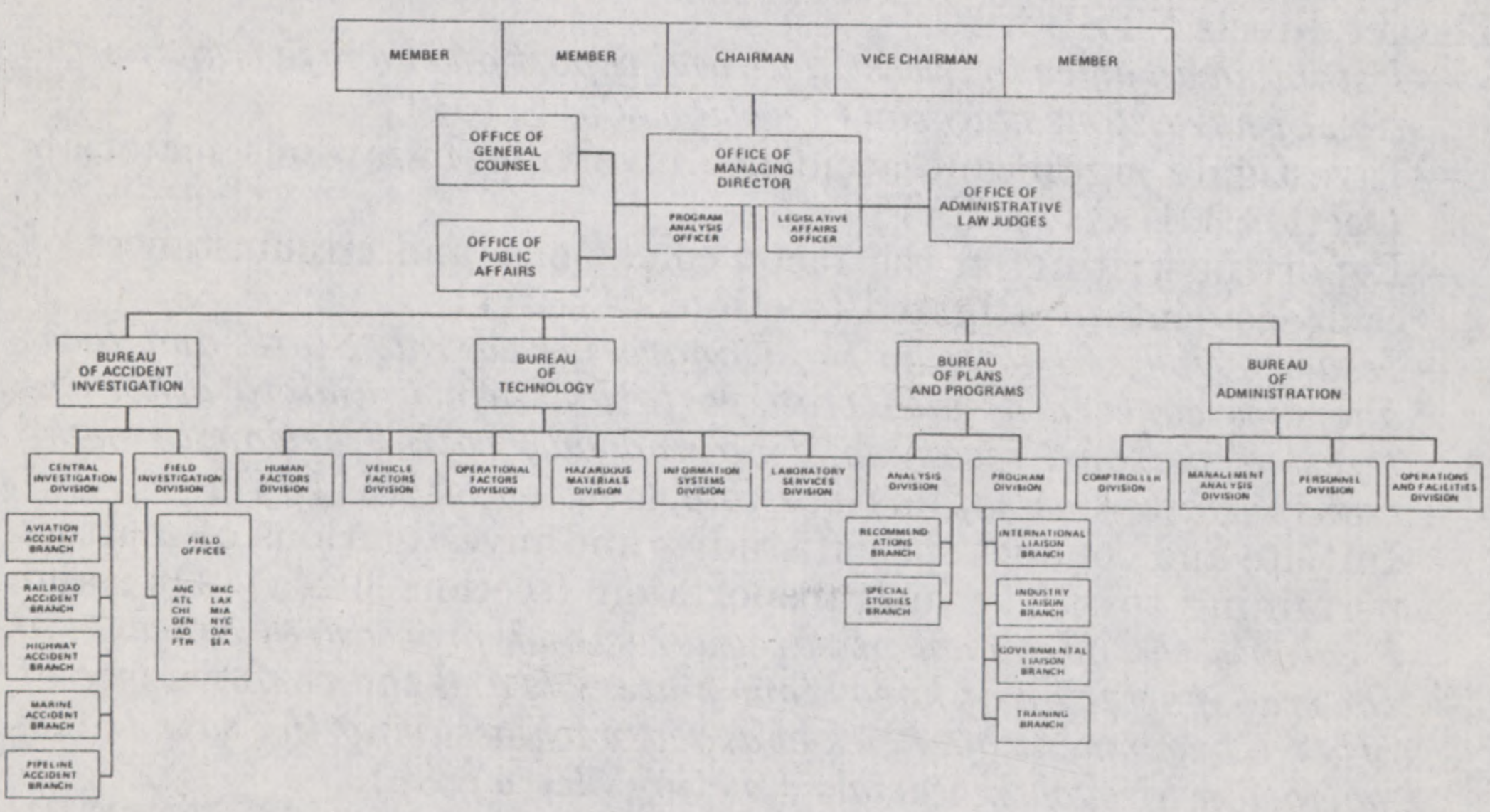

EXHIBIT 15

NTSB DOES NOT BASE ITS RECOMMENDATIONS ON COST STUDIES

Most of NTSB's recommendations to DOT concern regulatory action; that is, the NTSB recommends that DOT issue a specific regulation. NTSB does not make a cost/benefit analysis of the regulation that it wants DOT to issue. NTSB bases its recommendations on technical feasibility, not on economic practicability.

The practice of making cost/benefit analyses of safety proposals is of recent origin, as noted in this discussion of the subject in 1971:

> Regulators usually do not make a cost/benefit analysis of regulatory proposals, probably because they do not develop cost and benefit data. Because "money cannot be a factor when human life is at stake," regulators may hide their heads in the sand and fail to develop a factual record regarding the cost of proposed regulations. But they regularly and imprecisely take cost into account obliquely, because "it would take a pot of money to do that much training" or "that sure would take a lot of new equipment." Like the ostrich, the regulator exposes his most unattractive feature when he sticks his head in the sand.
>
> Cost is a limiting factor—in fact, the principal limiting factor—in any regulatory program. The regulator should openly and honestly take cost into account in setting regulatory standards. He should make a cost/benefit analysis of each proposed regulatory solution to a problem, despite the fact that he will frequently be comparing dollar costs with non-dollar benefits. The analysis is particularly helpful in choosing the best solution among alternatives.
>
> To assure the legitimacy of regulations, the various elements of the developmental process must be legitimate. To this end, the regulator must legitimize the discussion of cost and subject every proposed regulation to an informed cost/benefit analysis. Without a cost study, based on verified information, the cost factor cannot be known and the analysis degenerates into guesswork, particularly since informally submitted and unverified cost figures from the regulated industry must perforce be used if nothing better is available. The public is entitled to better government than that.[1]

The practice of making cost/benefit analyses of regulatory proposals has now become Federal policy. In his remarks on signing Executive Order 12044 on March 23, 1978, the President said:

> Another requirement in the Executive order will be that the economic impact of regulations be assessed, whether or not they contribute to a burdensome and costly additional requirement on those who have to comply with the regulations. In the major ones we want to be sure that they don't contribute to inflationary costs and that they are compatible with the overall economic policy of our country.

Executive Order 12044 requires the head of each agency to establish procedures for developing significant regulations, including this requirement:

> Each regulatory analysis shall contain a succinct statement of the problem; a description of the major alternative ways of dealing with the problem that were considered by the agency; an analysis of the economic consequences of each of these alternatives and a detailed explanation of the reasons for choosing one alternative over the others. (sec. (3) (b) (1))

NTSB does not take cost into account when it develops its recommendations; MTB does take cost into account when it develops regulations. This difference appears to be inherent in their perceptions of their respective roles. When NTSB seeks a solution to a safety problem, it looks for a solution that is technically feasible; it is not concerned with economic practicability. When MTB seeks a solution to

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[1] William Jennings, The Regulator's Handbook, op. cit. pp. 73–74.

a safety problem, it looks for a solution that is technically feasible and economically practicable. An understanding of each agency's different approaches to the solution of safety problems makes it easier to understand why MTB's regulatory program frequently does not coincide with NTSB's recommendations.

MANNER OF MAKING RECOMMENDATIONS

NTSB has historically made safety recommendations in connection with each accident that it investigates. In the Independent Safety Board Act, Congress apparently sought to separate NTSB's investigation and recommendation functions, requiring it to investigate and report on each accident but make its recommendations at periodic intervals. Section 304(a)(1) directs NTSB to investigate transportation accidents and "determine the facts, conditions, and circumstances and the cause or probable cause or causes" of each accident. Section 304(a)(2) directs NTSB to "report in writing on the facts, conditions, and circumstances of each accident investigated" and make the report available to the public. Section 304(a)(3) directs NTSB to "issue periodic reports to the Congress, and Federal, State, and local agencies concerned with transportation safety, and other interested persons recommending and advocating meaningful responses to reduce the likelihood of recurrence of transportation accidents similar to those investigated by the Board and proposing corrective steps * * *."

Since enactment of the Independent Safety Board Act, NTSB has not changed its practice of making recommendations in connection with each accident report that it issues. NTSB's practice was discussed during a hearing before the Senate Commerce Committee on September 25, 1975. That hearing was on pipeline safety, but the discussion is equally applicable to hazardous materials safety; NTSB's role is the same in both programs. The committee was advised of the reasons why recommendations should not be made in connection wi[t]h individual accident reports:

> A single pipeline accident may focus attention on a safety problem, but it is a rarity when the investigation of a single accident will produce the kind of information that is necessary for a rational regulatory proposal. Rather, safety problems should be identified and defined by the long-term accumulation and analysis of all relevant operational data.
>
> To maintain the integrity of its recommendations, NTSB should stop making recommendations with each accident report. As long as it is the practice to make recommendations on the basis of each accident, those who prepare accident reports will feel an obligation to make recommendations with each report. Over a period of time, considering the number of reports which the enlarged staff will make, this will almost surely debase the quality of, and public regard for, the recommendations.
>
> NTSB should start making recommendations as a function separate and apart from accident reports. Then the recommendations can be based on an accumulation of information about overall operational experience, free from the quote pressure engendered by the present practice.[2]

NTSB does not find this argument persuasive. "The very real public demand for action by someone after serious accidents" is the reason, according to the NTSB Chairman, that "the Safety Board

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[2] U.S. Congress, Senate, Committee on Commerce. Natural Gas Pipeline Safety Act of 1975. 94th Congress, 1st sess. Washington, D.C.: Government Printing Office, 1975, pp. 61–75.

always has and will continue to issue some hazardous materials recommendations following accidents, to minimize human injury from such accidents." [3]

Prior to Public Law 93–633, NTSB's practice of making a few recommendations as an adjunct to an accident report did not present a major problem for DOT. The Department could look at the merit of each recommendation, compare it with the merits of other regulatory projects already underway, and act on those recommendations that justified action. NTSB had no obligation to weigh its recommendations and make only those that merited priority treatment. The DOT agencies weighed the recommendations against their already existing projects and established their own priorities.

With the passage of Public Law 93–633, NTSB's recommendations became an integral part of the regulatory process; they now play a major part in determininng the regulatory priorities of the DOT agencies. Section 307 of Public Law 93–633 requires DOT agencies to respond to each of NTSB's recommendations, including the relatively uninportant ones. Each response is time consuming, sometimes taking weeks of DOT stafftime even to reject a recommendation. The response to each recommendation preempts a part of the workload of DOT's regulatory manpower. The larger the volume of recommendations, the greater the degree of preemption. When one of NTSB's recommendations is less important than the regulatory projects already underway, that recommendation has a negative effect on the overall Federal safety effort, because DOT has to take its staff from a more important project to respond to a less important recommendation. The Board has labeled its recommendations "Class I—Urgent Action," "Class II—Priority Action," and "Class III—Longer Term Action." But section 307 still requires a definitive response from DOT within 90 days after receipt of even the class III recommendations.

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[3] See app. 5.

CHAPTER 12—RELATIONSHIP BETWEEN THE NATIONAL TRANSPORTATION SAFETY BOARD AND THE MATERIALS TRANSPORTATION BUREAU

This chapter examines the relationship between NTSB and MTB, and presents their views on some of the major issues on which they differ.

NTSB AND MTB PERFORM DIFFERENT ROLES AND OPERATE UNDER DIFFERENT RULES

NTSB has an oversight and advisory role; its reports and recommendations have no legal effect, although DOT agencies have to respond to NTSB's recommendations. MTB has an operational role; its regulations create legal requirements that industry must meet in transporting hazardous materials.

NTSB is not subject to any procedural requirements, such as those in Executive Order 12044, in issuing recommendations. For example, it does not conduct cost studies and obtain public comment before issuing recommendations.

Before issuing a regulation, MTB must analyze the safety problem, consider the alternative ways of solving the problem, make a cost/benefit study of the alternatives, seek public comment on the subject, and justify the choice of one alternative over the others.

NTSB determines its own workload. Besides Congress, there is no outside agency or event that NTSB must respond to. MTB does not determine its own workload. Through the years, Congress directives, NTSB's recommendations, and industry's petitions (for exemptions and other regulatory action) have created a larger workload than the MTB staff could handle.

PRINCIPAL AREAS OF DISAGREEMENT BETWEEN NTSB AND MTB

In recent testimony before congressional committes, NTSB has been critical of MTB. Testifying before the Senate Commerce Committee on April 18, 1978, the NTSB Chairman said:

> As you know, the Safety Board supported passage of the Hazardous Materials Transportation Act. In the Act, Congress provided the DOT with a strong and clear mandate and the statutory tools to do the job. We looked to the Materials Transportation Bureau to provide the leadership to fulfill the promise of the act. The Safety Board has been disappointed by the Materials Transportation Bureau's failure to carry out, as we understand it, the congressional intent expressed in the act.[1]

Later in his testimony, the Chairman claimed that MTB was "deficient in carrying out its assigned responsibilities." He stated:

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[1] U.S. Congress. Senate. Committee on Commerce, Science, and Transportation. Authorize Appropriations for the Hazardous Materials Transportation Act, op. cit., pp. 21–22.

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First, the Materials Transportation Bureau has failed to publish safety guidelines to identify accident risks before a catastrophe occurs.

Second, the Materials Transportation Bureau has refused to establish a central data system to provide information and advice to firefighters and local safety personnel.

Third, the Materials Transportation Bureau has refused to register bulk carries of hazardous materials.

Fourth, the Materials Transportation Bureau has permitted its exemption procedures to become a free-for-all for the hazardous materials industry.

Fifth, and finally, the Materials Transportation Bureau has declined to become a leader in developing new emergency response techniques.

The first, second, and fifth charges will be discussed in chapter 13. An understanding of the remaining charges can best be developed by quoting from the record of the hearing. Supporting the third charge, the NTSB Chairman said:

The third area in which the Safety Board has not been satisfied with the Materials Transportation Bureau performance is its refusal to register bulk LPG carriers under section 106(b). The Materials Transportation Bureau has a good drum registration program, but has refused to accept the Safety Board's recommendation to register bulk carriers. We believe carrier registration would help prevent catastrophes such as Eagle Pass, Tex., in which a vaporized LPG killed 16 and injured 35. Bulk carrier registration would have several advantages. The Materials Transportation Bureau could prescribe and enforce similar safety standards for all carriers in an attempt to deprive the unsafe carriers of competitive advantages enjoyed at the expense of safe carriers. . . .

The MTB Director responded:

Under present regulations in 49 CFR 177.824, the Federal Highway Administration requires carriers to register flammable gas cargo tanks. The required reports identify the carriers who own or operate the MC 330 and 331 cargo tanks which are the only type of tanks authorized for LPG highway carriage. These reports then identify all carriers involved in transporting bulk LPG in cargo tanks in interstate commerce. The Federal Highway Administration maintains and verifies these records through their road checks of motor vehicles.

The Materials Transportation Bureau believes that imposing an additional reporting requirement on these same motor vehicle carriers would not provide an additional safety benefit commensurate with the efforts required and would only duplicate already available information.

The NTSB Chairman said in support of the fourth charge:

As we read section 107 of the act, Congress did not intend that these exemptions be lightly granted. Before an exemption is granted, the act directs that each petitioner perform a safety analysis as prescribed by the Secretary. We do not feel that exemption evaluations as now performed meet the intent of the act. Exemptions as now performed meet the intent of the act. Exemptions have become an economic free-for-all. Exemptions granted for one company expand almost automatically into exemptions for every competitor.

This was the MTB Director's response:

The exemptions procedures, which appear in Subpart B of 49 CFR Part 107, prescribe the information to be submitted on each application for exemption. The information includes an assessment of any increased risk likely to exist under the proposed conditions and specification of safety control measures which will compensate for the increased risk. An exemption is issued only when anaylsis of the technical information presented with the application indicates that the level of safety under the terms of the proposal will be equivalent to that prescribed in existing regulations or consistent with public interest and the policy of the Hazardous Materials Transportation Act. The primary factors in determining an equivalent level of safety are properties and characteristics of the hazardous materials, packaging design, and volumetric capacity, packaging product retention capability under conditions incident to transportation, and carrier handling and operational constraints.

Implementation of the Safety Board's recommendation would require the applicant to assess the entire range of risks rather than the incremental level above those addressed by existing regulations. The existing standards were developed after thorough safety assessments of the risks. Many are detailed and design oriented. Technological advances in packaging and container systems are generally not covered by these older design standards. Therefore, the current state-of-the-art which certainly consists of significant improvements to hazardous materials containers and packagings, and in many cases reduced costs, can be recognized only through exemptions from the regulations. So what the Safety Board characterizes as "almost automatic exemptions" and an "economic free-for-all" is really an acknowledgement of industrial innovations which have surpassed the state-of-the-art on which the regulations were based.[2]

NTSB has criticized MTB's action and, more often, lack of action in other areas. NTSB's criticisms are collected in a letter from NTSB to CRS (appendix 3). In addition to the criticisms that are noted elsewhere in this study, NTSB's letter noted other deficiencies, such as (1) MTB has not issued regulations for cryogenic cargo tanks, so cryogenic materials are moving in cargo tanks under exemptions, and (2) MTB issues exemptions "to develop information and gain experience concerning innovated forms of packaging, shipping conditions, or carrier operation." NTSB contends that there are more prudent means of obtaining this information and experience, such as by making tests while transporting nonhazardous materials. In evaluating this comment, it must be noted that an exemption, or special permit, is not a deviation from a standard; rather, it is the historic means of establishing a standard.

• The NTSB has commented on the adequacy of the MTB staff:

Section 109(d)(1) of the HMTA requires the Secretary of Transportation to "establish and maintain facilities and technical staff sufficient to provide, within the Federal government, the capability of evaluating risks connected with the transportation of hazardous materials and materials alleged to be hazardous." We would make two points. In testimony on April 18, 1978, before your Committee, the Materials Transportation Bureau, attempting to rebut NTSB testimony, asserted that "the classification system is the means of identifying hazardous characteristics of materials by their nature and degree, and is the key to the overall regulatory system for hazardous materials, including packaging, marking labeling, documentation and vehicle placarding."[3a] This assertion serves as an excellent example to illustrate basic differences between the perception of risk evaluation by the Materials Transportation Bureau and its staff, and by the National Transportation Safety Board. The determination of the risk posed by hazardous materials in transportation requires consideration of many other factors than just the inherent properties of a material. Risks are a function of many factors—not just the inherent characteristics of materials. Risks are a function of containment system; the handling of containment systems during loading, transportation, unloading and storage; what happens to the container and the hazardous materials contents in accidents . . .

The MTB's announced intention to contract studies for risk analysis of hazardous materials transportation is an indication of the degree to which it has complied with section 109(d)(1) of the HMTA. With in-house capabilities to evaluate risks envisioned by Congress, the MTB would have the staff capabilities to establish rational regulatory safety priorities, evaluate the efficiency of alternative countermeasures, improve its program management information systems, and prepare the risk analysis guidelines recommended by the Safety Board for both exemptions and regulatory actions.[3b] As an example of the adverse practical consequences of this lack of in-house analytical capability, consider the lack of safety analysis guidelines. Without such guidelines, petitioners for rulemaking or exemptions must guess about supporting materials they are required to sub-

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[2] Ibid., passim.
[3a] Page 39, hearing report No. 95–76.
[3b] NTSB Recommendations HM 75–1, I–76–2.

mit for analysis by the Office of Hazardous Materials Regulations during consideration of the petitioner's request.

It is of interest to note that more than 5 years after the Safety Board's recommendation was released,[3c] and approximately 3 months after the House Committee on Government Operations discussed the adequacy of MTB's safety analyses,[3d] the Office of Hazardous Materials Operations announced in its June 1976 *news letter* that the Materials Transportation Bureau intended to undertake the task of formalizing, into a definite methodology and format, safety analysis which will be used as a basis for rulemaking and exempions in its regulatory actions. Approximately 2 years later, the Board was informed that a request for proposals was being circulated to analyze the risk of transportation of certain expolsives in three modes. During this entire period, rulemaking and issuance of exemptions has continued unabated; the analytical basis and criteria for these safety actions remain hidden from technical scrutiny and assessment.[3]

With reference to the first paragraph of this comment, no one can question that risks are a function of many factors, not just the inherent characteristics of materials. But it is equally beyond question that the identification of the hazardous characteristics of each commodity is the key to subsequent regualtory acts. Containment, handling during transit, emergency response during accidents and all the other enumerated factors depend upon the characteristics of the individual material being transported.

With reference to the second paragraph, the Bureau does not have the in-house capacity required by the cited section. It seems likely that the enumerated benefits could flow from such a capacity. This requirement actually originated with the Hazardous Materials Transportation Control Act of 1970. The efforts of the Bureau and its predecessor agency) to meet the necessary staffing requirements since that time are shown in Exhibit 6.

NTSB'S RESPONSE TO MTB REGULATORY PRIORITIES

MTB and NTSB also disagree over regulatory priorities. MTB's first annual schedule of its regulatory priorities and rulemaking actions for hazardous materials, for the period ending March 21, 1979, follows:

SECTION I—MATERIALS TRANSPORTATION BUREAU RULEMAKING SCHEDULE

I. Mission Goal: Public Health/Safety-Hazardous Materials Transportation

A. MAJOR PROGRAM AREAS: PUBLIC SAFETY

Cargo tank safety/integrity

Docket HM–115: Proposed standards and operating procedures for a new DOT tank truck for the transportation of cryogenic liquids—*NPRM*, November 1978.

Docket HM–110: Proposed standards to establish conditions under which repair and maintenance may be performed on motor vehicles transporting hazardous materials—*Final Rule*, July 1978.

Docket HM–136: Proposed standards specifying the location of a manhole assembly on a cargo tank, and authorization of attachment of

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[3c] NTSB Report STS–71–1, released April 12, 1971.
[3d] House Report No. 94–975, dated March 29, 1976.
[3] See appendix 3.

certification plates to an integral supporting structure of certain cargo tanks—*Final Rule*, August 1978.

Tank car safety/integrity

Docket HM–144: (Reconsideration of) Consideration of possible changes in the current 4-year schedule to retrofit DOT specification tank cars with safety devices—*NPRM*, May 1978.

Project 264–78: Consideration of possible changes to current safety performance standards for DOT specification 105 tank cars—*NPRM*, July 1978.

Hazardous materials emergency response/communications

Project 266–78: Standards for incorporating shipping descriptions and serial numbers from United Nations regulations covering the transportation of dangerous goods—*NPRM*, December 1978.

Project 259–78: Standards to require shipping papers, covering hazardous materials to be made available by train crew to emergency response personnel—*NPRM*, November 1978.

Project 267–78: Standards to require labeling of excepted radioactive materials packages and notation on shipping papers regarding losses of radioactive shipments—*NPRM*, December 1978.

Radioactive materials

Docket 152: Revision of certain sections of part 175 (49 CFR) which will reduce the exposure of passengers to radioactive materials carried aboard aircraft—*Final Rule*, January 1979.

Project 269–78: Consideration of an administrative ruling as applied to transportation routing of radioactive materials on grounds of preemption—*ANPRM*, July 1978.

Project 263–78: Consideration of standards and methods to reduce radiation exposure levels to transportation workers—*NPRM*, *March* 1979.

Classification

Project 260–78: New standards and procedures for the transportation of hazardous waste materials, in conjunction with the Environmental Protection Administration—*NPRM*, June 1978.

Docket HM–143: New standards for the definition, and transportation of, blasting agents—*Final Rule*, September 1978.

Docket HM–159: Proposed standards to add the names of materials to the Hazardous Materials Tables that are known to be hazardous to be permitted in commercial transportation—*NPRM*, February 1979.

Docket HM–160: Classification of asbestos as a hazardous material and standards to control asbestos emissions during transportation—*Final Rule*, August 1978.

Docket HM–118: New standards for classifying a material as a flammable solid—*NPRM*, March 1979.

Project 268—78: New standards for establishing appropriate shipping descriptions and hazard classification for many detonators which are currently used in commercial service—*NPRM*, June 1978.

Portable tank safety/integrity

Project 193–72: Standards for new specifications for intermodal portable tanks and procedures for the use of these portable tanks for certain hazardous materials—*NPRM*, August 1978.

Modal operations (rail/highway/water/air)

Project 265–78: Standards for the safe operation of aircraft having certain hazardous materials aboard—*NPRM*, November 1978.

B. MAJOR PROGRAM AREAS: REGULATORY EFFICIENCY

Simplification/consolidation/elimination of regulations

Project 261–78: Simplification and recodification of the existing operating procedures for transportations of hazardous materials by motor vehicles as prescribed in Part 177 (49 CFR)—*NPRM*, March 1979.

Project 262–78: Consolidation, simplification and recodification of the existing requirements applicable to the transportation of radioactive materials—*NPRM*, September 1978.

Technological innovation/facilitation of transportation

Project 258–77: To allow the use of the metric system of measurements in place of the present U.S. liquid measure and the avoirdupois weight measurement—*NPRM*, June 1978.

Minor regulatory changes/terminations

Docket HM–139: Incorporation of provisions for selected exemption applications or existing exemptions and incorporation of miscellaneous minor changes based on petition requests—*NPRM*—every 2 months.

Docket HM–141: Withdrawal of Advance Notice of proposed rulemakings on color standards to be applied to compressed gas cylinders as a safety measure—*Withdrawal*, September 1978.

Asked to comment on MTB's regulatory schedule, the NTSB Chairman said:

> Based on the needs we see and on the apparent impact of their rulemaking on transportation safety, the MTB's development plan and schedule for rulemaking could be significantly improved.
>
> With its limited resources, MTB should concentrate on projects that will produce the greatest reduction in hazardous materials transportation risks. We note, for example, that hazardous waste transportation standards are the only regulations considered major, while acceleration of the DOT 112A/114A tank car retrofit program with its acknowledged great reduction in catastrophic risk is considered a "non-major" regulation. The inordinate bi-monthly attention to conversion of exemptions while development of safety analysis guidelines—which would multiply the effectiveness of both the DOT and private sector safety efforts—languishes with no target date in sight. While firefighters plead for help with their hazardous materials emergency response problems. DOT's only rulemaking is to make mandatory most railroad's practices of train crews furnishing firefighters with shipping information. We see no indication of any attempt to expand a compliance assurance and registration program to higher-risk bulk hazardous materials.[4]

The "DOT 112A/114A tank car retrofit program" is part of docket HM–144, one of the major program areas.

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[4] U.S. Congress. Senate. Committees on Commerce, Science, and Transportation. Authorize Appropriations for the Hazardous Materials Transportation Act. Op. cit., p. 29.

CHAPTER 13—HAZARDOUS MATERIALS EMERGENCY RESPONSE SYSTEM

This chapter discusses (1) Federal and private efforts to minimize damages from accidents involving the transportation of hazardous materials, (2) the congressional directive to establish a reporting system and data center to provide information and advice for meeting emergencies connected with the transportation of hazardous materials, and (3) the functions of the Chemical Transportation Emergency Center (CHEMTREC).

LOCAL EMERGENCY RESPONSE PERSONNEL NEED ADVICE ON HANDLING EMERGENCIES INVOLVING HAZARDOUS MATERIALS

Based on experience, it is safe to say that (1) there will always be transportation accidents and (2) hazardous materials will be involved in some of those accidents.

When hazardous materials are involved in an accident, the potential dangers may be unknown to local emergency response personnel. They are seldom trained and equipped to handle emergencies involving the kind of dangers presented by hazardous materials. When an accident involving these materials occurs, they need information immediatey on how to handle the hazards. The information can be supplied to advance in writing (preplanned responses to predictable accidents) or by telephone after the accident happens; perhaps a combination of these two methods could be used. In many cases, outside technical assistance, other than information, cannot be obtained during the first hours after the accident.

A spokesman for the International Association of Fire Chiefs: has described a fireman's concern as he approaches an accident involving hazardous materials.

A hazardous materials incident requires fire service personnel to perform some special sizeup requirements. In order to understand what our sizeup problems at a hazardous materials incident, I would like to describe them for the Committee.

1. *Nature of the problem.*—What has happened?

2. *Identification of the material.*—What product or products is involved? Was the vehicle correctly marked? Are the shipping papers available?

3. *Life safety.*—What is the life safety risk to civilians as well as emergency response personnel?

4. *Exposures.*—Are there any buildings in the area which are in danger?

5. *Location—position.*—Is the derailment in a hard to reach place with limited access? From what direction can the wreck be approached safely?

6. *Construction details.*—What types of rail cars are involved? Sudden shifting worsen the problem?

7. *Time parameters.*—How long has the wreck been burning? How long has the toxic material been leaking?

8. *Water supply.*—Is there water in sufficient quantity available to handle the incident?

9. *Weather.*—Will the wind carry the fumes or flammable vapors over inhabited areas? Will a temperature inversion keep the fumes or vapors from dispersing?

10. *Construction.*—What is the construction of the neighboring exposures? Will they be sources of ignition? Can they be protected with the resources at hand?

11. *Attack position.*—How can the incident be attacked?

12. *Manpower.*—Will there be sufficient manpower?

13. *Apparatus—equipment.*—Will there be sufficient resources to perform all of the required functions?

14. *Private fire protection.*—Are there any special fire protection systems within the exposures which can be of assistance?

15. *Additional help available.*—Are there mutual aid agreements with neighboring fire departments? Are there specialized personnel and equipment (buses for evaculation, heavy equipment for debris removal, medical personnel) available for immediate response?

16. *Action already taken.*—Have the railroad personnel, police, or other civilians taken any action which create additional problems?

It seems to us in the International Association of Fire Chiefs, that the critical personnel at the start of an incident are the fire fighers. They must make immediate decisions which will have long reaching affects. To do this they need help. The question is how can we get it?[1]

Local emergency response personnel have frequently cited the need for more assistance in responding to transportation accidents involving hazardous materials. The following documents this concern:

Excerpts from NTSB Report SEE–78–2, Analysis of the Proceedings of the National Transportation Safety Board into Derailments and Hazardous Materials April 4–6, 1978.

FIREFIGHTERS AND EMERGENCY RESPONSE PERSONNEL: THEY NEED TO KNOW

A number of witnesses representing the International Association of Fire Chiefs, the National Fire Protection Association, and the International Society of Fire Service Instructors testified at the hearing to problems encountered by emergency response personnel at train derailments in which DOT 112A/114A tank cars released hazardous materials.

Primary among their concerns were the inability of emergency response personnel to link up with a centrally located communications center where safety response personnel could receive timely, on-line technical advice and their inability to obtain immediate supporting hazardous materials experts in the event of a major railroad emergency. The need to know how to handle hazardous materials emergencies they believed, was extremely critical in the first few minutes after a train derailment.

These witnesses indicated that reliance on technical manuals, placards, computer printouts, and waybills did not fulfill their informational needs. They stated that all too often placards located on hazardous materials tank cars were destroyed, the knowledge of the traincrew was limited as to the exact placement of tank cars and the materials carried, and in immediate emergency conditions, there was not an adequate time to search for waybills and cross-reference materials with an emergency manual to determine general emergency actions. Because of the massive energy threats of LPG or the dangers of toxic gases, emergency response personnel indicated they needed a hazardous materials emergency response system which would assist them in

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[1] U.S. Congress. House. Committee on Government Operations. Hazardous Materials Accident Reporting. 95th Congress, 2d sess. Washington, D.C.; Government Printing Office, 1978, p. 273.

determining and expediting tactical procedures in a real time environment.

Further, they indicated that most fire service organizations in smaller communities have neither the expertise nor informational materials at their disposal to handle major railroad disasters. These communities, they believed, needed a central location to call and request an emergency hazardous materials team of experts as well as online technical advice.

Postaccident feedback to emergency response personnel, they believed, was needed. Lessons learned from one hazardous materials catastrophe needed dissemination so that future accidents could be better addressed and losses to life and property minimized. A number of organizations are attempting to address emergency response personnel's need to know in railroad hazardous materials accidents.

NONGOVERNMENTAL EFFORTS TO MINIMIZE DAMAGES

Minimizing postaccidents damage has long been a concern of government and industry. In 1969, representatives of the Department of Transportation and the Department of Health, Education, and Welfare met with the president of the Manufacturing Chemists Association to discuss ways of providing information to local emergency response personnel on procedures for handling hazardous materials emergencies.[2] As a result of this initiative, the Manufacturing Chemists Association established the Chemical Transportation Emergency Center (CHEMTREC) in 1971.

NTSB maintains that the kind of information that CHEMTREC gives is inadequate and that the failure to give tactical advice is a serious deficiency. According to NTSB, CHEMTREC "doesn't deal with an awful lot of the real life situations they [firefighters] find themselves in when they arrive at a particular type of configuration or emergency situation." [3] However, CHEMTREC does more than merely read information from a card.

The focal point of the CHEMTREC system is the CHEMTREC operator. If he is able to obtain the name of the shipper from the person who phones in the emergency, the operator phones the shipper of the material involved, giving available information about the accident.

Many of the larger shippers of the more hazardous materials have prearranged plans for providing telephonic advice. In the more serious accidents, these shippers may send their own personnel to provide onsite assistance. These shippers make contact through the name and phone number provided by CHEMTREC and make direct arrangements for such further assistance as may be needed.

In addition to the individual shipper, the CHEMTREC operator, in appropriate circumstances, may call on other industry groups for assistance. The Chlorine Institute has established the chlorine emergency plan under which the chlorine producer nearest the scene of the accident will provide telephonic and onsite assistance. The National Agricultural Chemicals Association has formed the Pesticide Safety

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[2] Personal communication with MCA.

[3] U.S. Congress. Senate. Committee on Commerce, Science, and Transportation. Authorize Appropriations for the Hazardous Materials Transportation Act. Op. cit., p. 24.

Team Network, consisting of emergency teams distributed around the country, to provide telephonic and onsite assistance. These groups also make direct arrangements for such further assistance as may be needed.

The Manufacturing Chemists Association is solely responsible for CHEMTREC, supporting it with a budget of about $750,000 per year. CHEMTREC does not receive any Federal funds.[4]

In addition to the private sector's efforts, a variety of DOT activities relate to hazardous materials emergency response systems. As discussed in the next section, some have questioned whether these Federal efforts are adequate.

HAS DOT FULFILLED THE INTENT OF CONGRESS: VIEWS OF NTSB AND MTB

In 1970 Congress directed DOT to establish a central reporting system to provide firemen and other emergency response personnel with technical and other information and advice for meeting emergencies arising out of the transportation of hazardous materials.[5] This requirement was restated in Public Law 93–633, enacted in 1975.

As noted earlier, NTSB has charged that MTB has failed to comply with this provision of law. NTSB's first charge was: MTB has failed to publish safety guidelines to identify accident risks before a catastrophe occurs. In developing this charge, the NTSB chairman said:

> The act places transportation safety in a risk context. It directs the Secretary to identify unreasonable risks and preventive measures. A number of analytical techniques have been developed to identify major risks before a catastrophe occurs. Failure mode and effects analysis, fault-free techniques and hazardous analysis, to mention a few. In March 1976, as a result of its investigation of the explosion in Burlington Northern's Wenatchee, Wash., yard, the Safety Board recommended that the Materials Transportation Bureau publish and adopt safety guidelines to identify risks for a variety of hazardous materials.
>
> More than 2 years later, and no such guidelines have been published.[6]

In response to this allegation, the MTB Director said:

> One of the objectives of the Department of Transportation's hazardous materials classification system is to signify accident risks before accidents occur. The classification system is the means of identifying hazard characteristics of materials by their nature and degree and is the key to the overall regulatory system for hazardous materials, including packaging, marking, labeling, documentation, and vehicle placarding. Using definitions based on sets of quantitative criteria, the shipper can determine the proper classification of a specific material. The Hazardous Materials Regulations currently provide for 17 hazard classifications . . .
>
> The packaging and handling requirements which have been established for each of these classes are based on the safety risks presented by the materials in the class. The communications regulations (package marking and labeling, shipping documentation, and vehicle placarding) are designed to provide an alert to the risk.
>
> The Safety Board has suggested the use of fault-free analysis or other analytical methods such as risk analysis. The Office of Hazardous Materials Operations over a 5-year period expended over $90,000 to determine the feasibility of utilizing risk analysis concepts the National Transportation Safety Board recommended (NTSB–STS–71–1, January 1971) for improving the Hazardous Materials Regulations. However, the risk modes developed for us by the University of California are dependent upon the availability of extensive performance data on the transportation of any particular hazardous material under consideration and

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[4] Information from MCA, 1978.
[5] P.L. 91–458.
[6] U.S. Congress. Senate. Committee on Commerce, Science, and Transportation. Authorize Appropriations for the Hazardous Materials Transportation Act. Op. cit., p. 22.

transportation accident experience for the mode or modes of transportation being considered. For both fault-free and risk analysis, a reliable data base developed over an extended period of time is a critical factor in assessing risk. Such a firm and exhaustive data base for the whole range of hazardous materials does not exist. Accordingly, formalized and mathematical risk model treatment would not provide meaningful results and could, in fact, lead to a false sense of knowledge about possible risks . . .[7]

NTSB's second charge was: MTB has refused to establish a central data system to provide information and advice to firefighters and local safety personnel. In support of this position, the NTSB Chairman said:

The Safety Board has recommended that the Materials Transportation Bureau redesign its incident-reporting system, now primarily limited to container performance, to develop lessons learned from the handling of hazardous materials incidents.

We won agreement from the Materials Transportation Bureau that the idea was a good one, but we have yet to see any change and it's been a year and half.

Because of a reluctance to act here in Washington, safety lessons are not being shared with those throughout the country who are exposed to the greatest personal dangers when an accident occurs, the local firefighters and safety officials. None of the many parties publishing emergency-handling information has enough data to evaluate the usefulness of their information.[8]

In response, the MTB Director explained:

* * * the Departments of Transportation and Health, Education, and Welfare recognized the need to provide immediate assistance to emergency response personnel in the event of transportation emergencies involving chemicals. In 1970, officials of these two Departments approached the Manufacturing Chemists Association (MCA) to suggest that personnel from the chemical industry who possessed the necessary technical expertise establish a sytem to provide such assistance and information. On the basis of a resulting study undertaken by industry safety, packaging, and transportation specialists, it was determined that a single center, nationwide in coverage, and accessible through a single telephone number would be the most effective arrangement. Following review and confirmation by the industrial specialists of the MCA's technical committees, the Chemical Transportation Emergency Center, (CHEMTREC) was established. The Department of Transportation assisted in the dissemination of information concerning this newly established central information point. The Department continues to recognize the capabilities of CHEMTREC and through our various publications, including the Emergency Action Guide for Selected Hazardous Materials, advises the transportation and emergency response communities of the nature and availability of CHEMTREC's services.

Notwithstanding that CHEMTREC is supported by private funds and by the cooperation of hundreds of industry participants who provide technical information, rather than by Federal funds, the Department of Transportation believes this system meets the public need addressed by § 109(d) of the Hazardous Materials Transportation Act. CHEMTREC provides immediate advice for those at the scene of emergencies, using prepared and immediately available information on over 18,000 chemicals, and then notifies the shipper of the emergency for further action.[9]

NTSB's final charge in this area was: MTB has declined to become a leader in developing new emergency response techniques. In support, the NTSB Chairman said:

Our final area of concern is emergency response. During our hearing, testimony indicated that there is vigorous activity but little coordination. Four systems disseminate technical information, the Materials Transportation Bureau distributes a handbook which addresses only the first 30 minutes of a hazardous materials emergency and includes only 42 products.

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[7] Ibid., p. 39.
[8] Ibid., p. 22.
[9] Ibid., p. 40.

The Association of American Railroads, Bureau of Explosives, issues several handbooks. The National Fire Prevention Association distributes a handbook and the Manufacturers and Chemists Association has an on-line CHEMTREC one-call system which meets some needs.

A number of public witnesses called for a stronger Federal role and offered specific suggestions for the help they need. Several witnesses asked for a national one-call system to provide local officials with immediate technical information in the event of an emergency. Other State and local officials recommended that the Federal Government set minimum requirements for a hazardous materials response center in every State and training standards for emergency personnel.

Another public witness asked for a Federal hazardous materials emergency team to assist local officials in fires or explosions beyond their capabilities.

As we listened to the representatives of firefighters and State and local emergency response personnel, we were encouraged by their innovative and creative approaches, all of which were worthy of serious consideration. But the Materials Transportation Bureau did not appear as a participant in this work, much less as a leader. One firefighters' representative who spoke for 2,100 fire department training centers testified that they used a Bureau of Explosives curriculum. One major State emergency response coordinator testified that he never heard of the Materials Transportation Bureau.[10]

The MTB Director responded:

The following brief summary of the Materials Transportation Bureau's (MTB) activities related to hazardous materials emergency response is evidence to the contrary of this statement.

SYSTEM FOR COMMUNICATING HAZARDS

The effectiveness of the response to a transportation accident involving the release of a hazardous material depends upon the ability of responding personnel to address the problem. To a large degree, that ability depends upon their knowing what they are dealing with.

One of the first administrative actions taken after enactment of the new law was the April 1975 announcement of a new and intermodal system for classifying hazardous materials in transportation and communicating the risks they present. The new rules provided, first, for consistently identifying the hazard characteristics and describing the materials and, second, communicating the hazards of these materials through uniform vehicle placarding, package marking and labeling, and shipping documents. This was a major regulatory activity involving concerns and interests ranging from sophisticated, multi-national chemical companies to innumerable small business concerns. * * *

EDUCATION AND TRAINING

Commencing on the heels of the 1975 announcement of the new system, the Department of Transportation, through the Materials Transportation Bureau, the operating administrations, and the Transportation Safety Institute in Oklahoma City, undertook a concerned program to educate the industry, particularly shippers, and emergency response personnel about the regulatory changes and the new system for identification of hazardous materials and communication of hazards.

A vast amount of training materials on the provisions of the hazardous materials regulations, to assist the industry and emergency response personnel have been distributed.

CHEMICAL TRANSPORTATION EMERGENCY CENTER

In addition to the specific guidance, contained in the manual, the user is directed to a 24-hour, seven days a week, toll free telephone number where further assistance and advice can be obtained. That service—the CHEMTREC system—is operated by the Manufacturing Chemists Association. Our relationship with CHEMTREC is discussed in detail in our response to the Safety Board's second point.

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[10] Ibid., p. 23.

NEW EMERGENCY RESPONSE TRAINING COURSE

Another important activity in the area of emergency response relates to local planning and preparation. Accurate assessment of emergencies, effective decision-making, and appropriate action at accidents requires advance awareness and planning by law enforcement and firefighting personnel. To assist in this area, the Materials Transportation Bureau, in July 1976, contracted with the National Fire Protection Association for the development of a comprehensive training course for emergency response personnel. The 20-hour course designed to be taught by Fire and Police department training officers stresses the importance of defining the roles and responsibilities of the various concerned response groups. It places particular emphasis on communications and command considerations but also presents a general overview of hazardous materials transportation. Perhaps its most important feature is its guidelines for use by local fire departments and police departments in their development and implementation of their own community emergency response plans.[11]

SELECTED INDUSTRY VIEWS

Many industry groups involved in the transportation of hazardous materials have opposed the operation of an emergency response system by the Federal Government. They would like to leave the function with CHEMTREC.[12] An example of this view was provided by the American Trucking Associations:

> Individual shippers have had emergency assistance programs in effect for many years and can provide information and can send expert personnel to the scene of an emergency if necessary. To the best of our knowledge, all of the shippers having assistance programs are willing to help out whether or not their own products are involved. Our people do not believe that government can improve upon these private industry programs.
>
> The trucking industry has found Chemtrec to be a most helpful source of information. In addition to its own resources, Chemtrec maintains liaison with the emergency assistance programs of shippers and shipper organizations and contacts them whenever necessary.
>
> We found little support in our industry for the establishment of Federal "strike teams" to assist at hazardous materials emergencies. Motor carriers are aware of the ability to obtain this type of assistance from shippers either directly, or through Chemtrec. They have found the assistance available to be effective.
>
> Several of those who responded to us expressed reservations about the cost-effectiveness of a Federal "strike team" system. Despite their severity, major hazardous materials emergencies are relatively infrequent. On the other hand, the costs of a Federal "strike team" program for recruitment and maintaining of manpower, and the acquisition and maintenance of equipment, would be very high, especially in view of the limited anticipated use of such teams.
>
> The trucking industry does believe that the Department of Transportation and other agencies can play a useful role in providing leadership and assistance in closing the gaps in hazardous materials response.

However, industry is not unanimous in its opposition to a Federally-run system. The Aerospace Industries Association of America stated:

> AIA members believe there is a need for a Federally-run hazardous materials information system for central data collection . . . and resultant simpler identification of hazardous materials. This information center could supplement the CHEMTREC emergency response system or could include emergency procedures as well as all other agency rules dealing with hazardous materials.

Nonindustry groups also have objected to the proposal that the Federal Government take over the CHEMTREC function, including the National Fire Protection Association, a major nonprofit association

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[11] Ibid., p. 41.
[12] The following industry views are documented in appendix 3.

that has been a leader in the fire protection field for 90 years. An official of the International Association of Fire Chiefs, at a hearing before the House Government Operations Committee on April 25, 1978, said:

> I think CHEMTREC has filled this need, and to proliferate additional telephone numbers, I don't think, is the answer. I think the answer is for the Government to determine that indeed they will work with CHEMTREC and provide that information. I think private industry doing it by itself is certainly better than mandating it on a Federal Government level. That is a personal opinion and not necessarily speaking for the fire chiefs.[13]

Responding to a question about the failure of CHEMTREC to give tactical advice, he said:

> I don't think anybody can give you tactical advice. We have to put some reliance on the fire chiefs to be able to determine that, based on past experience. He does need some basic advice on the life hazards, the pollution potential, Chemtrec provides that very, very quickly. Even in the trade name areas they can provide that.[14]

RECENT DOT POLICY CONCERNING EMERGENCY RESPONSE SYSTEMS

The Secretary of Transportation's task force on hazardous materials, which was previously discussed, commented on DOT's emergency response and training activities. The task force found that improvement in current programs and techniques for response to hazardous materials emergencies was needed. They defined "response" to include training of firefighters and other emergency response personnel, methods of making information available to them at the scene of an accident, and the role of Federal and local governments. The task force recommended that (1) DOT's training effort must concentrate on the part-time firefighters who may not have the time or resources to devote to lengthy and expensive training, and (2) efforts should be made to develop, in conjunction with shippers, manufacturers and carriers of hazardous materials, a comprehensive emergency action guide.

The task force noted that while existing response mechanisms to emergencies involving hazardous materials are adequate, these mechanisms do not accomplish enough. The task force agreed with the National Transportation Safety Board's (NTSB) recommendation to DOT that the Secretary of Transportation supply the leadership required to establish an adequate nationwide hazardous materials response network able to meet all facets of hazardous materials emergency response needs, using existing State and private resources whenever possible.

To improve DOT's emergency response capability, the DOT task force recommended a one-call response system to be established by DOT.

To implement the task force's suggestion, the Secretary of Transportation approved on September 28, 1978, the following recommendation for the Commandant of the U.S. Coast Guard:

> That an implementation plan be developed to establish a National Hazardous Materials Response Center by expanding the existing U.S. Coast Guard National

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[13] U.S. Congress. House. Committee on Government Operations. Hazardous Materials Accident Reporting. Op. cit., p. 261.
[14] Ibid.

Response Center. This Center would maintain a 24-hour response capability to assist local enforcement authorities in combatting hazardous materials incidents.

In developing this plan, it would be necessary to coordinate with the Environmental Protection Agency, the National Transportation Safety Board, other Federal, state, and local government units and industry organizations involved with hazardous materials safety issues.

The purpose of the National Hazardous Materials Response Center would be to maintain a communications network which could notify appropriate state and local officials of a hazardous materials accident, and, through the use of existing industry mechanisms, provide immeriate instructions to mitigate the effects of the incident.[15]

This recommendation represents a substantial change from past DOT policy. As indicated previously in this chapter, DOT chose to support existing hazardous materials emergency systems in the private sector, and to do little else as far as providing direct advice concerning specific emergency situations. The task force stated that the Coast Guard's National Response Center (NRC), which currently deals only with oil spills and hazardous materials substances spills in water, provides the mechanism for a single-telephone-number response system. The task force argued that notification to the Federal National Response Center of a hazardous materials incident could be made mandatory by regulation.[16] Such notification is already required under the Federal Water Pollution Control Act (FWPCA) for oil spills and hazardous substances spills in water.

The task force noted that the DOT has a superb communications capability, operated on a 24-hour basis, which can insure that local authorities are notified and that industry resources, such as CHEMTREC, are brought promptly to bear on a hazardous materials incident. In minor incidents, the National Response Center could transfer the problem to State and local authorities or to manufacturers' response teams. They also pointed out that industrial assistance programs are hampered by problems of liability exposure. If specific directions need to be given on treating a hazardous materials accident, the task force maintained that the Center would have greater latitude in which to act.[17] The task force maintained that it does not seem too difficult, or costly, to expand the existing Federal response system to cover all hazardous materials incidents wherever they occur. Such an expansion should be developed in conjunction with the States, some of which (such as Tennessee and Illinois) are developing their own statewide emergency systems.[18]

Further discussion of this subject would be premature until USCG completes development of the plan that the Secretary has directed it to prepare. When the plan is complete, Congress may want to examine it before DOT puts it into effect and compare the cost and the efficiency of the service that CHEMTREC provides with the cost and the efficiency of the service that USCG proposes to provide.

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[15] U.S. Department of Transportation. Report of the Hazardous Materials Transportation Task Force. Op. cit., p xii.

[16] DOT has as much right to require reports to be sent to CHEMTREC as to USCG. DOT does not have authority to require local firemen to report to either CHEMTREC or USCG.

[17] The Federal Government has the same problems of liability exposure as industry, when operating in this area. In computing the cost of the proposed program, this contingent liability has to be taken into account. Taking the Government's contingent liability into account, the Government has no greater latitude than industry.

[18] U.S. Department of Transportation. Report of the Hazardous Materials Transportation Task Force. Op. cit., pp. 47–91.

CHAPTER 14—AREAS OF CONCERN REGARDING DOT'S HAZARDOUS MATERIALS REGULATORY PROGRAM

This chapter summarizes several areas of concern related to DOT's hazardous materials regulatory program. Several of these concerns were introduced in other parts of the study.

MTB PERSONNEL PROBLEMS

MTB has faced many personnel problems, many of which seem to have had an adverse effect on its programs. For example, in its First Annual Regulatory Review and Development Plan, MTB said that "the resources of the Bureau are not sufficient to enable it to consider in detail and individually process, on a current basis, each of the petitions and proposals it receives. . . .", At the time this statement was made, 15 out of its 70 authorized permanent positions were vacant.[1] This staff shortage is consistent with this agency's historical development, since MTB (and OHM in earlier days) has always had difficulty in filling its position vacancies. A major part of this difficulty appears to be that MTB has never had its own personnel office. In addition, MTB's personnel selections have not always been processed in a timely manner through DOT and the Civil Service Commission.

MTB has nearly filled its position vacancies and is now at ninety-eight percent of authorized strength. The staff of about 75 that deals with hazardous materials matters must divide their time among many different activities. They must:

—Develop regulations and issue exemptions, coordinating regulation and exemption projects with the modal administrators;
—Conduct inspections of industry activities and take enforcement action when appropriate;
—Collect and analyze information from accident and incident reports;
—Investigate accidents, seeking safety information;
—Plan and coordinate research and development activities;
—Maintain an information-exchange relationship with the regulated industries;
—Coordinate interagency hazardous materials regulatory activities;
—Participate in international hazardous materials regulatory activities;
—Conduct training and educational activities for Federal, State, and industry employees;
—Publish and distribute the OHM newsletter and many other informational publications; and
—Determine whether the Federal regulations have preempted State or local government action.

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[1] The following information about MTB was partly obtained during conferences with MTB officials.

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Even though it is essentially at its authorized manpower level, it seems unlikely that MTB will be able to perform adequately all of its functions. With only 6 full-time inspectors, MTB will be unable to properly inspect even a representative percentage of the 20,000 container manufacturers/suppliers and 100,000 shippers of hazardous materials. In addition, MTB has not had the resources to assume the responsibility for many of the regulatory functions that have been delegated to industry. As a result, industry is partly regulating itself, although DOT has issued guidelines for industry action in most cases. One might question the appropriateness of industry partly conducting Federal safety functions in the area of hazardous materials transportation. However, because of Federal personnel limitations, industry involvement is likely to continue for many years.

Many in industry are aware of MTB's personnel problems. For example, the American Trucking Associations stated:

> The Materials Transportation Bureau is hampered by a staff and budget that is far too small to adequately deal with the complexities of hazardous materials transportation and the pressures generated by industry, the public, the news media, other nations, and the Congress. The problem is compounded by requirements for economic impact analysis which are essential, but time consuming for staff.

This association maintained that although MTB regulatory procedures are adequate, they cannot be effectively carried out until the agency has the manpower to do the job. The American Trucking Associations, Inc., also noted that the shortage in MTB's manpower detracts from their ability to give in-depth consideration to industry proposals and comments and to make detailed studies. A spokesman for Sea-Land Service, Inc., also stated that, MTB's enforcement activities against packaging manufacturers under the authority of the Transportation Safety Act of 1974 has been restricted due to the lack of a suitably sized and trained enforcement staff.

The Institute of Makers of Explosives stated:

> MTB does not have the manpower to comply with its congressional mandate under the Hazardous Materials Transportation Act of 1974, 49 United States Code, section 1801, et seq. Because of this lack of personnel, the MTB is often slow in acting to resolve industry's transportation problems involving hazardous materials.
>
> Further, there have been five reorganizations in MTB within the last 4 years. Consequently, communication lines with industry were broken, and the personnel had to learn new areas of responsibility. These reorganizations affect interpretation and enforcement of regulations because of changing personnel assignments.[2]

PENALTY FIGURES INDICATE DOT AGENCIES DO NOT TAKE VIGOROUS ENFORCEMENT ACTION

Upon finding a violation of the regulations, the inspector may take (or initiate) any of a number of kinds of enforcement action, ranging from an oral warning, through a written warning or written notice to correct the violation, to civil penalty or (in aggravated cases) criminal prosecution. As provided in Public Law 93–633, the kind of severity of enforcement action depends on a number of factors, including:

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[2] See appendix 3 for additional views on the DOT program.

The nature, circumstances, extent, and gravity of the violation committed and, with respect to the person found to have committed such violation, the degree of culpability, any history of prior offenses, ability to pay, effect on ability to continue to do business, and such other matters as justice may require.

Enforcement is a tool to secure compliance with the regulations. Enforcement action is not an end in itself and the efficacy of the inspection program need not be gaged by the number of enforcement actions nor by the amount of penalties collected. However, the compliance program will not be effective unless there are enough enforcement actions and the penalties are high enough to give credibility and effectiveness to the inspection program. The discussion in chapter 9 suggests that the DOT compliance program may not be achieving this objective. However, preliminary data on penalties collected during 1978 indicate that DOT has increased its efforts in this area.

DOT INSPECTION FORCES ARE INADEQUATE TO PROPERLY INSPECT INDUSTRY ACTIVITIES

As discussed in chapter 9, another personnel concern is the small number of DOT hazardous materials inspectors in relation to the size of the industry. The inspection forces of FHWA and FRA are so small that they can make no more than a token number of inspections of those parts of the hazardous materials industry that they are responsible for. Until the inspection forces of these agencies are substantially increased, there will be no assurance that the hazardous materials industry is complying with the regulatory requirements.

Possible benefits of increasing the number and improving the quality of Federal safety inspections include:

1. The degree of compliance with existing Federal regulations might increase;
2. The safety record of this industry might improve; and
3. The total penalty figure might increase.

Possible disadvantages of increasing the number and improving the quality of Federal safety inspections include:

1. The cost of training and employing new or additional inspectors; and
2. The costs to industry of having to allocate time and manpower during inspections.

NEED FOR IMPROVED ALLOCATION OF INSPECTION RESOURCES

Exhibit 16 provides information on the facilities and operations inspections conducted by DOT in 1977. As indicated, there is strong emphasis on the inspection of carrier operations and less emphasis on shippers and container manufacturers. The degree of compliance with the regulations by the container manufacturers and the shippers affects the adherence to the regulations throughout the transportation chain. Integrity of containers is essential to preventing inadvertent releases of hazardous materials. Principal responsibility for compliance with container specification requirements rests with the container manufacturer who furnishes packagings to shippers. Inspection of container manufacturers is an essential component of insuring regulatory compliance; however, DOT directs only 1 percent of its inspection effort to container manufacturers.

EXHIBIT 16

LOCATION OF INSPECTIONS (1977)

	Inspections	Percentage
Carrier operations and waterfront facilities	23,075	91.0
Shipper facilities	1,915	7.6
Container manufacturers	261	1.0
Other	95	.4
Total	23,346	100.0

Source: U.S. Department of Transportation Report of the Hazardous Materials Transportation Task Force.

The MTB has primary responsibility for inspecting shipper facilities and container manufacturers. Because of the limited size of the Department's, and especially MTB's, inspection force and the importance of compliance by container manufacturers and the shippers, it seems necessary to assure proper allocation of resources to the various segments of the regulated industry. As indicated in the exhibit 16 DOT does not seem to be properly allocating its inspection resources among all segments of the regulated industry.

FEDERAL REGULATORY RESPONSIBILITIES ARE STILL BEING IMPLEMENTED BY NON-FEDERAL ENTITIES

As discussed in chapter 2, the Interstate Commerce Commission delegated certain Federal responsibilities to non-governmental entities, such as the Bureau of Explosives. DOT has begun to reduce the number of delegated authorities. For example, DOT action HM–163 withdrew all of those delegations of authority to the Bureau of Explosives which pertain to (1) examination and approval of cigarette lighters or other similar ignition devices (§ 173.21(d)); (2) cylinder test apparatus approval (§ 173.34(e)(1)); (3) registration of container manufacturers' mark or symbol; and (4) filing of reports.

Although DOT has begun to reassume certain delegated responsibilities, many Federal functions are still delegated to the Bureau of Explosives and to the AAR Tank Car Committee. Remaining delegations to the Bureau of Explosives are contained in about 157 sections of 49 CFR. These delegations consist of authority to grant approvals, make inspections, handle registrations, witness tests, receive reports, etc. DOT estimates that approximately six delegations to the AAR Tank Car Committee are still in existence.

It should be noted that the Hazardous Materials Transportation Act (title I of P.L. 93–633) does not make any reference to this practice of Federal reliance on authority delegated to non-Federal entities. Rather, this law directs the Secretary of Transportation to "take all steps necessary to bring . . . regulations into conformity with (its) purposes and provisions . . . as soon as practicable. . . ." Although certain criteria or guidelines are contained in the DOT regulations, non-Federal entities are given considerable discretionary authority in their actions, for example, in making determinations of equivalency to the regulations and in authorizing alternative materials for building tank cars.

TECHNICAL AND OPERATIONAL INFORMATION REGARDING THE CHARACTERISTICS OF THE INDIVIDUAL MODES OF TRANSPORTATION

MTB issues safety regulations covering all hazardous materials transportation, except bulk transportation by water. The modal administrations, USCG, FAA, FRA, and FHWA, participate in developing the regulations covering intermodal transportation. Each of the modes of transportation has its separate operational characteristics; each of the modal administrations is responsible for furnishing technical and operational information to MTB regarding the characteristics of the mode of transportation for which it is responsible. MTB must rely on the modal administrations, because the Secretary of Transportation left parts of the hazardous materials staff in the modal administrations.[3]

USCG issues the safety regulations for the bulk transportation of hazardous materials by water, so it participates only in the regulatory program relating to intermodal transportation. USCG's Cargo and Hazardous Materials Division, in the Office of Merchant Marine Safety, is generally well staffed and appears to contribute effectively to the development of intermodal regulations, particularly container requirements.

FAA has only one person assigned to hazardous materials duties in the Washington office. He is primarily concerned with the activities of FAA's inspectors in the field; his participation in the regulatory program is limited to those areas in which the operational characteristics of air transportation require special regulatory treatment.

In FHWA the hazardous materials safety function is not identified as a separate function by the Bureau of Motor Carrier Safety; it is handled as a part of the two major functions, vehicle safety requirements and driver safety requirements. Since trucks are involved in most intermodal shipments, FHWA staff must be active and knowledgeable participants in developing intermodal regulations. FHWA has three engineers who are available for part-time work on the design and construction of tank trucks.

FRA has three full-time hazardous materials professionals in the Hazardous Materials Division, Office of Standards and Procedures. As participants in the intermodal regulatory function, they are knowledgeable about the operational characteristics of railroads, but they are more concerned with bulk shipments than intermodal shipments. In the development of tank car standards, they prefer to work with the AAR Committee on Tank Cars, though they are not bound by the actions of the committee.

DOT organizational structure seems effective for developing intermodal regulations. MTB is responsible for issuing the regulations and has the staff to develop the regulations. The modal administrations provide expertise regarding the operational characteristics of their respective modes and also supplement MTB's staff in other areas, and MTB now has a staff whose expertise encompasses most of the knowledge required for the program.

It appears that the organizational structure is not effective for developing regulations for bulk transportation by land, particularly for

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[3] The following information about modal administration participation in the regulatory program was obtained from conferences with DOT officials involved in the program.

the design and construction of tank trucks and tank cars. MTB issues the regulations for tank trucks and tank cars, but does not control the staff who develop the regulations. The Secretary of Transportation created this anomaly in July 1975, when he created MTB. Prior to that time, FHWA issued the tank truck regulations and FRA issued the tank car regulations. When he created MTB, the Secretary transferred to MTB the authority to issue tank truck and tank car regulations, but he did not transfer the corresponding staff with the function. This situation could be corrected by either transferring the tank truck and tank car staff to MTB or returning signature authority for tank trucks to FHWA and for tank cars to FRA.

PERFORMANCE STANDARDS/MANUFACTURING SPECIFICATIONS

The DOT container regulations are written almost entirely in manufacturing specifications, rather than in performance standards. A manufacturing specification (or technical standard, as it is sometimes called) prescribes how a piece of equipment must be built, but does not say what the equipment must be capable of doing. A performance standard prescribes what a piece of equipment must be capable of doing after it is built, but does not say how the equipment must be built.

Until such time as the container regulations are rewritten in performance standards, MTB will have to continue to issue a special permit—or exemption, as it is now known—for each new type of container that is used. Other advantages of writing regulations in performance standards, rather than manufacturing specifications are stated below:

> Design and manufacturing specifications usually are developed as industry standards and then adopted as regulations. They prescribe the materials, manufacturing processes, and quality control processes to be used in making the equipment. Regulators like to regulate by specification, because it is easy and precise—easy because it reflects yesterday's wisdom assembled and approved by the experts who establish industry standards; precise because it recites detailed descriptions of materials and manufacturing processes. But the regulator's assignment is to set the standards for tomorrow's activities, not memorialize yesterday's accomplishments. Despite the difficulty, the regulator should, wherever practicable, state his regulations in terms of performance standards, providing a regulatory milieu in which the public is protected while the regulated industry is free to innovate and make technological improvements.
>
> Performance standards prescribe what a piece of equipment must be capable of doing after it is built, but not how to build it. The regulator must think in terms of performance, not processes. Thinking in terms of performance, the regulator tends to develop standards which will require that the equipment have the integrity to perform the function for which it is built. Thinking in terms of specifications, the regulator tends to tailor the standards for equipment so that the specified material of which the equipment is built can meet the standard.[4]

Rewriting the container regulations in performance standards has long been a goal of DOT. A study by the National Academy of Sciences in 1969 found such a rewrite to be feasible.[5] And MTB has recently reaffirmed the goal:

> *The development and implementation of a phased program to convert technical, specification-oriented standards to performance standards, especially in the area of packaging and related plastic container regulations.*—Performance standards

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[4] William Jennings, The Regulators Handbook, op. cit., pp. 82–83.
[5] See appendix 2.

establishing specified and adequate levels of public safety are already embodied in many of the Bureau's regulations pertaining to pipelines. A fundamental objective of the Bureau is to extend such standards to as many other areas under its regulatory authority as possible. This preference is based on the belief that performance standard provide greater fredom and more incentive to the regulated public to search at their own initiative for less costly approaches to either maintaining the status quo or enhancing the current levels of public safety afforded by technical standards. It is generally conceded that technical standards provide little flexibility, become locked into current state of the art technologies, and are dependent on the engineering expertise and resources available to the Bureau at any one point in time.[6]

It should be noted, however, that MTB is already developing some performance standards:

In addition to the performance standards adopted under HM–144, and those that have been in place for a number of years pertaining to the packagings for radioactive materials, we have adopted several standards which could be characterized as performance-oriented standards. To us, the term "performance-oriented standard" means that a serious effort was made to set forth the standard on a performance basis to the maximum extent considered practicable and feasible. An example would be DOT Specification 39 for the manufacture of nonreusable compressed gas cylinders. This specification relies primarily on test (performance) requirements. However, we found it necessary to specify the chemical analysis for steel and the grade of aluminum used in the manufacture of the cylinders because we know of no performance standard that could be adopted as an appropriate substitute for these materials specifications at the present time.[7]

MTB SPENDS A LARGE PART OF ITS STAFF TIME ISSUING EXEMPTIONS, OR SPECIAL PERMITS

MTB now spends approximately 45 percent of the professional and staff time of the Office of Hazardous Materials Regulation processing exemptions; that is, special permits. One year ago nearly 82 percent of the staff time was devoted to the exemption program. MTB predicts that only 20 percent of the staff time will be devoted to processing after they issue regulations for cryogenic tanks and portable tanks.[8]

The number of pending exemption applications has varied in past years. As of October 1, 1978, there were 332 hazardous materials exemptions applications pending before MTB. This compares with 229 pending 1 year ago. Contributing to this increase in backlog is the 2-year renewal requirement under the Hazardous Materials Transportation Act (Public Law 93–633). All special permits in effect when Public Law 93–633 was passed had to be converted to exemptions within 2 years, or by January 3, 1977. A large number of exemptions were issued during the last 6 months of that period, and now those exemptions holders are applying for renewal.

The Secretary's task force recommended that the new DOT Standing Committee on Hazardous Materials should give attention to the exemption problem:

Analysis should be conducted to determine if these exemptions are due to the rigidity of design standards when performance standards might be more appropriate. This should be an issue to which the RSPA, the standing committee and the Regulations Council give early consideration. Results of that study should be used in reviewing existing regulations and developing new ones.[9]

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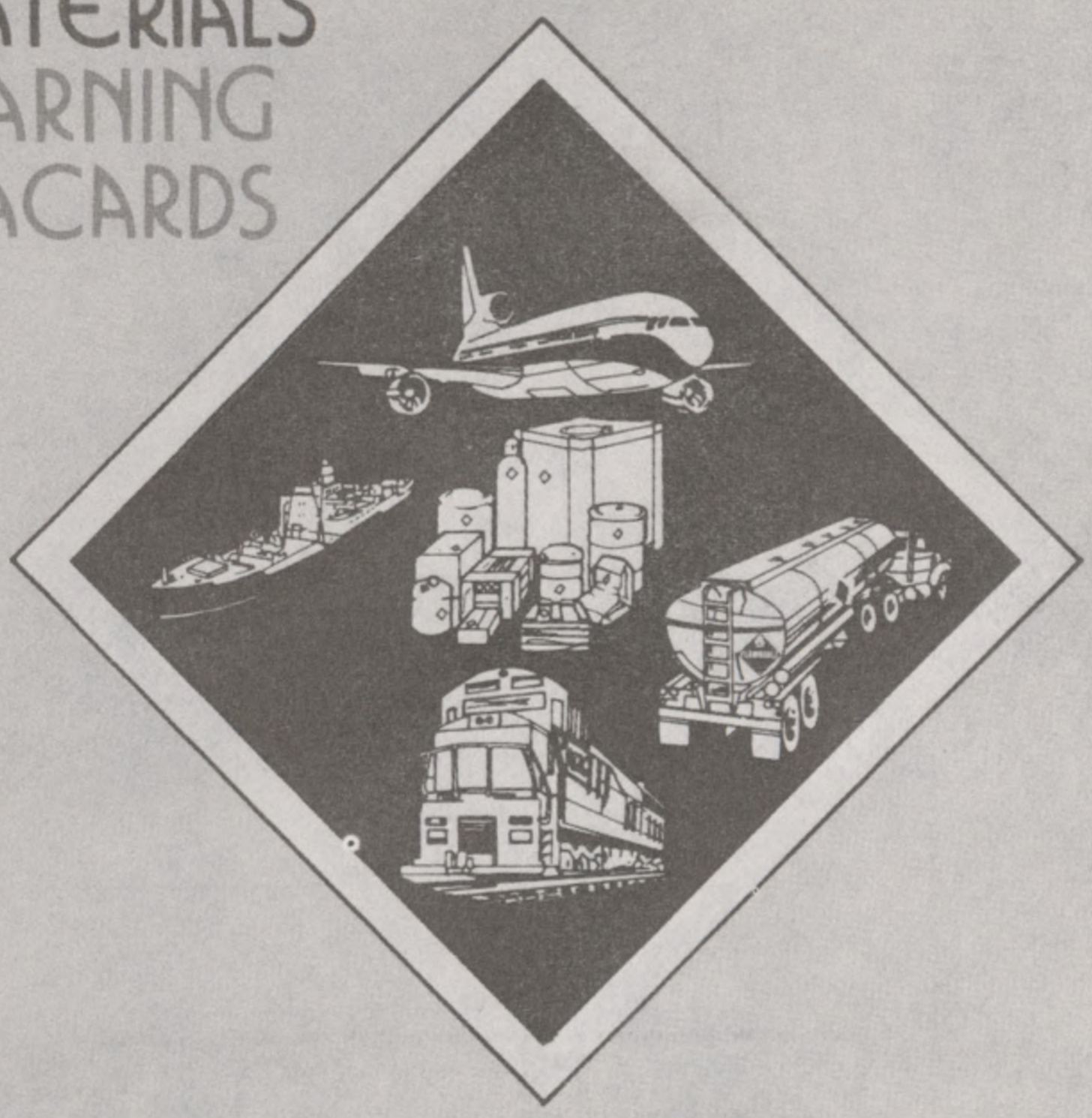
[6] MTB. First Annual Regulatory Review and Development Plan, 1978.
[7] Information supplied by DOT.
[8] Information supplied by DOT.
[9] U.S. Department of Transportation. Report of the Hazardous Materials Transportation Task Force. op. cit., p. 80.

DOT'S PLACARDS DO NOT PROVIDE DETAILED INFORMATION ABOUT THE HAZARDOUS MATERIAL BEING TRANSPORTED

The general rule is that, when it contains hazardous materials, each motor vehicle, railroad car, and large freight container must have an appropriate placard on each end and each side. Examples of DOT placards are shown in exhibit 17.

Exhibit 17

DOT HAZARDOUS MATERIALS WARNING PLACARDS



GENERAL GUIDELINES FOR PLACARDING

Guidelines for the placarding of each end and each side of a motor vehicle, rail car, freight container or portable tank containing hazardous materials.

NOTE: These guidelines do not include all of the DOT hazardous materials placarding requirements. For details, refer to Title 49, Code of Federal Regulations, Part 172, Subpart F.

U.S. DEPARTMENT OF TRANSPORTATION
MATERIALS TRANSPORTATION BUREAU
OFFICE OF HAZARDOUS MATERIALS OPERATIONS
Washington, D.C. 20590

CHART 5 *1977 EDITION*

DOT HAZARDOUS MATER

PLACARDING ANY QUANTITY—

MOTOR VEHICLES, FREIGHT CONTAINERS AND RAIL CARS

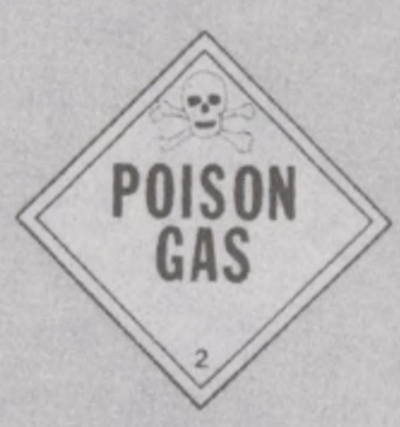
Placard motor vehicles, freight containers, and rail cars containing "any quantity" of hazardous materials listed in TABLE 1.

TABLE 1

HAZARDOUS MATERIAL CLASSED OR DESCRIBED AS	PLACARDS
Class A explosives	EXPLOSIVES A.
Class B explosives	EXPLOSIVES B.
Poison A	POISON GAS.
Flammable solid (DANGEROUS WHEN WET label only)	FLAMMABLE SOLID W.
Radioactive material	RADIOACTIVE.
Radioactive material:	
Uranium hexafluoride, fissile (containing more than 0.7 pct U^{235})	RADIOACTIVE AND CORROSIVE.
Uranium hexafluoride, low specific activity (containing 0.7 pct. or less U^{235})	RADIOACTIVE AND CORROSIVE.











YELLOW III labeled packagings only.

For Uranium Hexafluoride, see Sec. 172.504(a) and TABLE 1.

RAIL PLACARDS







SQUARE BACKGROUND FOR RAIL SHIPMENTS—Each "EXPLOSIVE A PLACARD," "POISON GAS PLACARD," and "POISON GAS—EMPTY PLACARD" affixed to a rail car must be placed on a square background measuring 14¼ inches on each side with a black border extending to 15½ inches on each side (illustrated in above chart). (See Sec. 172.510(a) and 172.527(a)).

IALS WARNING PLACARDS

OTHER PLACARDING REQUIREMENTS

MOTOR VEHICLES, RAIL CARS AND FREIGHT CONTAINERS

1. Placard motor vehicles and freight containers containing 1,000 pounds or more gross weight of hazardous materials classes listed in TABLE 2.
2. Placard any quantity of hazardous materials classes listed in TABLES 1 and 2 when offered for transportation by air or water.
3. Placard rail cars containing any quantity of hazardous materials classes listed in TABLE 2 except when less than 1,000 pounds gross weight of hazardous materials is transported in TOFC (Trailer on flat car) or COFC (Container on flat car) service.

TABLE 2

HAZARDOUS MATERIAL CLASSED OR DESCRIBED AS	PLACARDS
Class C explosives	FLAMMABLE.
Nonflammable gas	NONFLAMMABLE GAS.
Nonflammable gas (Chlorine)	CHLORINE.
Nonflammable gas (Fluorine)	POISON.
Nonflammable gas (Oxygen, pressurized liquid)	OXYGEN.
Flammable gas	FLAMMABLE GAS.
Combustible liquid	COMBUSTIBLE.
Flammable liquid	FLAMMABLE.
Flammable solid	FLAMMABLE SOLID.
Oxidizer	OXIDIZER.
Organic peroxide	ORGANIC PEROXIDE.
Poison B	POISON.
Corrosive material	CORROSIVE.
Irritating material	DANGEROUS.



Also used for Class C Explosives labeled with an Explosive C label.

















Used for materials transported in packaging having a rated capacity of more than 110 gallons.



Other than by water, a FLAMMABLE placard may be displayed in place of a FLAMMABLE SOLID placard except when a DANGEROUS WHEN WET label is specified in Sec. 172.101.

DANGEROUS PLACARD

1. When a freight container, rail car or motor vehicle contains two or more classes of hazardous materials requiring different placards specified in TABLE 2, the DANGEROUS placard may be used in place of the separate placards specified for each class.
2. When 5,000 pounds or more of one class of hazardous material is loaded at one loading facility, the placard for that class in TABLE 2 must be applied.



OXYGEN placard required for pressurized liquid oxygen.

OXYGEN placard may also be used to identify liquefied oxygen contained in a manner that does not meet the definition of a compressed gas in Sec. 172.300.



CHLORINE placard required only for a packaging having a rated capacity of more than 110 gallons. Use the NON-FLAMMABLE GAS placard for packagings having a rated capacity of 110 gallons or less.

HIGHWAY SHIPMENTS



Above placard may be used in place of FLAMMABLE placard when gasoline is being transported (Sec. 172.542(c)).



Above placard may be used in place of COMBUSTIBLE placard when FUEL OIL that is not classed as a Flammable liquid is being transported (Sec. 172.544(c)).

RAIL SHIPMENTS



EMPTY placard. Each "empty" tank car must be placarded with an EMPTY placard that corresponds to the placard that was required for the material the tank car last contained unless the tank car last contained a Combustible liquid. This placard is required for the following hazardous materials.

Non-Flammable Gas	Flammable Solid
Oxygen	Flammable Solid W
Flammable Gas	Oxidizer
Chlorine	Organic Peroxide
Poison Gas	Poison
Flammable	Corrosive

FREIGHT CONTAINERS

FREIGHT CONTAINERS—640 CUBIC FEET OR MORE
(Placard each end and each side)

AIR OR WATER—Placard any quantity

HIGHWAY OR RAIL

1. Placard any quantity of hazardous material classes listed in TABLE 1 (Sec. 172.512(a)).
2. Placard 1,000 pounds or more (aggregate gross weight) of hazardous material classes in TABLE 2 (Sec. 172.512(c)).

NOTE: For placarding options for freight containers of less than 640 cubic feet, see Sec. 172.512(b).

CARGO TANKS AND PORTABLE TANKS

1. Cargo tanks containing any quantity of hazardous material must be placarded.
2. Portable tanks having a rated capacity of 1,000 gallons or more must be placarded.
3. Portable tanks having a rated capacity of less than 1,000 gallons need be placarded on only two opposite sides (Sec. 172.514(a)).
4. Cargo tanks and portable tanks must remain placarded when emptied unless reloaded with a material not subject to CFR, Title 49, Parts 100-199 or sufficiently cleaned and purged to remove any potential hazard. (Sec. 172.514(b)).
5. For Combustible liquids, a FLAMMABLE placard may be used on cargo tanks or portable tanks when transported by highway or water.

USE OF THIS CHART DOES NOT RELIEVE PERSONS INVOLVED FROM COMPLYING WITH THE DOT HAZARDOUS MATERIALS REGULATIONS AS PUBLISHED IN TITLE 49, CODE OF FEDERAL REGULATIONS, PARTS 100-199.

1st Printing English 1977 — 350,000
1st Printing Spanish 1977 — 15,000

In the normal course of transportation, the placard advises transportation personnel of the contents of the placarded vehicle to assist in stowing, routing, and other special handling. In the event of an accident, the placard advises emergency response personnel of the classification of hazardous material in the placarded vehicle. In many cases, the placards do not give emergency response personnel as much information as they need. One deficiency is that each placard gives the classification of the hazard, but not always the degree of hazard. There is a wide degree, or range, or hazard within most classifications. Another deficiency in the placards is that each placard gives only one classification of hazard for each product. Many products have more than one classification of hazard, but the placard warns of only one. For example, acrolein is a flammable liquid that is also very toxic. The required placard—FLAMMABLE—does not warn of the toxicity of the product.

International organizations and industry associations have developed hazard identification systems that show the degree of hazard as well as the classification. For example, the degree of hazard may be shown by a numerical rating. There are also systems that show on one placard the presence of more than one classification.

During the regulatory proceeding in which the present placard system was adopted, DOT proposed to adopt a numerical rating system to identify the degree of hazard. The public comment favored one or another of the rating systems, but there was no consensus as to which to adopt. The numbers of the Hazardous Materials Regulations Board could not agree on a numerical system to adopt, so it adopted the pictorial and color system for identifying classifications with no means of identifying the degree of hazard within the classification.

MTB is evaluating the competing hazard information systems and watching the development of an international system; it is not yet time to select a system.[10]

DOT LABEL AND SHIPPING PAPER REQUIREMENTS ALSO DO NOT PROVIDE ADEQUATE INFORMATION TO EMERGENCY PERSONNEL

The DOT shipping papers and labels on portable containers serve the same purpose on the individual containers that placards serve on vehicles. They advise industry transportation personnel as to the contents of the container to assist in stowing and other special handling. And in the event the container is in an accident or otherwise begins to leak, the label advises local emergency response personnel as to the kind of hazardous material that is in the container. Examples of labels are shown in exhibit 18. The labels have the same informational deficiencies as the placards, except that the shipper is required to put the name of the product adjacent to the label.

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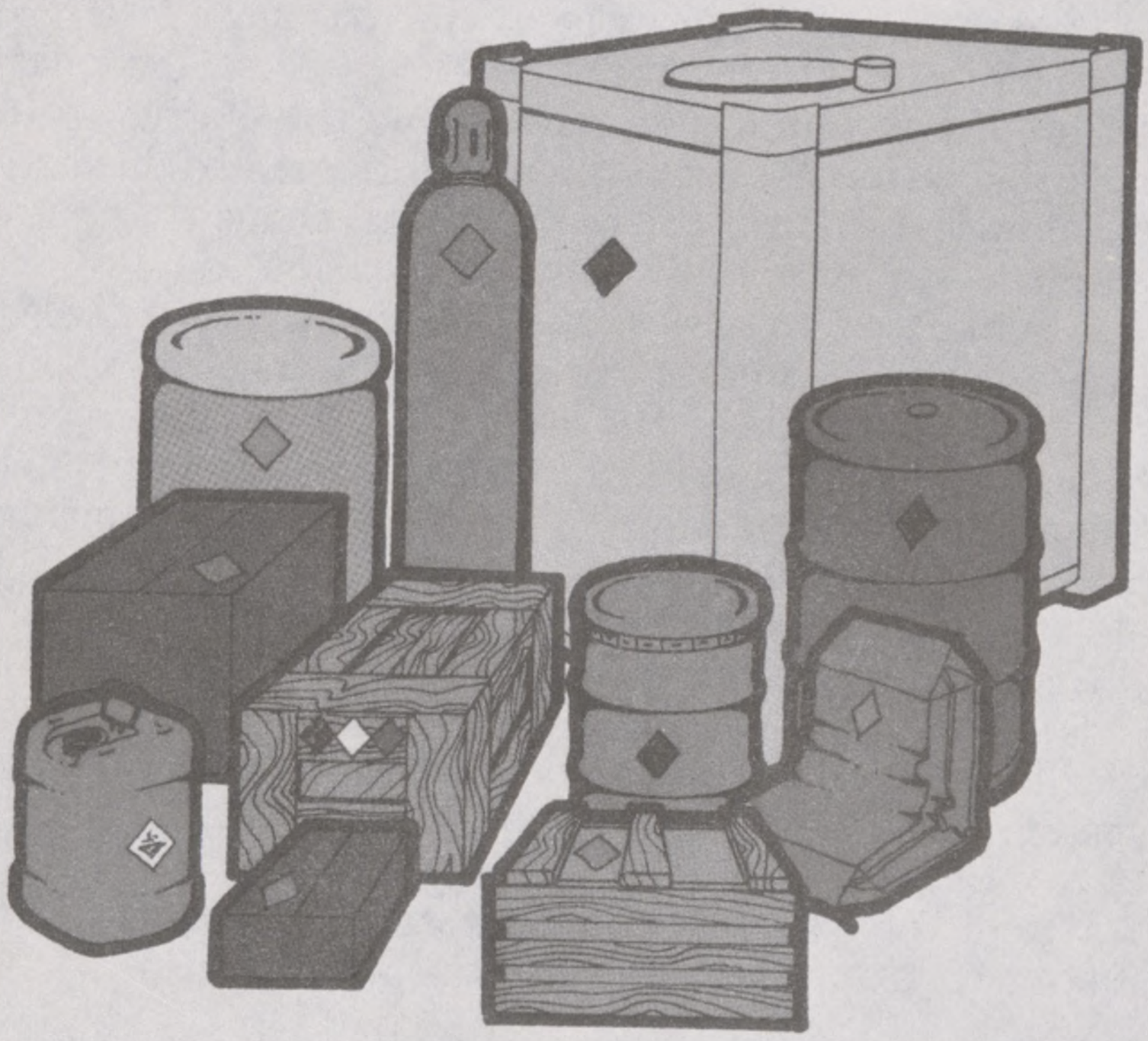
[10] U.S. Congress. Senate. Committee on Commerce, Science, and Transportation. Authorize Appropriations for the Hazardous Materials Transportation Act. op. cit., p. 3.

Exhibit 18

DOT HAZARDOUS MATERIALS WARNING LABELS



The labels illustrated in this chart are based on the United Nations labeling system and are authorized for domestic and foreign shipments. Use of this chart does not relieve persons involved from complying with the DOT Hazardous Materials Regulations as published in Title 49, Code of Federal Regulations, Parts 100-199.

CHART 4

U.S. DEPARTMENT OF TRANSPORTATION
MATERIALS TRANSPORTATION BUREAU
OFFICE OF HAZARDOUS MATERIALS OPERATIONS
Washington, D.C. 20590

1977 EDITION

DOT HAZARDOUS MATE

NOTE: General guidelines on use of

EXPLOSIVES



OXIDIZING MATERIAL

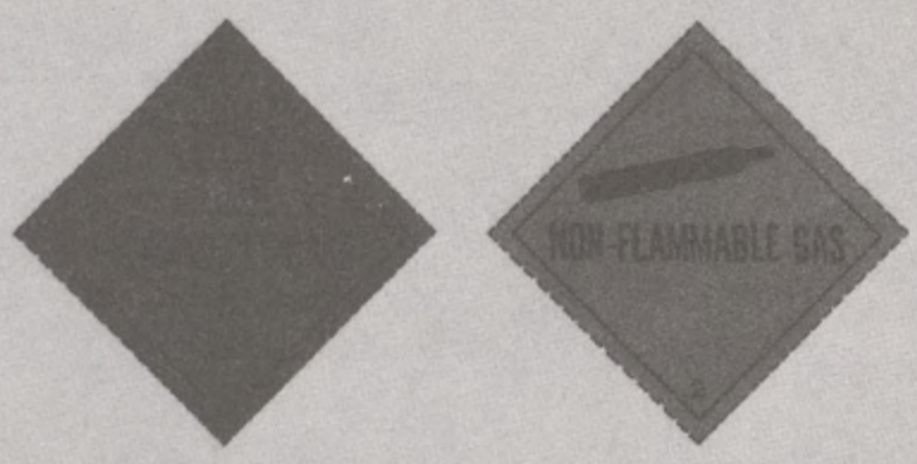


COMPRESSED GASES



FLAMMABLE LIQUID FLAMMABLE SOLID





CORROSIVE MATERIAL



SPONTANEOUSLY COMBUSTIBLE MATERIAL



WATER-REACTIVE MATERIAL



NOTE: For use in addition to other required labels.



CARG
AIRCR
ONL

RIALS WARNING LABELS

labels will be found on the back cover.

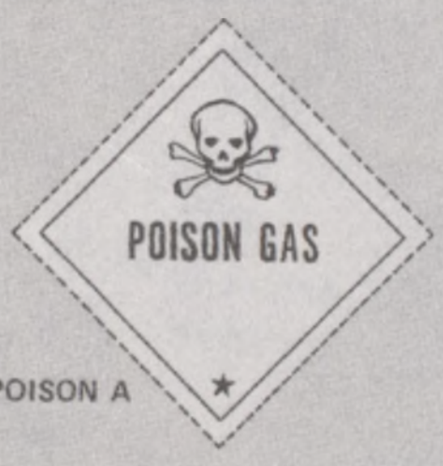
RADIOACTIVE MATERIALS



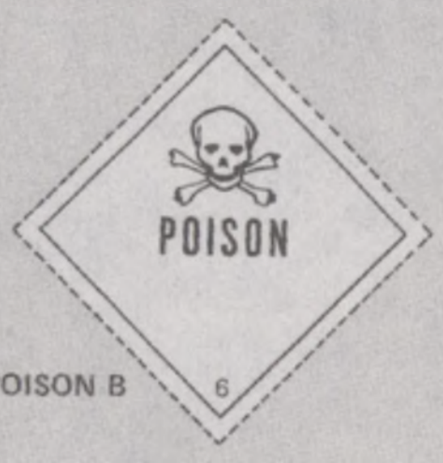




POISONOUS MATERIAL



POISON A



POISON B

IRRITATING MATERIAL

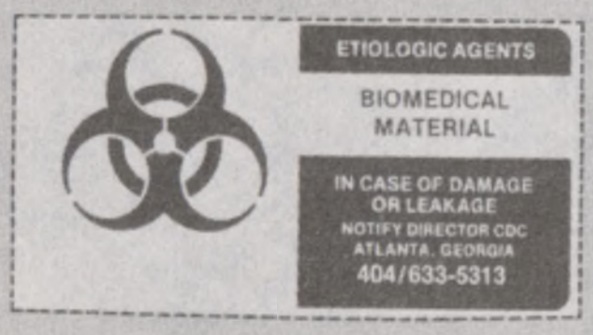


DOMESTIC

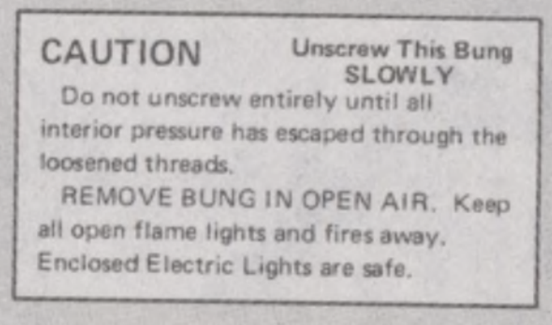


EXPORT

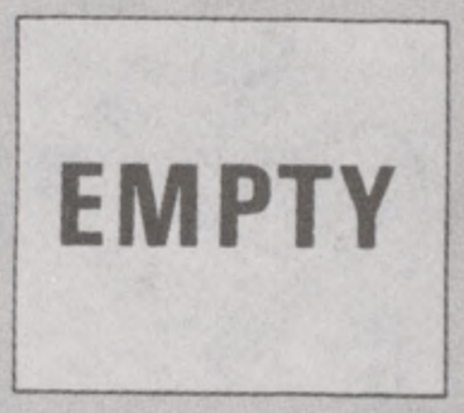
ETIOLOGIC AGENT



BUNG



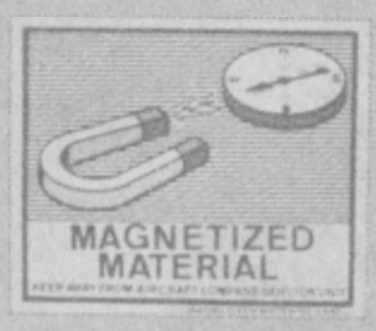
EMPTY



AIR SHIPMENTS



O
AFT
f



MAGNETIZED MATERIAL

NOTE ·

1. DOT hazardous materials warning labels indicate the hazard(s) of the material(s) in the package. These labels may or may not indicate the proper DOT hazard class of material.

2. LABEL SIZES, COLORS AND BORDERS—All diamond shaped labels illustrated above must be at least 4 x 4 inches with a solid line border 1/4 inch from each edge. Bung label: 5 x 3 inches; Empty label: 6 x 6 inches (min.); Etiologic agent: 4 x 2 inches; Cargo Aircraft Only: 4-5/16 x 4-3/4 inches; Magnetized material label: 3-9/16 x 4-5/16 inches. Each label must be affixed to a background of contrasting color or must have dotted or solid line outer border. Colors for labels must be as specified in Sec. 172.407 and in Appendix A, Part 172.

GENERAL GUIDELINES ON USE OF LABELS

NOTE: These guidelines do not include all of the DOT hazardous materials warning label requirements. Complete detailed requirements are found in Title 49, Code of Federal Regulations, Part 172.

1. Each person who offers a hazardous material for shipment must label the package containing the material, if required, with the appropriate label(s). (Sec. 172.400 (a))

2. Labels may be affixed to packages even though not required by the regulations provided each label represents a hazard of the material in the package. (Sec. 172.401)

3. Exceptions to the labeling requirements for limited quantities of certain hazardous materials are specified in the regulations.

4. The number appearing at the bottom corner of some labels represent the UN and IMCO hazard class number. These are permitted, but not required, by DOT regulations. (Sec. 172.407 (g))

5. Label(s), when required, must be affixed to or printed on the surface of the package near the marked proper shipping name. (Sec. 172.406(a))

6. When two or more different warning labels are required, they must be displayed next to each other. (Sec. 172.406(c))

7. When two or more packages containing compatible hazardous materials are packaged within the same overpack, the outside container must be labeled as required for each class of material contained therein. (Sec. 172.404(b))

8. Packages containing a sample of a hazardous material other than an explosive must be labeled in accordance with the requirements of Sec. 172.402(h). (For Explosives, see Title 49, CFR, Part 173, Subpart C)

9. A material classed as an Explosive A, Poison A, or Radioactive material, that also meets the definition of another hazard class, must be labeled as required for each class (Sec. 172.402 (a))

10. Packages containing Radioactive material, that also meets the definition of one or more additional hazards, must be labeled as a Radioactive material and for each additional hazard on opposite sides of the package. (Sec. 172.403(e) and (f))

11. A material classed as an Oxidizer, Flammable solid, or Flammable liquid, that also meets the definition of a Poison B, must be labeled POISON, in addition to the hazard class label. (Sec. 172.402 (a) (3))

12. A material classed as a Flammable solid, that also meets the definition of a water reactive material, must have both FLAMMABLE SOLID and DANGEROUS WHEN WET labels affixed. (Sec. 172.402(a) (4))

13. For OXYGEN, the word "OXYGEN" may be used in place of the word "OXIDIZER" on the OXIDIZER label. (Sec. 172.405(a)) For foreign shipments, the NON-FLAMMABLE GAS label may also be required.

14. For CHLORINE, a CHLORINE label may be used in place of the NON-FLAMMABLE GAS and POISON labels. (Sec. 172.405(b)) For foreign shipments, the NON-FLAMMABLE GAS label may also be required.

15. Each person who offers a package containing a hazardous material for air transport that is authorized only on Cargo Aircraft, shall affix to the package a CARGO AIRCRAFT ONLY label. (Sec. 172.402 (b))

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The shipping papers contain more information than the placards and labels. The shipping papers are required to show the name of the product, its hazard classification, and such special shipping instructions as may be appropriate for the product, such as weight limitations and any requirements based on mode of transportation. The shipping papers do not advise emergency response personnel as to the necessary steps for dealing with the hazardous materials being transported. In some accidents, the shipping papers may not be available to emergency response personnel, or they may have been completed incorrectly or improperly. This information may be useful in hazard identification used in a response to a transportation accident.

CHAPTER 15—ISSUES FOR POSSIBLE CONGRESSIONAL CONSIDERATION

This chapter presents several issues and options for possible congressional consideration. Several of the options presented address areas of concern identified in chapter 14.[1] The following issues are addressed:

1. Whether manpower and funding for the Department of Transportation, and especially the Material Transportation Bureau, are at an appropriate level;
2. Whether the Chemical Transportation Emergency Center (CHEMTREC) or the Federal Government should operate the hazardous materials emergency response system;
3. Whether the Department of Transportation or the U.S. Fire Administration should perform the Federal Government's functions in providing assistance to firemen and others who have to deal with emergencies resulting from the transportation of hazardous materials;
4. Whether the Department of Transportation inspection and compliance force is adequate and whether the inspection personnel are assigned to the problem areas;
5. Whether to create a Federal Hazardous Materials Compensation Fund, as recommended by the General Accounting Office;
6. Whether to create a grant-in-aid program to encourage the States to participate in the inspection and compliance program; and
7. Whether the National Transportation Safety Board should be required to consider costs in all of its recommendations.

ISSUE: WHETHER MANPOWER AND FUNDING FOR THE DEPARTMENT OF TRANSPORTATION, AND ESPECIALLY THE MATERIALS TRANSPORTATION BUREAU, ARE AT AN APPROPRIATE LEVEL

In 1969 the National Research Council made various recommendations for establishing an adequate DOT safety regulatory program. Assessing the scope of the regulatory action required, the Council projected the annual cost of the program to be abount $10 million (in 1969 dollars).[2]

Since 1969, congressional actions and increased industry activity have appreciatively increased the workload of the DOT, and especially that of the MTB.[3] Notwithstanding the increased workload, Congress has never appropriated for the function as much as one-fourth the amount (adjusted for inflation) that the Council projected as the cost of an adequate program. To illustrate the point, the fiscal year 1979 appropriation for MTB's hazardous materials program activity was about $3.7 million.

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[1] Appendix 6 presents several legislative options that were introduced during the 95th Congress.
[2] See ch. 4 of this study.
[3] See ch. 3 of this study.

This study has indicated that although DOT has significantly improved its safety program, major areas of concern remain. As part of the annual budget cycle, it is important to consider whether substantially increased funds (beyond the current level) should be authorized and appropriated.

Possible advantages of doing so include:

1. DOT might be able to accomplish its objectives more effectively and be able to respond to the needs of industry in a more timely fashion;
2. DOT might be able to accelerate the removal of delegated responsibilities from industry;
3. DOT might be able to implement all of the responsibilities that Congress has assigned to it in the hazardous materials area;
4. In specific, DOT might significantly increase and expand its inspections of the hazardous materials industry; and
5. DOT might be able to respond better to NTSB recommendations.

Possible disadvantages of providing substantially increased funding include:

1. DOT is responsible for other safety programs that might be reduced to provide additional funding for the hazardous materials function;
2. If funding in this area were increased rapidly, it might be difficult to properly use these funds, since considerable time is required to train Federal safety personnel. Thus, any substantial increase in funding might best be phased in over a few years.
3. It is uncertain whether substantially increased funding would reduce the accident rate of the hazardous materials industry. The present accident rate may be near the level beyond which additional Federal regulation and intervention would have a negligible effect on the accident rate. However, there does appear to be room for improvement in minimizing the damage resulting from hazardous materials transportation accidents, which might justify the appropriation of additional money.
4. Substantially increased funding for this program might be considered to be inconsistent with current budgetary constraints.

ISSUE: WHETHER THE CHEMICAL TRANSPORTATION EMERGENCY CENTER (CHEMTREC) OR THE FEDERAL GOVERNMENT SHOULD OPERATE THE HAZARDOUS MATERIALS EMERGENCY RESPONSE SYSTEM

The Chemical Transportation Emergency Center, operated by the Manufacturing Chemists Association, was discussed in chapter 13. During 1979 CHEMTREC is projected to cost MCA about $750,000 in direct and support costs. The MCA member companies collectively are expected to spend about the same amount in direct support of the CHEMTREC operation.[4] It is questionable whether a Federal agency could supply the same service for less cost. For example, considerable public expense might be incurred for the Federal Government to obtain the information that industry voluntarily supplies to CHEMTREC.

The Secretary of Transportation has recently assigned USCG the task of developing a plan to establish a National Hazardous Mate-

[4] Cost information supplied by MCA.

rials Response Center. The Secretary took this action on the basis of the report of the Secretary's Task Force on Hazardous Materials, which stated:

> Effective emergency response to transportation accidents requires information on the type of incident, products involved, methods to protect people and property, and information flow among responsible parties. Present Departmental and private industry emergency response systems should be expanded and integrated. The U.S. Coast Guard has an excellent emergency response system which is currently limited to responding to emergencies involving waters. Private industry emergency response systems perform an important service in linking shippers and carriers. However, there remains a need for a national emergency response network involving all levels of government.[5]

The Secretary of Transportation approved the task force's recommentation to USCG to develop an implementation plan to establish a National Hazardous Materials Response Center by expanding the existing U.S. Coast Guard National Response Center.

The purpose of the proposed National Hazardous Materials Response Center would be to maintain a communications network which could notify appropriate State and local officials of a hazardous materials accident, and, through the use of existing industry mechanisms, provide immediate instructions to mitigate the effects of the incident.

Until USCG develops the plan, any further discussion of the subject would be premature. However, when USCG has developed the plan, Congress may want to review it before DOT puts it into practice. Such a review might consider the following questions:

1. Will the USCG plan provide better service than CHEMTREC provides? If so, will the service be significantly better to justify the additional cost to the Government?

2. Is the USCG plan the most economical means for the Federal Government to participate in an emergency response system? For example, would it be more economical for the Federal Government to provide financial assistance to improve CHEMTREC's service?

3. If the Federal Government should provide the service, should it be povided by DOT or the United States Fire Administration?

ISSUE: WHETHER THE DEPARTMENT OF TRANSPORTATION OR THE U.S. FIRE ADMINISTRATION SHOULD PERFORM THE FEDERAL GOVERNMENT'S FUNCTIONS IN PROVIDING ASSISTANCE TO FIREMEN AND OTHERS WHO HAVE TO DEAL WITH EMERGENCIES RESULTING FROM THE TRANSPORTATION OF HAZARDOUS MATERIALS

In 1970 Congress directed DOT to establish a central system to provide technical advice to law-enforcement and firefighting personnel and others involved in meeting emergencies arising out of the transportation of hazardous materials—Public Law 91–458. This requirement was restated in 1974 in Public Law 93–633. DOT has never established such a system.

Over the years, the National Transportation Safety Board has also favored a more active Federal role in providing emergency response information. In October 1976 the NTSB issued the following recommendations:

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[5] U.S. Department of Transportation. Report of the Hazardous Materials Transportation Task Force. op. cit., pp xi–xii.

1. Redesign its hazardous materials incident data reporting system so it will generate information about what emergency actions were taken, why they were taken, and what influence they had on the outcome of the emergency, for use in training firefighters and law-enforcement personnel to handle hazardous materials transportation emergencies. (I–76–9) (Class II, Priority Followup.)

2. Develop a procedure to report such information regularly to Federal and State agencies with responsibilities for developing emergency training programs for law-enforcement and firefighting personnel. (I–76–10) (Class II, Priority Followup.)

3. Develop a procedure to use the emergency response information on dealing with emergencies to review periodically the validity of advice which DOT provides to other agencies with regard to hazardous materials transportation emergencies. Periodically review the operational experience in meeting hazardous materials emergencies to assure that the practices recommended are appropriate. (I–76–11) (Class II, Priority Followup.)[6]

MTB advised NTSB that it did not have the legal authority to carry out the recommendations. The DOT agencies can require carriers and shippers to make reports, but their reports would serve little purpose. Their employees usually are not involved in the kind of postaccident activities that would produce useful training information for local emergency response personnel. The only persons who have any worthwhile information to report are local emergency response personnel, but DOT agencies do not have the authority to require them to make reports.

In April 1978 the Chairman of NTSB pursued the subject further, telling the House Government Operations Committee that "almost no instruction to firefighters is available for specifying either the data they should look for in emergencies, or instructing them about how to predict the behavior of the hazardous materials involved."[7] The Chairman continued his testimony, as follows:

> Instructions available are generally limited to looking for placards, markings, or labels, or persons who have information about the hazardous materials involved. As you can tell from the accident I reviewed earlier, these types of instructions are of little value.
>
> The fire chief or other person in charge of emergency response must know the threats to life and property with which he must cope. He must know how to control the hazard, and he must understand the effects of actions taken to determine if he has the situation under control, given the conditions at the time of the accident.
>
> Can necessary data and knowledge about a hazardous materials accident be made available at the time needed by emergency response personnel? The Safety Board has said yes. This answer was given to the Materials Transportation Bureau on October 20, 1976, when we issued recommendations Nos. I–76–9 through I–76–11 to the Department of Transportation * * *
>
> In making these recommendations to the Department of Transportation, the Safety Board recognized the efforts of the National Fire Protection Association in developing training programs for coping with these emergencies, the efforts of the Chemtrec information system for providing information about various hazardous materials, the existing State and regional emergency response programs, and many other programs which are attempting to impact this problem. Existing programs are not able to effect a solution since the efforts are not coordinated and focused into a unified effort.

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[6] National Transportation Safety Board. Recommendations I–76–9 through I–76–11, October 1976.

[7] U.S. Congress. House. Committee on Government Operations, Hazardous Materials Accident Reporting. op. cit., p. 5.

At this moment, Mr. Chairman, there are more than five guidelines on the streets and there is no single unifying force and no leadership being provided in this important area.

If the NTSB recommendations are to be implemented, it is important to consider which Federal agency might take this action. Since MTB does not have the legal authority to require response personnel to make the suggested reports, should NTSB address its recommendations to another Federal agency, such as the U.S. Fire Administration (USFA)?

The primary function of USFA is to support firemen with educational courses, training programs, accident investigations, occupational data, and financial assistance. The USFA is already involved in several activities related to the NTSB recommendations:

1. The National Fire Incident Reporting System, based on a grant-in-aid program to encourage States to participate, collects a broad base of data on fires in general and conducts in-depth investigations of selected types of fires.

2. In 1978 USFA's Academy pilot-tested course programs in a number of subjects, including pesticide spill control.

3. The Academy is offering, in its executive development series, a course for senior fire service officers covering hazardous materials accidents. The 1978 course schedule provided for the hazardous materials course to be given in Delaware in March, Missouri and Indiana in April, Texas and Montana in May, Vermont in July, New Jersey in September, and Alabama in December.[8]

4. From an organizational perspective, it is important to note that the USFA will be incorporated into the new Federal Emergency Management Agency. This Agency was created at the request of the Carter administration to coordinate Federal activities in this area.

The USFA for fiscal year 1979 had a budget of $17.395 million to spend on firemen's problems. Although an exact figure cannot be determined, it appears that the DOT agencies spend less than this amount on the entire hazardous materials program.

DOT has information about the properties of hazardous materials and about their probable actions in various emergency situations. USFA probably does not have this information, nor the background and expertise to put it to effective use. In short, USFA has the organization and money; MTB has a special body of knowledge.

It is questionable whether either DOT or the USFA currently has the information, background, organization and resources to provide local emergency response personnel with the emergency response information that they need to handle emergencies that result from accidents involving hazardous materials. To make effective use of their combined resources, it may be desirable for Congress to designate one of them as the lead agency in this area and the other as support.

Possible considerations in deciding which of these two agencies should be the lead Federal agency include:

1. Which is better able to develop the information system that NTSB has described?

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[8] U.S. Congress. Senate. Committee on Commerce, Science, and Transportation. Authorization for the Federal Fire Prevention and Control Act of 1974. 95th Cong., 2d sess. Washington, D.C.: Government Printing Office, 1978.

2. Which is better able to develop and provide the education and training courses that are needed?

3. Which is better able to be the single unifying force that could provide leadership in this area?

4. In short, which is better able to serve the overall needs of firemen and other emergency response personnel in meeting emergencies resulting from hazardous materials accidents?

ISSUE: WHETHER THE DEPARTMENT OF TRANSPORTATION INSPECTION AND COMPLIANCE PROGRAM IS EFFECTIVE AND WHETHER THE HAZARDOUS MATERIALS SAFETY PERSONNEL ARE ASSIGNED TO THE APPROPRIATE PROBLEM AREAS

Safety in the transportation of hazardous materials results primarily from a combination of (1) safety standards set by Government regulation, (2) industry's voluntary compliance with those standards, (3) governmental inspection and enforcement action to secure compliance by those who are not disposed to voluntary compliance, and (4) voluntary industry practices that go beyond the regulatory requirements. Other than speculation, it is difficult to determine the relative contribution that each of these factors makes to the present level of safety. It is reasonable to assume, however, that the mere existence of the DOT inspection and enforcement activity heightens the level of "voluntary" compliance and secures an increased measure of compliance by those who might otherwise ignore the regulations.

The long-term accident statistics, particularly the number of resulting deaths and injuries, are good indicators of the effectiveness of a safety program.[9] They are also good indicators of the problem areas on which safety efforts should be concentrated. There is a question whether DOT is concentrating its safety efforts on the problem areas.

For the 5-year period 1973–77 the average annual casualties resulting from the transportation of hazardous materials have been 0 death and 5 injuries by water, 1 death and 6 injuries by air, 22 deaths and 445 injuries by highway, and 3 deaths and 255 injuries by railroad. These data indicate that the highway and railroad modes are the problem areas.

In 1977 the DOT budget allotted to USCG 107.6 man-years of hazardous materials inspection time for a program that averages 5 casualties (deaths and injuries) per year; to FAA 58.2 man-years for 7 casualties per year; to FHWA 59.4 man-years for 467 casualties; and to FRA 26.3 man-years for 258 casualties. It is questionable whether the Secretary of Transportation has been assigning DOT's inspection resources to the problem areas.

It is also important to examine whether the overall DOT inspection force is adequately staffed. The inquiry begins with the initial question: Is the overall casualty record at an acceptable level? If so, it would seem that the overall inspection program is adequately staffed, whether or not it is properly allocated. If the overall casualty record is not at an acceptable level, this question arises: Is the casualty record related to or resulting from inadequate regulations, from inadequate inspec-

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[9] Statistics used in developing this issue were furnished by DOT.

tion, or both? If from inadequate inspection, can the problem be corrected by reallocation of inspection manpower within DOT? If not, an increase in the overall DOT inspection force may be indicated, subject to further inquiry as to whether it would be cost-effective; that is, whether the increase in safety would be sufficient to justify the increased cost.

In deciding the appropriate level of inspectors, it is also important to recognize that increasing volumes of hazardous materials are expected to enter interstate commerce. Increased movement of these materials statistically increases the total risk associated with this transportation activity. The increased shipments and associated risk of hazardous materials would seem to strengthen the need for additional inspectors to ensure compliance with DOT regulations.

ISSUE: WHETHER TO CREATE A FEDERAL HAZARDOUS MATERIALS COMPENSATION FUND, AS RECOMMENDED BY THE GENERAL ACCOUNTING OFFICE

The General Accounting Office has recommended that Congress create a Federal Hazardous Materials Compensation Fund to supplement private liability insurance.[10] The proposal is summarized in this excerpt from the GAO report:

> We propose a system somewhat similar to that created by the Price-Anderson Act for nuclear power. Corporations transporting, storing, or using significant quantities of flammable hazardous materials would be required to: (1) carry the maximum liability insurance available from the private sector, and (2) contribute a fixed sum per BTU to a Federal Hazardous Materials Compensation Fund (HMCF). The Fund would pay claims (beyond those paid by private liability insurance) up to a fixed ceiling for any one incident. Nonenergy hazardous materials corporations could contribute to the Fund on a different basis.
>
> All the consumers of the gas that goes through a particular facility would bear the costs of private insurance for that facility. All those receiving service from an operation would pay to cover the risks incurred by those near the operation.
>
> All LEG users (and eventually, perhaps, all users of other hazardous materials) would share the cost of building and maintaining the Fund. This is not completely equitable, since customers of safer facilities would be subsidizing customers of less safe facilities. We feel, however, that only through such a Fund will those harmed in an accident, particularly those without large intact resources, be able to get prompt, fair compensation for claims against very large corporations and insurance companies. The Fund's only task after an accident is to assure that all moneys paid out are warranted by the damage done.
>
> In order to make the implicit subsidy involved in the Fund more equitable, we propose that the United States be subrogated to the rights of injured persons compensated by the Fund so that the Attorney General of the United States can sue the companies or persons responsible for the accident for whatever moneys the Fund has paid out. The Attorney General will have many more resources available to him for such a suit than will a shopkeeper or homeowner.

Extending the coverage of the fund to all hazardous materials would pose a problem: finding an equitable formula for contributing to the fund. It seems reasonable that the contributions would have to bear some relationship to the potential for damage associated with each different material. Clearly, the potential for damage is greater in liquefied petroleum gas than in paint thinner, so the contribution from those transporting paint thinner might reasonably be lower. Another option is to establish a fund that would cover only those accidents involving materials whose potential for damage is so great that the damage from a major accident could not be covered by insurance.

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[10] Comptroller General of the United States. Report to the Congress. Liquefied Energy Gases Safety, v. 1 EMD–78–28. July 31, 1978, pp. 11–25 and 11–26.

It may not be feasible to formulate an equitable solution to the problem addressed above. Therefore, it may be necessary to consider other alternatives such as requiring minimum levels of insurance for owners and operators of vehicles and vessels transporting hazardous materials or reducing the legal problems encountered when seeking compensation for damages resulting from a hazardous materials accident.

ISSUE: WHETHER TO CREATE A GRANT-IN-AID PROGRAM TO ENCOURAGE THE STATES TO PARTICIPATE IN THE INSPECTION AND COMPLIANCE PROGRAM

As indicated in chapter 9, many States have adopted regulations covering essentially the same safety requirements for the transportation of hazardous materials as are provided under the DOT regulations. When these States enforce their own laws and regulations, they also are securing compliance with Federal hazardous materials transportation regulations.

In order to improve compliance with both Federal and State regulations, one possible option would be to create a grant-in-aid program to encourage States to participate in DOT's hazardous materials inspection activities. (A grant-in-aid program already exists for MTB's pipeline safety program.) Such a program could provide funding for the inspection activities of State personnel, such as highway patrols or State officials at weighing stations. Under such a program, the number of inspectors looking for violations of the hazardous materials regulations would be substantially increased.

The foundation for a grant-in-aid program already exists. FHWA has a Cooperative Enforcement Agreement Program with a number of States. Under this program, "Any State may agree with the Federal Highway Administration to enforce the safety laws and regulations of said State and the United States concerning motor carrier transportation. * * *"

The Secretary's Task Force on Hazardous Materials has also commented on the opportunity of having the States play a greater role in hazardous materials compliance efforts. They stated:

STATE ENFORCEMENT PROGRAMS

> One option for improving hazardous materials inspection and enforcement capabilities is through the adoption of the Department's hazardous materials regulations by more state governments. Such action could significantly extend the Federal inspection force if state inspection personnel were to receive sufficient training and understanding of the technical regulations and in performing adequate inspections. Some 35 states have adopted the hazardous materials regulations, as they apply to highways, in whole, or in part, but most do not have qualified enforcement officers. *Financial incentives could induce states to expand compliance programs.* (italics added.) Under the Motor Carrier Safety Act, the FHWA has cooperative agreements with agencies in all 50 states pertaining to enforcement of Federal and state highway safety regulations. Although these agreements are not accompanied by Federal funding, the agencies have voluntarily agreed to exchange information, assist in investigating violations, and provide witnesses for enforcement actions. This program contributes to a more effective Federal compliance effort, but it does not carry the impact of a true joint Federal-state program.
>
> The FHWA is currently planning a demonstration program in two states which involves administering and enforcing state laws which are identical to the Fed-

eral Motor Carrier Safety Regulations. This program involves Federal funding of a portion of the state program and should provide valuable informaiton on the effectiveness of such joint compliance efforts on the overall transportation safety picture.[11]

ISSUE: WHETHER THE NATIONAL TRANSPORTATION SAFETY BOARD SHOULD BE REQUIRED TO CONSIDER COSTS IN ALL OF ITS RECOMMENDATIONS

Chapter 12 indicated that the NTSB and the MTB perform different roles and operate under different rules. For example, the NTSB does not conduct cost studies and obtain public comment before issuing a recommendation, MTB must analyze the safety problem, consider alternative ways of solving the problem, make a cost benefit study of the alternatives, and justify the choice of one alternative over others, before issuing a regulation. To summarize, NTBS does not have to consider the costs when making its recommendations; MTB must consider the costs when developing its regulations.

Although the NTSB has established a record of making many useful recommendations, the value of NTBS's work might be increased if cost data were included in the analysis used in making its recommendations. NTBS might address such questions as:

1. How much will it cost to implement specific recommendations?
2. Does DOT have the manpower and financial resources to implement specific recommendations?
3. How much additional funding would be required for the DOT to implement specific recommendations or to correct specific problems that concern the NTSB?

* * * * * * *

This study has reviewed and analyzed DOT's program that regulates the transportation of hazardous materials. This Federal program seeks to promote the safe operations of the hazardous materials industry and to reduce the potential risks associated with this transportation activity. Since the passage of the Hazardous Materials Transportation Act in 1974, congressional concern with this Federal program has included authorization, appropriation, and oversight hearings. Future considerations might include: Improving the Department's inspection efforts; redesigning Federal policy in the area of hazardous materials emergency response systems, and creation of a grant-in-aid program to strengthen State participation in the inspection/regulation of this industry.

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[11] U.S. Department of Transportation. Report of the Hazardous Materials Transportation Task Force, op. cit., pp. 44–45.

APPENDIXES

Appendix 1.—Problems of Regulating by Special Permit [1]

GENERAL STANDARDS OR SPECIAL PERMITS

Some regulations require regulated companies to get specific agency approval for each item of equipment and each operating procedure used in regulated activities. These regulations usually give little guidance as to what the agency will approve and seldom set standards for approval. Other regulations are so narrowly drawn or stated in such specific language that regulated companies have to seek special permission for new or different activities.

Regulations should set general standards for the conduct of regulated activities, but should not prescribe detailed means of performing the activities. The regulations should be stated broadly enough to cover the full range of activities which the regulator deems to be in need of regulation. The regulations should not require a regulated company to get agency approval before using any equipment or changing any procedure.

This scene is repeated all too often, in all too many regulator's offices: There is this problem—not yet defined, but identified by newspaper headlines and Congressional comment. . . . They're demanding action, so we must act . . . Never mind that we don't know what to do, we've got to do something . . . All right, let's require each regulated company to get our specific approval for equipment and procedures used in the problem area. The scene ends in activity without action, the hard-pressed regulator's tried-and-true dodge. He doesn't know what needs to be done and he hasn't the vaguest notion as to what he may approve when a regulated company proposes something, but never mind—it'll take the heat off today.

This bit of gamesmanship gets the agency off the hook temporarily—and it's harmless. Harmless? This seemingly innocuous regulation has an unseemly potential for mischief, a potential which will almost surely be realized. When a regulation requires prior approval of something, but does not set a standard for giving approval, it is the subsequent approval of the specific matter which actually sets the standard of conduct. Far from being innocuous, this regulation sets the stage for perversions of regulatory authority and evasions of the administrative procedures which Congress established to guard the integrity of the regulatory processes.

Agency approval of equipment and procedures gives the seal of government approval to the use of the equipment and procedures in regulated activities. No one can challenge the fitness of the equipment or the propriety of the procedures, except by filling a petition for rule making with the agency. If a regulated company, using approved equipment and procedures, injures an innocent bystander, the company can use the seal of approval as a shield against the injured person's claim for damages. In this event, the regulator will not have used his authority to protect the public, as Congress intended; rather, he will have used his authority to protect the regulated company. This perversion of regulatory purpose is discussed in Chapter 14, Adopting Industry Standards as Regulations.

Individual agency approvals of equipment and procedures are negotiated privately between agency employees and regulated companies, without public participation. This is an evasion of the procedural requirement that regulations (remember that the actual regulatory requirement is set in the individual approval) be issued only after notice of proposed rule making and opportunity for public participation. The lack of public participation means that action is taken on less than complete and validated information, since the applicant surely

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[1] Source: William Jennings, The Regulators Handbook.

will not volunteer information adverse to his application. Further, since the approval authority is generally delegated to employees of considerably lower rank than the regulator, the practical effect of a series of approvals is that regulatory standards are set by employees who do not have the kind of staff support available to the regulator.

When regulations require prior approval but do not set standards for giving approval, the agency may publish in-house instructions to employees. The agency usually develops these instructions in consultation with industry, but without public participation. To the extent that these instructions set standards for giving approval, they have the effect of a regulation, so they should be adopted only after notice and opportunity for public comment. If he is to give approvals, the employee needs instructions, but the instructions should be published as regulations after notice and public comment. Better still, the regulator should publish regulations which set an adequate standard for the conduct of regulated activities, without reserving anything for private negotiation and approval. The regulator should be able to write better standards, with the help of his staff and the panoply of regulatory procedures, than one of his employees can negotiate in head-to-head bargaining with a regulated company.

Some regulations are written entirely in specifics, with every piece of equipment and every procedure individually prescribed. With this kind of regulation, the regulated companies must seek specific approval for each new or different activity, with all the vices noted above.

Appendix 2.—A Study of Transportation of Hazardous Materials

(A Report to the Office of Hazardous Materials of the U.S. Department of Transportation—Under Contract No. DOT–OS–A9–106—Based on a Study Made by a Group of Ninety Persons Assembled at Airlie House, Warrenton, Va., May 7–9, 1969)

A COOPERATIVE EFFORT OF THE HIGHWAY RESEARCH BOARD AND THE COMMITTEE ON HAZARDOUS MATERIALS

(National Academy of Sciences—National Research Council, Washington, D.C.)

Summary Report

The Office of Hazardous Materials of the Department of Transportation requested the National Research Council to assist in considering a technical and engineering basis for regulation of hazardous materials transportation by all modes—highway, rail, air, and water. This report constitutes the findings of a study undertaken May 7–9, 1969, at Airlie House, Warrenton, Virginia, for the specific purposes of (a) appraising existing knowledge, procedures, and practices of all transportation modes; (b) exploring improved or revised concepts for approach to regulations, based on scientific knowledge and engineering methods, and suited to the practices and materials of an increasingly technological culture; (c) identifying existing and new resources and facilities needed to support more technology-oriented approaches to public safety regulation; and (d) recommending immediate and longer-term actions for improving the present regulatory system for hazardous materials transportation.

The workshop approach was used, with five panels investigating different aspects of the overall problem. Their assignments were as follows:

Panel I. The Transportation Environment.—The conditions and forces to which materials are subjected during transportation. Both normal operations and accident conditions are included. The technical definition of the environment is broad, encompassing such influences as shock and vibration, temperature extremes, crushing and puncturing forces, and stresses produced in handling.

Panel I was asked to appraise existing knowledge of the transportation environment. It was also asked to assess the feasibility of developing test procedures and analytical models that would provide a basis for more technologically definitive regulatory systems.

Panel II. Hazard Classification.—The nature and extent of the hazard associated with a designated material or material class. Hazards are defined broadly, encompassing such effects as fire, explosions, and poisoning of human, animal, or plant life; the likelihood of their occurrence; and the seriousness of their consequences.

Panel II was asked to evaluate existing hazard classification systems for materials. It was asked to assess the prospects for employing more generalized and more informative criteria for hazardous materials classification than those applied to the system now in use.

Panel III. Containment.—Packaging that preserves the integrity of hazardous-material cargoes during their exposure to the transportation environment; and stowage to minimize adverse consequences when they are involved in accidents.

Panel III was asked to appraise the feasibility of replacing the present system, which specifies the construction details of containers allowable for each of 1,200 hazardous commodities, with a system based on package performance criteria.

Panel IV. Hazardous Cargo Identification.—Signs, labels, and instructions alerting the observer that the cargo is hazardous, what special precautions to take in handling it under normal conditions, and what to do in an emergency. "The observer" is broadly defined to include personnel of the shipper, the carrier, the consignee, warehousers, emergency-service and public-safety organizations, and members of the general public.

Panel IV was asked to appraise existing systems of hazardous cargo identification, with special emphasis on information needs of the public. It was asked to assess the feasibility of a single system of hazardous-cargo identification for all transportation modes, in view of the rapid evolution of intermodal transportation activity such as piggyback and sea-train.

Panel V. Reporting.—Acquiring knowledge of what actually occurs as hazardous materials go through the transportation system, and transmitting it to those responsible for public safety or those capable of improving the system. The definition includes baseline statistical information as well as data on transportation accidents and incidents (abnormal events in which the hazardous material may not have been affected).

Panel V was asked to review present reporting objectives and results, with particular emphasis on technical requirements peculiar to the transportation of hazardous materials. It was asked to assess the prospects for revised or new approaches to reporting, analysis, and feedback that would permit more effective management of the existing transportation system, and support the development of future improvements.

FINDINGS AND RECOMMENDATIONS

General

1. *The Process Is Complex.*—The study group concluded that hazardous materials transportation control is inherently complex. The skills of a diversity of specialists are required, and management processes must interact—in some circumstances very rapidly and specifically—with many elements of industry, government, and transportation activity. Specific problems cannot be managed competently without considering them as part of the total operating system of transportation safety.

2. *Unified, Standards-Based System Is Achievable.*—A regulatory system based on more technically standardized criteria and encompassing all transportation modes appears achievable and highly desirable. Such a system should prove more adaptable than the present system in accommodating new commercial materials, transportation technology developments, and public needs. Substantial resources exist now—in the form of data, expertise, and technical activity—to build immediately some parts of a standards-based regulatory system.

3. *Research Support Is Required.*—The development and operation of a system anchored to broad contextual information requires a substantial research commitment to fill current gaps and a continuing research program to stay abreast of general technological developments. Each of the panels has identified specific areas where research and development are needed. The study group believes this investment would bring generous returns in the national welfare—economically, by encouraging advances in shipping methods and materials, and socially, by reducing frictions between those governing and those governed—as well as more capably safe-guarding human life and health.

4. *Time and Money Are Required.*—While some of these objectives can be accomplished rapidly, many of the key elements of the system will require sequential progress, starting with scientific studies and finally maturing in standards-based regulations. A significant investment of time and annual budgetary support in the $10 million range must be anticipated to make an orderly conversion to the new system.

5. *Systems Management Is Recommended.*—Systems-management concepts and tools appear highly desirable and probably are essential to realize the full potential of a technology-oriented all-mode system. Throughout the study, the need for a systems approach was emphasized. The specific findings and recommendations of the five panels, highlight of which follow, are readily adaptable to a systems analysis.

Technical

1. *Environmental Standards Can Be Established.*—Standards defining the critical transportation environment (i.e., the extremes to be designed for) can be identified and quantified. They should include extremes of shock and vibration, atmospheric pressure, heat, cold, and humidity, and indexes for all transportation modes. Indexes should account for physical and geometric limitations, operational variations, and the range of conditions to which shipments will be subjected by the modes employed.

2. *Interim Standards Should Be Established.*—Existing regulations, directives, data repositories, and other pertinent resources must be analyzed for guidance, and interim standards established when feasible. The pertinent climatic extremes of MIL–STD 210–A should be adopted as interim Department of Transportation standards for worldwide shipment.

3. *Environmental Research Must Be Conducted.*—A continuing research program should be established to complete the system of standards and maintain it as transportation technology continues to advance. A scientific base for identification and quantification of critical elements will require substantial study and development of standard measurement and testing techniques.

4. *Classificatio nof Hazards Is Feasible.*—A simple, effective system for classifying hazardous materials (i.e., identifying the type and degree of potential hazard associated with a specific material) can be developed that is applicable to all modes of transportation.

5. *Classification Concept Is Recommended.*—A system should be developed that identifies three major hazard types—health, flammability, and reactivity. The recommended system closely parallels the system already partially developed by the National Academy of Sciences for the U.S. Coast Guard.

6. *Classification Research and Testing Must Be Conducted.*—A continuing research and test methods development program should be established to study still unexplored hazard classes from mixed cargoes and compressed gases and hazards to plants and animals. Simplified tests for hazard-clasification need to be developed. (The classification system mentioned previously provides a working outline for these research needs.))

7. *Containment Performance Standards Are Attainable.*—Performance-based regulations for containers and packaging can be developed. Standards will need to reflect the influences of the cargo hazard classification, the environment, and container size.

8. *Containment Testing Requires Research and Development.*—Standard test methods should be developed for containment testing and qualification based on performance criteria.

Management

1. *Unified Information Facility Is Needed.*—A computer-assisted data and information analysis center should be established to receive, analyze, and disseminate data supporting a systems-management approach to hazardous materials transportation, including the essential requirement for public education. Following are examples of activities appropriate to this center:

Accumulating and digesting accident experience and scientific data.
Providing reports and analyses for management of intermodal activity.
Disseminating precautionary, advisory, and technical reports and publications whose contents are appropriate to a full spectrum of potential users.

The importance of this facility would seem to warrant consideration by the Department of Transportation and the Office of Science and Technology as an addition to the present group of national information and analysis centers.

2. *Reporting System Should Be Developed.*—An effective reporting system is needed to acquire knowledge of actual experience in the movement of hazardous materials through the transportation system. Data should be collected on the nature, cause, frequency, distribution, and effects of transportation incidents and accidents.

3. *All-Mode Hazardous Materials Identification System Is Needed.*—A uniform all-mode system of hazardous materials identification should be developed. The needs of organized emergency personnel and of those with an accident-preventive role (carrier, shipper, general public) should be emphasized. International needs, recognizing the probable necessity for some exceptions, should be identified. User tests of existing and proposed systems should be conducted.

4. *Rapid-Reponse Information System for Emergencies Is Recommended.*—A rapid notification and advisory feedback system for emergencies involving hazardous materials should be developed. The system should operate down to the local level during the emergency to provide specialized advice to emergency personnel, to alert the public and potentially affected authorities, and to acquire data for accident-response and disaster-control technique improvement.

5. *Administrative Implementation Requires Specialized Advice.*—The services of a broadly qualified advisory group similar to this study group should be utilized for assistance in design planning and operational programming. The specialized capacities within the advisory group should prove particularly helpful during reformulation of the present program into an all-mode, standards-oriented activity employing systems-management concepts and techniques.

A systems analysis plan should be developed for managing the critical transition conversion from the present separate-mode, commodities-based system. Dual regulations may be maintained where needed during transition to the new system. Systems-directed cost-benefit analyses should be employed for retirement of options provided under the present system. The critical path of work priorities for accomplishing the conversion must be established.

Potential legal or administrative impediments to the ideal system design should be reviewed, and remedies or feasible accommodations developed. Organizational or legislative constraints should be identified. It is necessary to determine if accident-report sources and emergency advisors are equitably protected against liability.

Appendix 3

U.S. Senate,
Committee on Commerce, Science, and Transportation,
Washington, D.C.

Dear Mr. ——— ———: The Senate Committee on Commerce, Science, and Transportation has legislative authority over the Department of Transportation's activities concerning hazardous materials transportation. To assist the Committee in its oversight responsibilities, I have requested the Congressional Research Service of the Library of Congress to conduct a study reviewing and analyzing the DOT's regulatory activities relating to the safety aspects of the transportation of hazardous materials.

This study will consider DOT operations and regulations concerning hazardous materials transportation and discuss areas of concern, and issues associated with the Federal Government's activities in this area. In addition, legislative options and administrative actions aimed at improving the Federal Government's activities in the transportation of hazardous materials will be presented.

Because of your expertise and past experience in dealing with the DOT hazardous materials program, I want to solicit your comments to insure a broad range of input into this study. I would very much appreciate your response to the following questions:

1. Please assess the adequacy of operation of the Materials Transportation Bureau. Do you think that MTB is properly coordinating the functions or activities of other modal administrations within DOT that bear on the transportation of hazardous materials?

2. Please assess the DOT's implementation of its responsibilities concerning the transportation of hazardous materials.

We would welcome your comments on such areas as:

a. Regulatory procedures,

b. Competence of staff in the various technical fields involved in regulatory procedures,

c. Use of, and response to, public comment on regulatory proposals,

d. Educational activities involving the regulated industries.

e. Educational activities involving public officials who are concerned with safety, and

f. Compliance activities, including penalty actions.

42-112—79——11

Do you believe that problem areas concerning hazardous materials transportation are systematically identified by the DOT? Are DOT's resources devoted to priority areas? Does DOT have the technical competence to perform its functions?

3. Please discuss the functioning of the Office of Hazardous Materials Operations [1] within the Materials Transportation Bureau. Does this office respond in a timely fashion to your requests? Does this office carry out its regulatory functions, practices, and procedures adequately?

4. Are there any regulations or regulatory procedures that, in your opinion, interfere with the transportation of hazardous materials? If so, please provide specific examples in your response.

5. What are the legislative or administrative changes that you believe might improve the Federal Government's (primarily DOT's) activities concerning the transportation of hazardous materials? Is there a need for a federally-run hazardous materials information system to provide emergency advice concerning accidents involving the transportation of hazardous materials?

In order that the Committee may have maximum use of your contribution, I would appreciate your forwarding of responses before November 1, 1978, to:

Paul F. Rothberg,
Science Policy Research Division,
Congressional Research Service,
Library of Congress,
Washington, D.C. 20540

Should you have any questions regarding this study, please contact Mr. Rothberg at (202) 426–6030.

We would welcome any additional comments or suggestions you may have regarding DOT's implementation of its responsibilities concerning the transportation of hazardous materials.

I would hope that the information you supply will provide additional valuable information for the Congressional Research Service (CRS) study. I hope to include your responses as an appendix to the CRS report, which may be published as a committee print by the Senate Committee on Commerce, Science, and Transportation.

Sincerely yours,

HOWARD W. CANNON,
Chairman.

SELECTED RESPONSES RECEIVED IN RESPONSE TO SENATOR CANNON'S LETTER

Aerospace Industries Association of America, Inc.
Air Transport Association of America.
American Association of State Highway and Transportation Officials and New York State Department of Transportation.
American Cylinder Manufacturers Committee (submitted via private law firm).
American Maritime Association (Sea-Land Service, Inc.)
American Petroleum Institute.
American Trucking Associations, Inc.
Ashland Chemical Company.
Chemical Specialties Manufacturers Association.
The Chlorine Institute, Inc.
Compressed Gas Association, Inc.
Garrett Corporation, Airesearch Manufacturing Company of California.
General Dynamics, Fort Worth Division, Hazardous Materials Advisory Council.
Institute of Makers of Explosives.
International Association of Fire Chiefs and Director, Fire and Rescue Services of Montgomery County, Maryland.
Manufacturing Chemists Association.
National Agricultural Chemicals Association.
National LP-Gas Association.

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[1] We realize that recent DOT organizational changes have resulted in new organization names and some rearrangement of functions at this Department. For convenience and clarity, we have used the names of former DOT organization units.

National Transportation Safety Board, Private Truck Council of America, Inc.
State Fire Marshal of Maryland.
Union Carbide Corporation.
Westinghouse D&ESC.

Overview of Selected Responses

INTRODUCTION

Many industry associations, companies, and others concerned with the transportation of hazardous materials responded to Senator Cannon's letter soliciting views on the DOT safety program. These responses are reprinted in full in Appendix 3. This information was used in analyzing the DOT program, in helping to identify several areas of concern, and in providing insights into the problems industry faces in dealing with the Materials Transportation Bureau and the modal administrations. In many of the chapters, sections of selected responses were either analyzed or incorporated into the text.

Not all of the opinions or concerns addressed in these responses were considered in the text. Thus, in order to present this information more completely, the following overview was prepared as a summary of respondee's views and opinions in the following areas:

1. Coordination of MTB functions or activities with other modal administrations;
2. DOT's implementation of its responsibilities concerning hazardous materials transportation;
3. Functioning of the Office of Hazardous Materials Operations;
4. Regulations or regulatory procedures that interfere with the transportation of hazardous materials; and
5. Administrative or legislative suggestions.

1. Coordination of MTB functions or activities with other modal administrators

Responses were mixed as to whether MTB's functions and activities were coordinated with those of other modal administrations. Some respondents indicated that MTB has performed with reasonable effectiveness in coordinating the hazardous materials activities of the modal administrations. (National LP-Gas Association). On the other hand, others indicated that greater coordination is necessary not only among the various DOT organizations but also among other Federal agencies with related responsibilities. (Aerospace Industries Association of America, Inc.) Another group indicated that there had been substantial improvement in MTB's ability to coordinate activities during the past few years. (Union Carbide Corporation). However, one association thought that MTB's ability to coordinate the work of the modal administrations was adversely affected by the recent DOT reorganization that placed MTB under the Research and Special Programs Administration. (Compressed Gas Association, Inc.)

2. DOT's implementation of its responsibilities concerning hazardous materials transportation.

A. Regulatory Procedures

Some respondents indicated that the administrative aspects of DOT preparing and issuing its hazardous materials regulations work reasonably well. (American Petroleum Institute). However, others indicated that the time allowed for response to proposed rulemaking has been inadequate for thorough analysis and responsive comment in a timely fashion. (Union Carbide Corporation and Compressed Gas Association, Inc.)

B. Competence of Staff

Some indicated that the competence within DOT in the various technical fields relative to hazardous materials transportation is excellent, however, there is insufficient intra-agency reliance on expertise with the various modal groups and MTB. (American Maritime Association.) On the other hand, some indicated that there were problems with MTB's lack of technical expertise and that substantial responsibility must necessarily be placed on industry to assure product safety and to help educate DOT personnel concerning changing technologies. (American Cylinder Manufacturers Committee). Another industry group stated that the staff is competent but over-burdened. They suggested that additional staffing with highly trained technical personnel is necessary. (Chemical Specialties Manu-

facturers Association.) In contrast, another association noted that the U.S. economy cannot afford to staff DOT or any other regulatory agency with all the technical experts needed to deal with all technical problems. They noted that industry's expertise is readily available to government simply for the asking and that the role of the Federal expert was to evaluate this input in the best interest of all parties. (Compressed Gas Association, Inc.)

3. Functioning of the Office of Hazardous Materials Operations

Some indicated that performance of this office is considered to be of a high calibre and that present practices and procedures are commendable. (National LP-Gas Association.) Others noted that this office responded in a timely fashion to their varied requests. (Ashland Chemical Company.) On the other hand, one industry group noted that this office's response to matters such as interpretation of regulations is extremely slow. (Institute of Makers of Explosives.) They noted that 30 to 100 days is a typical response time. Likewise, another group wanted to see more prompt responses to inquiries and hoped for improvement in this office's handling of exemptions. (Hazardous Materials Advisory Council.) One spokesman for firefighters stated that this office should provide better feedback to those participating in its regulatory proceedings. (Director of Fire and Rescue Services of Montgomery County, Maryland and Chairman of the International Association of Fire Chiefs Committee on Hazardous Materials.)

4. Regulations or regulatory procedures that interfere with the transportation of hazardous materials

Many industry associations indicated that some Federal regulations interfere with the transportation of hazardous materials. For example, one stated that overpackaging should be allowed without the requirement of applying for an exemption. (Chemical Specialties Manufacturers Association.) Others noted that local regulations may occasionally impede the free movement of radioactive materials through various locations. (Manufacturing Chemists Association.) However, some argued that they were unaware of any Federal regulations or regulatory procedures that interfere with the transportation of hazardous materials. (American Trucking Associations, Inc.)

5. Administrative or legislative suggestions

Many industry groups presented a variety of administrative suggestions designed to improve the DOT program. One group stated that consideration should be given to establishing a Board of Review that would evaluate the validity of MTB proposals. (National LP–Gas Association.) Another association suggested recreation of the Hazardous Materials Regulations Board. (American Maritime Association.) In addition, another industry group stated that there was need to resolve jurisdictional conflicts among those regulating hazarodus materials transportation, and to work toward uniform and coordinated interpretations and compliance. (Hazardous Materials Advisory Council.)

In addition to administrative suggestions (actions that might be pursued using existing authority), some suggested actions that might require congressional decisions. One respondent suggested legislation to permit contracts with State agencies for carrying out certain DOT inspection responsibilities. (Fire Marshall of the State of Maryland.) This suggestion is similar to the grant-in-aid option outlined in Chapter 15 of this study. Another respondent suggested that DOT should have additional funding for its enforcement program. (New York State Department of Transportation.) Likewise, another industry group stated that more field inspectors to enforce existing rules would improve MTB's activities. (Private Truck Council of America, Inc.) This issue was considered in Chapters 14 and 15 of this study. An industry group stated that there was a need for Federal support of a private sector emergency response system. (The Chlorine Institute, Inc.)

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.,
Washington, D.C., September 22, 1978.

MR. PAUL F. ROTHBERG,
Science Policy Research Division, Congressional Research Service, Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: This letter is in response to Senator Cannon's request of August 7, 1978, that Aerospace Industries Association of America, Inc. (AIA) comment on various aspects of the Department of Transportation's regulation of

hazardous material transport. Our answers are numbered to correspond to the questions posed. We hope that our comments will be helpful to the Committee.

1. We believe that greater coordination is necessary not only among the various DOT organizations but also among other Federal agencies with related responsibilities. Within DOT, the problem lies with the lack of coordinated response or uniform interpretation of the regulations by the MTB Washington staff and regional offices of DOT enforcement arms, e.g., FAA, FHA. It is not unusual when seeking an interpretation of a CFR section from the OHMO to be told to contact a regional office. At the same time, personnel in the regional offices are very hesitant to give interpretations in difficult cases. Of course, it is in those instances when interpretation is most needed. It is also not uncommon to receive different opinions from two different field offices or from a field office and MTB headquarters. Regional staff have even recommended that shippers call carriers for CFR interpretations. Shippers do not often have the luxury of waiting months for a written opinion from Washington headquarters. Yet, considering the variety of interpretations that may be received, it may not be prudent to proceed without written opinion from Washington.

There also appears a lack of policy and rulemaking coordination (or, perhaps, cooperation) between DOT and other involved Federal (OSHA, NRC, EPA) and State agencies which ultimately causes problems for those involved in hazardous materials transport. For example, P.L. 93–633 permits registration of handlers of certain hazardous materials. EPA as well as various states have proposed regulations for this licensing. The New York City Code hazardous materials transportation restrictions and the OSHA Bureau of Motor Carrier Safety jurisdictional dispute are other examples of the lack of joint planning and issue identification. Further, DOT, NASA, MTMC and perhaps others are permitted to authorize transportation of hazardous materials which do not meet the requirements of DOT's CFR rules. We believe that this exemption authority should be limited to one agency. The consequences are too great to permit this splintered responsibility.

2a. Comment on DOT's regulatory procedures must first be directed to the revised CFR rules. While we recognize the considerable work the revision entailed, the rules remain unclear and in some instances incomplete or unreasonable. Classification, labeling, marking, and packaging requirements and weight allowances differ between modes and are not always compatible with foreign regulations, e.g. IATA, IMCO. On a given shipment, reference must be made to many complex rules. The result is confusion and an increased chance of noncompliance. The length and complexity of the regulations prohibit anyone but the frequent hazardous materials shipper with a fully-trained staff from developing a thorough knowledge of them. As a result, some requirements can easily be overlooked. It would be helpful if the regulations were revised to place the rules in a more easy to use, logical order starting with, perhaps, general requirements and proceeding to detailed requirements for specific hazard classes. Expansion of the 49 CFR 172.101 table to include specific hazards has also been suggested. The limited number of items also results in continuous problems classifying complex substances. Further, if the regulations are to be so long, they should be more complete and logically organized as previously discussed.

Regulatory caseload may be divided into two main areas—rulemaking and exemption proceedings. Many major rulemakings appear to be MTB-initiated reactions to accident or "crisis" situations. We see no real overall policy or long-range planning being developed. We have no knowledge of MTB's procedure for handling Petitions for Rulemaking. AIA filed such a petition in June 1976, and has yet to receive notification of any action taken. Technical, as opposed to basic policy, issues appear to take precedence. The exemption process also is often a long, drawn out exercise in frustration be it an initial request, a request for renewal, or simply a request for an interpretation of a portion of an exemption. CFR § 107.103(c) implies that exemptions will be handled within 120 days. The process actually takes form six to nine months. Defense contractors developing hardware under independent research and development programs do not have this kind of lead time. Often, requests for exemptions or additions or deletions thereto are denied without explanation. The denial may be found (after lengthy checking) to be based on technical problems which could have been remedied with a telephone call or short note. Perhaps exemptions could be issued from field offices to make them more timely.

DOT uses the Federal Register to notify shippers of changes in the rules. To be aware of these changes, shippers must subscribe to the Register of await

annual October 1 publication of the revised CFR (generally available only much later). Each alternative has obvious drawbacks. DOT should issue its own supplements to the CFR to shipper subscribers.

2b. Generally, AIA members view DOT personnel as competent. (But see comments in 1) above concerning the reluctance to provide interpretations and apparent lack of adequate guidance and training by MTB headquarters.)

2c. We have no information as to the amount of comment generated by most Notices of Proposed Rulemaking. Considering the highly technical and often very specific proposals published, comment may be quite limited. Frequently, it appears that little or no changes are made as a result of public comment. In one area we know if—development of U.S. positions on U.N. Dangerous Goods rules proposals—MTB does not seek public comment through the Federal Register. Proposed U.S. position papers are circulated to a select group of trade associations. The "public" is not advised until an open meeting is held to discuss progress and report on finalized items. We are not sure this procedure adequately develops the record. Everyone affected should have the opportunity to comment.

2d. DOT training programs are insufficient as they generally are designed only as awareness programs and do not address specific problem areas. The restricted space in the four-day training programs makes them of limited usefulness. Private programs are numerous, but shippers have no basis on which to judge their overall adequacy. DOT requires that shippers have training programs, yet it fails to provide a standard for shippers to judge them. Either DOT should develop a basic comprehensive program or even a minimum lesson plan, or it should approve or disapprove commercial offerings. Perhaps DOT could work with local colleges to provide in-depth hazardous materials transportation education. The OHF monthly newsletter is, however, a welcome educational tool.

The difficulties encountered in maintaining a high level of hazardous materials education for employees handling these materials cannot be overemphasized. It is one thing to provide a thorough training program. It is quite another to guarantee that all employees retain this information and are able to apply it and interpret the regulations. Continuing employee turnover compounds the problem, as does the need to educate suppliers. Given the existing regulations, much more needs to be done by DOT in the education area.

While the DOT-run seminars are directed primarily to shippers and concern documentation requirements, there seems to be little educational activity directed to carriers or chemical and explosive manufacturers. There currently is an Inter-Industry Task Force on Rail Transportation of Hazardous Materials studying, among other things, accident response systems, and bill of lading codes. This group is working on very real problems with an apparent absence of DOT involvement.

2e. We are unable to comment on this item other than to note that this subject has been neglected. The First National Symposium on Hazardous Materials Transportation was held in Washington in 1973. We are not aware of any later meetings.

2f. DOT is improving in this area. However, a greater enforcement effort is needed to eliminate uninformed and repeat offenders. Many noncomplying shipments are being transported. At this point, perhaps educational and enforcement activities are more important than new, addtional regulations. We do recognize that adequate enforcement activity requires a staff larger than now exists.

As noted in 2a) above, we do not see DOT identifying problems before they occur. For example, our Petition for Rulemaking (P–534) filed in 1976, concerned the need for identification of inner containers. Present regulations require labeling only on the shipping packages, not on each unit within the package. If one of the inner containers must later be shipped, the reshipper may no longer have the neecssary data. Product hazardous materials data may also be needed only at a later stage of movement. Requests for this information from vendors often results in long delays. Many shippers may, as a result, ship the item without proper documentation.

Another, in our opinion, priority problem heretofore ignored by DOT (despite our request) is that of matching trade names to DOT hazardous material descriptions in 49 CFR 172.101. The need for a cross-reference, considering the complex chemical descriptions in the CFR, is clear. Presently, such tables are being developed company by company. This is an unnecessary, duplicative effort, and one much better handled by DOT. Industry and government should work together

to provide a complete data bank. Shippers often have difficulty getting necessary information because it is considered proprietary data. DOT could work with the Department of Labor to revise the Material Safety Data Sheet (Form No. OSHA–20) to incorporate DOT Proper Shipping Names and Hazard Classes.

We believe DOT has the technical competence to handle these subjects as well as the rules review suggested earlier.

3. OHMO personnel are generally helpful. The newsletter and the general information desk are welcome innovations. However, personnel is not adequate consistently to provide timely response to individual requests for information or interpretation. AIA members have been satisfied with OHMO's response to requests for educational information, and believe the office is functioning better this year as compared to 1977. We believe that OHMO should use the newsletter to advise industry of projects in progress and seek assistance, as industry is seldom aware of DOT research programs underway. We have hopes that timeliness of response may be improved by the recent reorganization. Apparently, the backlog of exemptions is being corrected. This, however, detracts from processing of rulemaking petitions.

4. Judging by the attached recommendations for amendment of the regulations and our above comments, one must conclude that many rules interfere with the transportation of hazardous materials.

5. Administrative changes recommended have been discussed. We have no recommendations as to legislative changes.

AIA members believe there is a need for a Federally-run hazardous materials information system for central data collection (see discussion in 2) above) and resultant simpler identification of hazardous materials. This information center could supplement the CHEMTREC emergency response system or could include emergency procedures as well as all other agency rules dealing with hazardous materials.

We hope that these comments are accepted as constructive ones. AIA, of course, recognizes that the MTB can do only so much with the staff it now has. And, our priorities may differ. Despite all our criticisms, however, we do see continual progress toward more efficient, day-to-day operations and a great improvement over the past two years.

Sincerely,

JANE F. MACKALL,
Director, Traffic Service.

[ATTACHMENT]

QUESTION 4—GENERAL COMMENTS

1. No clear guidelines as to when to use a technical, generic or general name when establishing the "Proper Shipping Name."

2. A common format does not exist for the shipper's certification by air. The formats contained in Title 49, CAB 82, Tariff 6–D, and in IATA are not in agreement and as a result shipments are either delayed or refused. It is recommended that Title 49 be amended to include a format for a shipper's certification that is compatible to both domestic (CAB) and foreign (IATA) shipping requirements.

3. There seem to be far too many DOT specification containers that are quite similar in construction. As an example, Spec. 15A, 15B, 15C and 15D are all nailed wood boxes with almost identical specifications. It would appear that such container specifications could be consolidated and/or standardized. As an additional means of assisting the shipping/packager it is recommended that Title 49 incorporate pictorial depictions of the different styles and types of specification fibreboard and wooden shipping containers.

4. The hazard classification of "Irritating Material" should be deleted from the regulations. The definition of an "Irritant" is so broad and generalized that it is impossible to use.

5. Placarding 172.504—The regulation is unclear and inappropriate as to determination of aggregate gross weight. Is gross weight for placarding based on packed gross or actually net weight? Examples: 1) Non-Flammable Gas—Cylinder charged to 1100 PSIG—Actual weight of non-flammable gas is 10 pounds. Cylinder weighs 200 pounds—total shipment 7 cylinders. If aggregate gross weight is 1400 pounds, placarding is required. Actual gross weight is 70 pounds; 2) 1 quart of paint, flammable liquid flash point 45° F., packed into a kit. Total

weight of kit is 300 pounds per box. Total kits shipped 5. Aggregate gross weight of 5 boxes bearing flammable liquid labels—1500 pounds. Placarding is required but weight of hazardous materials is 10 pounds.

6. Similarly, in 172.101 Maximum Quantity determinations—It is unclear if weights refer to hazardous material contents or total package weight.

7. Empty Packings—173.29—Markings are not required other than empty label but shipping papers must be certified as to packing, labeling, etc. and must be noted of last-contained materials. If packages go astray, who knows contents and what are we certifying?

8. It is difficult to find in the CFR exemptions for small quantities, diluted liquids, and low concentrates.

9. There are conflicts between CFR 49 and CAB Tariff 6–D mainly with respect to packaging requirements. There is no definition of liquids or solids, i.e., a tube filled with a product that will not run but must be forced out yet must be classed as a flammable liquid. Product is not liquid but does not meet definition of flammable solid.

10. 49 CFR can be simplified through improvements in packaging terminology, clear definitions, expansion of 172.101 tables, recognition of ICC fibreboard box standards where appropriate and validated by lab tests, e.g. DOT 12A, B, C, D, E, H spec containers vs. fibreboard box produced in conformance with recognized corrugated test standards, i.e., ASTM, TAPPI, ANSI.

11. DOT should study, in cooperation with other involved agencies, whether carriers can be required to accept all hazardous materials tendered in conformance with the regulations. That is, perhaps, the most common obstacle to hazardous material transportation and occurs most often with air shipments.

12. Consideration should be given to revising packaging specifications to reflect performance rather than manufacturing instructions.

13. It is very confusing having the packaging specifications for tank cars mixed in with the specifications for air shipments. These should be indexed and listed in separate areas. Persons with limited training would find these rules very difficult to interpret correctly.

14. Description of Hazardous Materials on Shipping Papers—Under Paragraph 172.202(c)(1), the regulations state abbreviations may be used to specify the type packaging and under Paragraph 172.202(c)(2), the statement that the type packaging may be entered in any appropriate manner. Neither section sets forth a requirement.

15. Use of DoD Certification vs. Use of Exemption—It is unclear whether, if an exemption has been issued by DOT, restrictions therein must be complied with if the article is shipped by DoD. For example, DOT E7726 requires cargo-only airdraft even though the amount shipped may not exceed that allowable in passenger aircraft. May DoD ignore the exemption and certify under 173.7 that the shipment complies with 172.101? Should 173.7 be clarified to provide that the DoD shipment meets or exceeds not only the regulations but also any applicable exemption?

16. An area open to interpretation when meeting wood box fabrication requirements is nominal sizes vs. actual sizes. Where the regulations specify lumber of a certain size, is the nominal size acceptable or must the actual size be adhered to?

It is suggested the requirements for wood box fabrication be updated in the light of revised national standards and the stipulation that nominal sizes are acceptable be so indicated throughout the specifications.

17. The regulations are generally arranged with the user being referred to a particular part, subpart or section to determine the requirements for a particular item. The dilemma arises where the regulations do not refer the user to all the applicable requirements that apply to a particular item or group of items. The following are just two examples:

(1) A shipper desires to ship one gallon can of "Paint" which is a flammable liquid having a flash point of 80°F. He further desires to ship the paint by aircraft. Under Section 173.101, the Hazardous Material Table refers the shipper to Sections 173.118 and 173.128 and further states the maximum quantity for passenger-carrying aircraft is one quart per package and 55 gallons per package for cargo-only aircraft. There is no reference under Subpart D of Part 173 (Flammable Liquids) to Subpart B or Part 172, specifically, 172.00(g)(3) which in effect permits that one gallon of paint

to be shipped on a passenger-carrying aircraft. The relief offered under 173.100(g)(3) should be made part of Subpart D of Part 173.

(2) A shipper desires to ship an "Explosive Release Device," an "Explosive Power Device" and an "Explosive Cable Cutter," all three being a Class C Explosive, Section 172.101, Hazardous Material Table refers the shipper to Section 173.102 for all three items. This section is located under "Class C Explosives; definitions." There is no reference prohibiting the shipper from packaging all three items in one shipping container. However, under "Class A Explosives; definitions," Section 173.87 states, in part, "explosives must not be packed in the same outside package with each other." Because no reference was made to Section 173.87, it is unlikely the shipper would search for additional requirements for Class C explosives under the Class A explosive definitions.

Question 4—Specific Comments

1. Section 173.113 of the regulation limits the gross weight of a shipping container containing detonating fuzes, Class C explosive, to 190 pounds. A packaged device weighing in excess of 190 pounds cannot be shipped even though it has been classified by the Bureau of Explosives and contains less than 25 grams of explosive. Under the same section of the regulation, it is permissible to ship a truckload of detonating fuzes, Class C, which do not exceed 25 grams of explosive composition each, provided they have been packed so as not to cause functioning of one another in the event that one might detonate. It is obvious that a truckload of these Class C detonating fuzes would be more hazardous than a large device containing a small amount of explosive.

2. A Rocket Motor, Class B explosive, under Section 172.101, is limited to 550 pounds for shipment by cargo aircraft. There is no relation to the amount of explosives that may be contained within the rocket motor. For example, one rocket motor packaged for shipment, weighing 550 pounds, could contain 500 pounds of propellant, if the motor case and package did not exceed 50 pounds, and would be acceptable for shipment. Another rocket, in which the case and package weighed 500 pounds and only contained 51 pounds of propellant, would not be authorized for shipment. It is obvious which would be the greater hazard.

3. Classification of Explosives—The CFR 173.86 process for classification of explosives is cumbersome and inordinately lengthy. In one case, it took over two years.

4. Authorized Packages in Outside Containers—The definition of "Packaging" under Section 171.8 includes containers. A DOT Specification cylinder or pressure vessel is a container and would fall under the definition of a "package." The required marking phraseology when overpacking DOT Specification containers is "INSIDE *PACKAGES* COMPLY WITH PRESCRIBED SPECIFICATIONS" per Section 173.25. However, when overpacking certain specific DOT Specification containers containing compressed gases under Subpart G, the regulations require the phraseology, "INSIDE *CONTAINERS* COMPLY WITH PRESCRIBED SPECIFICATIONS." Although this is a minor point, it is an indication of nonuniformity of requirements.

5. Shipping Chromic Acid (less than 35% chromic acid) Solution—4 quarts (1–quart cans): Chromic Acid Solution with a one gallon limit for cargo is referenced in Item 173.287, Para. C, Page 330, as "must be described as Corrosive Liquid NOS." Corrosive liquid NOS has a one quart limit for cargo aircraft. In checking with the local FAA office, we found they too were confused as to whether we should pack to Chromic Acid specifications or to Corrosive Liquid specifications. They, in turn, had to call Washington, D.C. for instructions. (In this case, we were advised to package according to Corrosive liquid NOS specifications.)

6. Item 172.100(g)(3), allows for an increase in the quantity when shipping flammable liquid that has a flash point of 73° F or higher. There is no mention of this rule in the Hazardous Material Table listed in Title 49.

7. Limited Quantities of Flammable Liquid (173.118, 173.128)—173.118 provides exemption from labeling and specification packaging when in metal containers not over 1 quart capacity except when offered for transportation by air. 173.128 provides exemption from specification packaging but not labeling when in glass packings of not over 1 quart capacity each or in metal packings of not over 5 gallons capacity each except when offered for transportation by air.

8. Oxygen—172.101—CFR requires oxidizer label. IATA requires non-flammable gas label. On shipments moving partial domestic and international this creates problems.

9. Magnetized Materials—173.1020—CFR 49—Requires certification. IATA—Requires no certification.

10. Air carriers for the most part will not accept aerosol shipments when classed as a "Compressed Gas, N.O.S." or "Consumer Commodity" even though Title 49 authorizes such shipments. It is recommended that Title 49, Part 172.101 be amended to include the proper shipping name of "Aerosol Container."

11. One of the most disconcerting areas in the shipment of hazardous materials is export shipments. Problems arise where there is a disparity between DOT Regulations and IATA Regulations. The following are a few specific examples of these disparities:

(1) DOT Specification 19A400 wooden box, glued plywood, cleated authorizes a maximum gross weight of 400 pounds. IATA on the other hand authorizes only a maximum gross weight of 150 pounds when using the same container. Suggest DOT petition IATA to stipulate use of DOT containers in their entirety.

(2) For the shipment of Electric Storage Batteries in compliance with Paragraph 173.260(a)(1), 49 CFR, the DOT authorizes DOT Specification 15D or 16B wood box but does not authorize a 15A or 15B box. Conversely, IATA does not authorize a DOT 15D or 16B box but does authorize a DOT 15A or a 15B box. Suggest DOT authorize use of a DOT 15A and 15B wood box under Section 173.260 and petition IATA to authorize a DOT 15D or 16B box.

(3) In shipping Ethyl Methyl Ketone Peroxide (not more than 60% by weight in dimethyl phthalate), it must be described as "Organic Peroxide, N.O.S." per Section 172.191, 49 CFR and, when so described, is forbidden to be transported on a passenger-carrying aircraft. IATA Regulations has the provision to describe the material by the generic name under Article No. 727 and accordingly a maximum of one quart per package may be carried on a passenger-carrying aircraft. Marking the material with a "Cargo Aircraft Only" label as required by 49 CFR, frustrates the shipment at such points where all-cargo service is not available. Suggest DOT adopt the Proper Shipping Name of Ethyl Methyl Ketone Peroxide and packaging requirements to coincide with IATA Regulations.

12. When shipping hazardous materials by air not permitted on passenger-carrying aircraft, the phrases "Cargo-only Aircraft," "Cargo Aircraft Only" and "Only Cargo Aircraft are used. Paragraph 172.203(f), CFR 49, requires the words "Cargo-only Aircraft" be entered after the basic description on shipping papers. Official Air Transport Restricted Articles Tariff 6–D, Rule 7(B) poses the additional requirement for the words "Cargo Aircraft Only label" be noted on the Air Bill. Although not an official regulation, domestic air carriers refer to Official Air Transport Restricted Articles Circular 6–D which states, under Rule 4(C), the Bill of Lading must be marked "Cargo Aircraft Only." Export Air carriers refer to the International Air Transport Association Restricted Articles Regulations which also requires the phrase "Cargo Aircraft Only" be entered on the Air Bill. Further, the IATA Shipper's Certification stipulates the phrase "Only Cargo Aircraft." Should the shipper inadvertently interchange the phrases when complying with 172.203(f) or describing the label, his shipment is subject to being frustrated. It is suggested responsible agencies adopt the identical phraseology when describing material not permitted on passenger-carrying aircraft and the label description.

13. When shipping limited quantities of Radioactive Materials under Section 173.391, 49 CFR, a shipper's certification is required when transporting via highway or rail but is not required when transporting by air regardless of the fact that the material must be transported by highway or rail to the airport. Paragraph 173.391(d) states Radioactive Material shipments made under this section are required to have a Shipper's Certification for carriage by highway per 177.817(b) and rail per 174.24(a). Where carriage is by air, certification is not required per Paragraph 175.10(a)(6). As stated, Paragraph 173.391(d) requires a certification but that requirement is nullified by Section 175.10. The requirement or exception should be made consistent for all modes of transport.

14. By the definition of a corrosive material in Section 173.240, 49 CFR, not all materials are corrosive to metals but are classed as a corrosive because of their adverse effect on human skin tissue only. Using the packaging requirements set forth in Section 173.245, there are no provisions for shipment of a

corrosive (to human skin tissue only) in an inside metal can other than a specifically approved aluminum container. Regulations should be adopted to offer authorization to use an inside metal container where the material is compatible and will not affect the integrity of the container.

15. Paragraph 173.260(d) states, in part, nonspillable type batteries are not subject to the requirements of Parts 170 to 189, 49 CFR. There is no criteria set forth what constitutes a non-spillable type battery in the regulations. The Office of Hazardous Materials Operations did set forth this criteria in their OHM Newsletter for August/September 1976. Not all shippers subscribe to or are even aware of this publication, therefore, may set their own standards as to what constitutes a nonspillable battery. It is recommended the official definition of a nonspillable battery be made part of the regulations to preclude any necessity to interpret what is a nonspillable battery.

16. Nonspillable batteries are not regulated for surface and domestic air shipments. The problem arises where shipment further involves export air shipment or shipment via military aircraft. IATA Restricted Articles Regulations classifies this item as a hazardous material as does U.S. Air Force Regulation 71–4. Accordingly, if shipment involves adhering to these two regulations, the container must be appropriately marked and labeled and the accompanying shipping documents must be appropriately noted. When this is done, the shipment is subject to being frustrated by the carrier who must only comply with 49 CFR. DOT's coordination with other regulatory agencies is required for the shipment of this item.

17. Nonspillable batteries should also be reflected in Title 49, Part 172.101, as being non-regulated. At present they are specifically excluded in Part 173.260(d) from regulation; however, due to being "buried" in the myriad of regulations and not shown in the commonly referenced 172.101, carrier personnel are often not familiar with the exclusion and therefore refuse this type of shipment.

18. As stated in Paragraph 175.10(a)(6), 49 CFR, limited quantities of Radioactive Materials are not subject to the regulations prior to May 3, 1979. It is hoped these items will be permitted to be transported on passenger-carrying aircraft subsequent to that date. Restricting shipments of limited quantities of radioactive material that does not comply with Paragraph 175.30 (b)(2), 49 CFR, would cause undue delay in shipping limited quantities of radioactive material to destinations not serviced by cargo-only aircraft.

AIR TRANSPORT ASSOCIATION OF AMERICA,
Washington, D. C. September 15, 1978.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division, Congressional Research Service, Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: On behalf of the Air Transport Association of America (ATA), which represents virtually all of the U.S. scheduled airlines, I am responding to Senator Cannon's August 7, 1978 request for information on the Department of Transportation's hazardous materials program.

Before responding to the specific questions raised in the Senator's letter, I would like to explain briefly the involvement of ATA's member-carriers in this area. As you know, the airlines are required to comply with the regulations of the Department of Transportation (DOT), 49 C.F.R. Parts 100–199, when transporting hazardous materials. The carriers are also required to file tariffs with the Civil Aeronautics Board (CAB) containing rules applicable to hazardous materials transportation which are more restrictive than DOT's (14 C.F.R. § 221.104, as announced in ER–1062, Docket 32369, effective September 5, 1978).[1] Tariff 6–D, CAB No. 82, is the joint air carrier rules tariff which contains these more restrictive provisions. Judging from the April 10, 1978 statement of Mr. L. D. Santman, Director, Materials Transportation Bureau (MTB) before the House Subcommittee on Transportation and Commerce, however, it may be that MTB's activities in the next year will focus more directly on air transportation

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[1] It should also be noted that the carrier tariff provisions with respect to rules, rates and practices are under CAB investigation in Docket 31044, *Hazardous Articles Rules and Practices Investigation.*

with the possibility of DOT's strengthening its regulations in this area. Should this be the case, it is conceivable that the number of restrictions imposed solely by the carriers will diminish.

The carriers' activities in areas relating to hazardous materials proceed from their Restricted Articles Board, a ten-member Board drawing on expertise in the fields of chemistry, engineering, freight services, safety and training. The establishment of this group was approved by the CAB on March 22, 1976 (CAB Order 76–3–136). This group—the RAB—is a most direct link between the air carriers and DOT.

Turning to the specific questions, I will attempt to respond to them as posed.

1. Please assess the adequacy of operation of the Materials Transportation Bureau. Do you think that MTB is properly coordinating the functions or activities of other model administrations within DOT that bear on the transportation of hazardous materails?

The operation of MTB is viewed as about standard for a government agency. Since the hazardous materials regulations pertaining to air transportation were drawn from those applicable to rail express services, the carriers have felt for quite some time that the unique characteristics associated with transportation by air have never received the attention they deserved. That situation, however, may be changing.

While DOT is not wholly responsible for it, the agency is most involved in the activities of the International Civil Aviation Organization's (ICAO) Dangerous Goods Panel. Ths group is reviewing particular hazardous commodities in terms of their safety for carriage abroad passengers and all-cargo aircraft, and, as a result of Dangerous Goods Panel Meeting in Heidelberg during October of 1977; a Dangerous Goods Listing was tentatively arrived at which meets such criteria. This type of activity is supported by the carriers and it is urged that DOT press strongly for it. Perhaps, also, the workings of the ICAO Panel will prove of direct assistance in leading DOT to revise and strengthen its own regulations for the air transportation of hazardous materials.

Coordination by MTB with the FAA appears inadequate. Often, carriers receive different, albeit informal, opinions from MTB and from FAA. This type of response is conducive to a "forum shopping" environment, whereby questions are posed to many staff members until one gives the answer desired by the requesting party. Moreover, carriers believe that the DOT regulations applicable to air can be improved [2] through increasing reliance on FAA personnel and would urge this type of relationship between MTB and FAA.

2. Please assess DOT's implementation of its responsibilities concerning the transportation of hazardous materials. We would welcome your comments on such areas as:

(*a*) *Regulatory procedures.*—The rulemaking procedures employed by DOT provide a sufficient period of time for interested persons to make timely comments. The general procedures are far from burdensome and encourage public participation. The recent joint DOT–EPA hearing on the transportation of hazardous wastes exemplifies this point. The problem appears to be in the timeliness of DOT's response. While the reasons for this are not known to the air carriers, it often appears that while the agency's procedures encourage public involvement, the agency's activities do not. In order to correct this, it might be appropriate to place a reasonable time limit on the agency when it is responding to petitions or finalizing rulemaking actions. This type of "sunset" provision need not be onerous. In fact, if DOT was actually unable to meet the deadline, it could be deemed to have met it by acknowledging receipt of the petition, explaining the reasons why final action could not be completed by the target date and giving the name of the person who is primarily responsible for reviewing the petition. This would at least let petitioners know that their filings were not ignored and would provide status information and a contract person. All of this would be of great assistance.

(*b*) *Competence of staff in the various technical fields involved in regulatory procedures.*—This is somewhat difficult to assess. It does appear that the agency has proceeded with rulemaking on the basis of information gathered from another area, such as in the case of the proposed rules on the transportation of asbestos fibers. It is difficult to determine whether standards for exposure to

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[2] The carriers would point out, however, that the DOT regulations, when combined with the carriers' tariff restrictions, result in a set of guidelines which are reasonable and safety-related.

asbestos, developed by EPA/OSHA, have any relevance to air transportation. Indeed, DOT noted that it would be unlikely for asbestos fibers to be transported by air. As a result, it is not known whether DOT has simply assumed a connection in furtherance of safety, or has studied the area. Thus, one is lead to question the factual basis of some proposals.

The depth of understanding of compliance personnel is also questionable. Generally, FAA inspectors have a check list of items to inspect at carriers' stations. While the inspector can review these items, he is often unfamiliar with the basis of the regulation or with related aspects of it. As will be discussed more fully below, this appears to be primarily the result of inadequate or incomplete training.

(*c*) *Use of, and response to, public comment on regulatory proposals.*—As noted earlier, public comments appear to be encouraged, and yet, from RAB's perspective, it is sometimes hard to determine the degree of attention paid these comments. The response time, as noted, is quite lengthy.

(*d*) *Educational activities involving the regulated industries.*—The carriers believe the agency's efforts to provide information to the public, including regulated industries, is good. *The Hazardous Materials Newsletter* provides interested persons with a summary of proposed and final rulemaking activities during a certain period, and with examples of DOT enforcement actions. In addition, instructional information, such as the booklets for cargo handlers and supervisors of cargo terminals on radioactive material packages, are provided. All of these are of assistance, and indicate a strong desire to educate.

DOT also conducts hazardous materials training seminars throughout the country, and these seminars are available to members of the private sector as well as to government employees (See response to "(e)" below).

The FAA has a one-week training program in Oklahoma City for its personnel and personnel of the air carriers. This does provide strong guidance on DOT's regulations, but it does not provide detailed background information on aspects of hazardous materials' movements in the field. This is acquired through "on-the-job training" and for FAA inspectors, as noted earlier, this is not so quickly accomplished and can be a drawback in effective compliance activities.

(*e*) *Educational activitics involving public officials who are concerned with safety.*—Beyond those activities described above, the carriers are not aware of any other educational activities involving public officials.

(*f*) *Compliance activities, including penalty actions.*—Obviously, the individual carriers are in the best position to comment on the FAA inspection program for air carriers. It is generally agreed, however, that compliance efforts are fairly good. Taking into account the potential for incomplete training of FAA inspectors, there are frequent visits and inspections at carrier stations. And the very "presence" of FAA inspectors is useful in reemphasizing to carrier personnel that the transportation of hazardous materials is an important matter.

The carriers' major concern in the compliance area revolves around shipper compliance with the regulations. It is axiomatic that strict compliance with the regulations by shippers of hazardous materials will insure safety, and greatly reduce the likelihood of incidents/accidents. For this reason, the carriers believe that concerted efforts by DOT must be directed in this area.

3. Please discuss the functioning of the Office of Hazardous Materials Operations within MTB. Does this office respond in a timely fashion to your requests? Does this office carry out its regulatory functions, practices and procedures adequately?

Probably the most frequently encountered criticism of MTB by air carriers is its failure to respond to carrier requests/petitions. For example, on December 2, 1976, the RAB filed a petition requesting the exclusion of small amounts of dry ice from regulation. The purpose was to allow for the carriage of limited quantities of carry-on foods stuffs and medicines requiring a refrigerant. This petition was followed up by phone conversations with OHMO personnel in February and March of 1977, and by further correspondence in April of 1977. While certain relief was provided in the area of medicines (§ 173.615(e)), no formal response has yet been received by the RAB. This lack of responsiveness does little to encourage participation even though the RAB continues to file petitions.[3]

[3] For example. RAB has filed petitions on organic phosphates or phosphorous compounds, on packaging and marking of matches, and on inflated tires, among others.

4. Are there any regulations or regulatory procedures that, in your opinion, interfere with the transportation of hazardous materials? If so, please provide specific examples in your response.

The carriers' concerns are primarily of an opposite nature. They find that DOT's regulations are often not strict enough. The following examples may illustrate this concern:

(1) The carriers are critical of the types of materials eligible for reclassification as consumer commodities (ORM–D–AIR) and of the lack of information required to be provided for consumer commodity shipments with respect to identification of the types of potential hazards involved;

(2) They believe that commodities of various hazard classes should not be commingled in an outside or freight container;

(3) More precise regulations should be promulgated for undelivered shipments, particularly if such are radioactive material shipments; and,

(4) The net weight of hazardous materials should be marked on the outside of an assembly in addition to being noted on the shipping paper. These are just a few areas, some of which are rather minor in relation to others, which could improve DOT's regulations. However, the carriers are also aware that the very delay inherent in DOT's activities, as indicated by the failure to respond to RAB's petition on dry ice, can most easily interfere with the transportation of hazardous materials that pose no substantive safety hazards.

(5) Suggestions for improvement.

A federally-run emergency service to advise persons on how to handle accidents could be of assistance, but the cost of maintaining such may well be excessive. At this point, carriers who may need assistance in handling an incident have ascertained appropriate reference services, such as the Bureau of Explosives, Chemtrac and DOT.

A possible first step to be taken by DOT in this area may be to study private sources of such informational services and see if any would serve as a federally-funded service. Or DOT could widely publicize the location of such private services, which it has studied and determined to be capable of handling inquiries of this nature.

I hope that the information provided in response to these questions will assist you in reviewing DOT's regulatory activities relating to the transportation of hazardous materials. If I can be of further help, please contact me.

Sincerely,

KATHLEEN O. AIGUIOPORLOR.

AMERICAN ASSOCIATION OF STATE HIGHWAY
AND TRANSPORTATION OFFICIALS,
Washington, D.C., October 20, 1978.

MR. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress,
Washington, D.C.

DEAR MR. ROTHBERG: We are extremely sorry for the delay in answering Senator Cannon's request of August 31st for our experience in dealing with the DOT hazardous materials program.

We asked the Chairman of our Task Force on the Movement of Hazardous Materials to prepare an answer to the Senator's letter, and enclosed is his reply. In his summary paragraph on page 2, Mr. Graham has indicated that the results of a questionnaire on the Movement of Hazardous Materials will soon be available. Should you desire a copy of this summary, please let us know and we will be happy to send it to you.

Sincerely,

HENRIK E. STAFSETH,
Executive Director.

Enclosure.

Regarding a Federally-run Hazardous Materials Information Center, we would prefer to let the Manufacturing Chemists handle this.

We should point out to the Senate Committee that the AASHTO Task Force is currently summarizing its Questionnaire on the Movement of Hazardous Materials, and that the results could be useful to the Committee.

Sincerely,

MALCOLM D. GRAHAM,
Assistant Commissioner,
Transportation Operations.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
Albany, N.Y., October 5, 1978.

Mr. HENRIK E. STAFSETH,
Executive Director,
American Association of State Highway and Transportation Officials,
Washington, D.C.

DEAR HANK: This is in reply to your letter of September 11, 1978, requesting a suggested reply to Senator Cannon's August 31, 1978 letter to AASHTO on USDOT's activities regarding hazardous materials.

We have reviewed the letter, which contained several questions pertaining to the Department of Transportation's activities, however, I feel that at this time I can only speak knowledgeably about New York's relationship to DOT in this area.

Specifically, Question 2.e—Educational activities involving public officials who are concerned with safety:

> The local office of the Bureau of Motor Carrier Safety will be teaching a seven-hour course on Title 49 to our Permit Engineers and supervising Motor Vehicle Inspectors on October 17 and 18 of this year. The local office has always been very helpful over the past four years and very willing to dig out information which we have requested.

Regarding Question 3—Does this office respond in a timely fashion to your requests?

> We have written the Office of Hazardous Materials Operations on two occasions and feel their responses have been timely.

Regarding Question 5—Legislative or Administrative changes.

> In our opinion, we think USDOT should have additional funding for enforcement. We understand that their current staffing in the Bureau of Motor Carrier Safety is 128 Safety Investigators, nationwide.

COLLIER, SHANNON, RILL, EDWARDS & SCOTT,
ATTORNEYS AT LAW,
Washington, D.C., November 1, 1978.

Re comments of American Cylinder Manufacturers Committee concerning Department of Transportation Regulation of Hazardous Materials Transportation.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress,
Washington, D.C.

DEAR MR. ROTHBERG: These comments, submitted on behalf of the American Cylinder Manufacturers Committee [ACMC], are in response to the October 4, 1978, letter from Senator Howard W. Cannon concerning the U.S. Senate Committee on Commerce, Science, and Transportation study of Department of Transportation Hazardous Materials regulatory activities.

ACMC is an unincorporated association of United States cylinder manufacturers whose members produce approximately 90 percent of all domestically manufactured compressed gas cylinders. The industry has enjoyed an excellent safety record over the years, in large part because of the stringent quality standards

which its members have followed in the manufacture and testing of cylinders. ACMC members report generally good working relationships with personnel of the Department of Transportation [DOT]. However, it was concern for the potential adverse effect that a particular DOT action might have upon the safety record for compressed gas cylinders used in this country which prompted the formation of ACMC.

ACMC challenge of HM–74

ACMC was formed in 1971 for the purpose of coordinating a response to DOT's proposal in Docket No. HM–74, 36 Fed. Reg. 834, (Jan. 19, 1971). That proposal (later promulgated in final form as an amendment to 49 CFR § 173.300, 41 Fed. Reg. 18414 (May 4, 1976)) authorized the tests for DOT specification of compressed gas cylinders to be performed outside the United States. Prior to the promulgation of this regulation, imported cylinders had to undergo testing in the United States. ACMC maintained that because of the inherent hazards related to compressed gas cylinders, this system of inspections should be continued. Attached is a copy of ACMC's May 15, 1976 challenge of HM–74 before the Materials Transportation Bureau [MTB]. That challenge is also summarized briefly below.

ACMC's argument focused upon the safety aspects of HM–74. Compressed gas cylinders are made of metal and hold gases of many types, including gases which are flammable, explosive, or poisonous. Additionally, these gases are stored and shipped at high pressures. The destructive force of a filled cylinder has been likened to that of a small bomb. A 51'' by 9'' cylinder pressurized to 2200 psig (pounds per square inch, gauge pressure), of the type widely used in American industry, has the destructive force of 24 sticks of dynamite or .52 pounds of T.N.T. Minor and unsuspicious looking faults in a cylinder can be extremely dangerous. One fatal accident occurred in 1971 because a used tank which was being refilled had a scratch only .045 of an inch deep running the length of the cylinder.

DOT has recognized that many foreign manufacturers do not meet DOT cylinder standards.

> . . . [f]oreign cylinder manufacturers constitute a diverse group which unquestionably includes a great many concerns that will never seek entry into the U.S. cylinder market, as well as concerns that will not or cannot comply with DOT regulatory standards. 41 Fed. Reg. 18413 (May 4, 1976).

ACMC pointed out in its March 15, 1976, submission to MTB concerning HM–74 that one serious problem with foreign inspection of cylinders is that there is currently no common understanding of regulatory terminology or testing practices. Over the past twenty years, the United States has participated in efforts to establish cylinder standards for all countries through the International Standards Organization. Some features in current DOT regulations have been consistently rejected by foreign manufacturers: the concept of maximum design stress limitation; leakage tests on spun-type cylinders; definition of quench and temper heating treatment; and a precise definition of approved fabrication materials. Most foreign manufacturers also do not accept or understand the volumetric expansion tests which United States manufacturers consider the most important safety feature contained in the regulations.

ACMC also pointed out the difference in foreign and domestic manufacturers' understanding of "disinterested inspection." In the United States, the disinterested inspector is present at all times and witnesses all testing during cylinder production. In foreign manufacturing facilities, the disinterested inspector frequently enters the plant only on a periodic basis and performs tests only on randomly selected cylinders. In short, ACMC argued that the understanding of DOT regulations held by foreign manufacturers is significantly different from the understanding of DOT regulations held by domestic manufacturers and testing agencies.

The record of the DOT proceedings in HM–74 contained evidence demonstrating the despite the fact the imported cylinders were marked as complying with DOT requirements, some foreign compressed gas cylinders failed to meet the standards established by DOT regulations. ACMC argued that this evidence of noncompliance, when viewed in conjunction with the problems inherent in foreign manufacturers' attempts to interpret and apply DOT regulations raised the issue of whether the United States citizens who are in daily contact with compressed gas cylinders can rely on the safety of foreign-made compressed gas cylinders.

DOT, after admitting that it was considering foreign-trade factors in its evaluation, promulgated regulations permitting foreign inspection, 49 C.F.R. 173.300

a and b. ACMC exhausted its administrative avenues of challenge within DOT, and was unsuccessful in a court challenge of procedural aspects of DOT's decision. ACMC remains concerned, however, that foreign made cylinders which are not adequately tested will be involved in accidents in the United States which will injure the safety reputation of the entire compressed gas sylinder industry.

Consolidation of hazardous materials regulation under DOT

ACMC members commented generally that the consolidation of hazardous material regulations under DOT and the formalizing of rulemaking and exemption procedures have been steps in the right direction. The positive aspects of this consolidation have been somewhat undermined by frequent reorganization because of the confusion created in transition periods.

Technical competency of Material Transportation Board

The transportation of hazardous materials is an extremely broad field requiring expertise in a large variety of very specific technical disciplines. Given the rapid advances in materials and manufacturing technology, ACMC members commented that substantial responsibility must necessarily be placed on the industry to assure product safety and to help educate DOT personnel concerning changing technologies. The industry's willingness to provide DOT with historical data and technical assistance has led to an outstanding safety record. Some members commented that MTB's plans to convert technical, specification-oriented standards to performance standards should help alleviate some problems associated with MTB lack of technical expertise.

Material Transportation Board timeliness in responses to requests

ACMC received varied comments from its members concerning the timeliness of MTB responses. Several members indicated that the promptness of responses has been dependent upon the priority that MTB assigned to requests. One member indicated that his firm felt that it is extremely difficult to get answers from MTB,

> . . . unless one spends considerable time and money to hire local lawyers, etc. to pursue, almost daily the people in these departments. In this case, "the squeaky wheel gets the grease" and those who go through normal channels fail to get any responses to their inquiries.

Other members indicated that while MTB has been very prompt in responding to some requests, other docketed requests for action or approval dating back four to five years are still pending.

Hazardous materials information system

ACMC received comments that there is a need for a Hazardous Materials Information System which would cover not only the transportation but also the use, manufacture, storage, and discharge of any hazardous materials. Many problems in the transportation of hazardous materials arise because of international, state, and local agencies which impose standards different from DOT's. Many of these standards are the products of emotional reactions or are politically motivated. An information service including a liaison and education program for international, state, and local agencies could alleviate some of these problems.

DOT-industry communication

Some ACMC members commented that they feel the need for better lines of communication between DOT and industry to assure maintenance of the highest safety standards.

If I can be of any further assistance, please contact me.

Sincerely,

J. STEPHEN STREET.

Enclosure.

STATEMENT BY THE AMERICAN CYLINDER MANUFACTURERS COMMITTEE, IN RE-DOCKET NO. HM–74, CYLINDERS MANUFACTURED OUTSIDE THE UNITED STATES—MARCH 15, 1976

This statement is submitted by the American Cylinder Manufacturers Committee [ACMC] on proposed Docket HM–74, Cylinders Manufactured Outside the United States, which appeared in the *Federal Register* of January 13, 1976. [41 Fed. Reg. 1919.] HM–74 would: (1) Authorize chemical analyses and tests for Department of Transportation [DOT] specification compressed gas cylinders

to be performed outside the United States; and (2) require disinterested third-party inspection of all compressed gas cylinders, both foreign and domestic, as of January 1, 1978.

ACMC was formed in 1971 for the primary purpose of allowing the American compressed gas cylinder industry to respond in a unified and comprehensive manner to the proposals contained in this docket. ACMC's members account for virtually 100 percent of the compressed gas cylinders manufactured in the United States. [See, attached membership list.]

ACMC is opposed to DOT's proposals which would change present DOT specifications for compressed gas cylinders by permitting foreign manufactured cylinders to enter United States commerce without first being tested for defects and chemically analyzed in the United States. ACMC does not oppose the new proposal regarding disinterested third-party inspection of all cylinders.[1] However, we question the need for such inspection and request that DOT fully consider the substantial number of issues raised before promulgating a final rule.

BACKGROUND

The Hazardous Materials Regulations Board [HMRB or the Board] published a Notice of Public Hearing in the *Federal Register* of January 19, 1971, relating to DOT specifications 3A, 3AA and 39 cylinders manufactured outside the United States. [36 Fed. Reg. 838.] The notice announced that HMRB was reconsidering the necessity for continuing to require that prescribed chemical analyses and tests of compressed gas cylinders be performed within the United States. Yet, safety considerations which must be the sole basis for any regulatory action by HMRB [2] apparently played no role in HMRB's decision to reevaluate its compressed gas cylinder regulations. Rather, HMRB gave two other reasons as the motivation for its decision to hold a public hearing on the issue of testing foreign manufactured cylinders outside the United States.

First, HMRB referred to the potential use of foreign manufactured cylinders in the passive restraint "air bag" system for automobiles. In 1971, Government authorities were considering the inflatable air bag as a means of effectively affording crash protection to the occupants of an automobile. The Board indicated the future difficulties that would result from requiring cylinders, used in the passive restraint system in foreign-made cars, to be tested within the United States necessitated a reevaluation of the present regulations.

Second, and more important, the initial notice explained that the Board had no alternative but to reevaluate the domestic testing requirement because of foreign trade considerations. The Board stated:

"In view of the desire to import foreign-made cylinders for industrial and medical gas service and the future difficulties which will evolve from passive restraint systems being incorporated into foreign manufactured automobiles, the Board is considering [amending the regulations to permit testing outside the United States]."

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[1] Whereas the proposed rule published on January 13, 1976, is a revision of proposals published on June 10, 1971, with respect to the testing of cylinders outside the United States, the January 13, 1976 proposed regulations contained, for the first time, a provision on disinterested third-party inspection of all cylinders as part of HM–74.

[2] The statutory provisions pursuant to which DOT proposed HM–74, provide the basis of DOT's authority. The power to formulate regulations for the transportation in interstate commerce of hazardous materials had originally been given to the Interstate Commerce Commission. This statutory authority which has since been transferred to DOT [49 U.S.C. § 1644(e)(4)] states:

> The Interstate Commerce Commission [i.e., now the Department of Transportation] shall formulate regulations for the *safe* transportation within the United States of explosives and other articles including . . . compressed gases . . . which shall be binding upon all carriers engaged in interstate and foreign commerce. 18 U.S.C. § 834. [Emphasis supplied.]
>
> * * * * * * *
>
> In order to secure effective provisions against the hazards of health, life, limb, or property created by explosives or other dangerous articles . . .
>
> The Commandant of the Coast Guard . . . shall accept and adopt for the purposes above mentioned in this subsection such definitions, descriptions, descriptive names, classifications, *specifications of containers,* packing, marking, labeling, and certification of explosives or other dangerous articles or substances to the extent as are or may be established from time to time *by the Interstate Commerce Commission* insofar as they apply to shippers by common carriers engaged in interstate or foreign commerce by water. 49 U.S.C. § 170(7). [Emphasis supplied.]

Under 49 U.S.C. § 1472(h)(1), the Secretary of Transportation is given authority "to provide by regulation for the *safe* transportation of hazardous materials by air." [Emphasis supplied.]

Interestingly, other foreign policy concerns had been made known to the Interstate Commerce Commission's Bureau of Safety and Service which had jurisdiction over the transportation of hazardous materials before HMRB came into existence. In a 1963 letter from C. W. Taylor, Director of the Bureau of Safety and Service, to the Compressed Gas Association, Inc., Mr. Taylor stated:

"The Department of State is pressing us for a decision in the matter of amending the regulations . . . so as to allow the manufacture and testing of ICC–3A cylinders in the United Kingdom [for use in the United States]." [Emphasis supplied.]

The Bureau of Safety and Service did not change the domestic testing requirements in 1963 in spite of the State Department pressure to do so. As Mr. Taylor concluded:

"Viewing the matter from here [i.e., the Bureau of Safety and Service], I doubt if we could set up a plan which would allow foreign countries to manufacture and inspect cylinders under our specifications."

HHRB, however, was apparently persuaded to examine the feasibility of arriving at a different conclusion in 1971 than the Bureau of Safety and Service had arrived at in 1963 and, hence, the reevaluation of the regulations requiring domestic testing of foreign manufactured cylinders was announced.

Hearings were held on February 23 and March 16, 1971. The preponderance of the evidence presented at the hearings supported the position that DOT should not permit the chemical analyses and testing of foreign manufactured cylinders to be performed outside the United States if the safety of these cylinders was to be assured. Nonetheless, HMRB on June 10, 1971, published proposals which if adopted would have amended DOT's Hazardous Materials Regulations and permitted the performance outside the United States of the chemical analyses and tests prescribed for DOT specification compressed gas cylinders.

In the preample to this proposed amendment to Parts 173 and 178 of the Hazardous Materials Regulations, HMRB again made clear its motivation by stating that the proposals were "based on petitions from foreign compressed gas cylinder manufacturers." The Board also explained that it was HMRB's "conclusion" on the basis of "its investigations and the public record" that approval to perform specified chemical analyses and tests outside the United States should be granted to foreign manufacturers of compressed gas cylinders.

ACMC's response, dated November 1, 1971, to the proposed rule addressed the issue of whether it was appropriate or prudent to authorize the performance of prescribed chemical analyses and tests of compressed gas cylinders outside the United States. ACMC concluded that: (1) Safety considerations, as was shown by the overwhelming weight of evidence presented at the two days of hearings, required retention of the domestic testing requirement; and (2) the Board was acting beyond its jurisdiction because its primary motivation for proposing these regulations was the removal of a "non-tariff trade barrier" and not safety considerations. ACMC also asserted that the "air bag" concerns of HMRB could not serve as a basis for making sweeping changes in testing regulations which apply to the larger and potentially much more dangerous compressed gas cylinders. Cylinders involved in the air bag system are small in size, protected by the structure of the automobile and charged only once, and therefore do not pose the same degree of risk as other cylinders.[3]

Additionally, on September 3, 1971, ACMC requested an opportunity to examine the contents of the Board's "investigations" which had been referred to in the proposal's preamble. By letter dated October 6, 1971, L. W. Bierlien of the General Counsel's Office of DOT answered:

"The term "investigations" was meant to include the evaluation of the materials supplied in the public hearing, discussions with persons within the Department and the general expertise of DOT personnel serving the Board. As such, there is no single "investigation" in the sense of a report or study made by the Board. and thus there is no individual report which can be furnished for your perusal."

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[3] On May 6, 1972, the National Highway Traffic Safety Administration published a proposed new section to Motor Vehicle Safety Standard No. 208, Occupant Crash Protection, 49 C.F.R. § 571.208. This section specified that cylinders used in the air passive restraint system need not be tested and chemically analyzed within the United States. ACMC did not then. nor does it now, oppose foreign testing of cylinders used in automobile air bag passive restraint systems. The essential point to note, however, is that the air bag system can no longer be considered a factor in HM–74's proceeding.

On February 3, 1972, however, HMRB announced in the *Federal Register* (37 Fed. Reg. 2588) that additional information would be needed in order for it "to arrive at a proper determination" on the issue of whether domestic users of compressed gas cylinders could be assured that a cylinder manufactured and tested abroad would nevertheless be in full compliance with DOT specifications. Therefore, the docket was reopened and comments were invited from interested persons until June 1, 1972.

ACMC, once again, submitted comments, dated June 1, 1972, opposing elimination of the domestic testing requirement. ACMC reasoned that the record in HM–74 did not provide sufficient support, on the basis of safety considerations, for a finding that changes should be made in existing DOT specifications which would permit foreign chemical analyses and testing of cyclinders which were manufactured outside the United States.

In April 1972, DOT entered into the record a report of an investigation by Paul Seay, Mechanical Engineer of the Technology Division of DOT. The report indicated that foreign manufacturing and testing procedures could insure the production of safe and reliable compressed gas cylinders. ACMC members reviewed Mr. Seay's report and concluded that it had been based on superficial observations of the foreign compressed gas cylinder manufacturing industry.

Therefore, ACMC suggested to DOT that a second, more complete investigation be undertaken. It was urged that an inspection team comprised of the following members be established to visit and observe foreign cylinder manufacturing plants: (1) A domestic manufacturer of compressed gas cylinders; (2) a domestic user of compressed gas cylinders; (3) a member of a state regulatory agency; (4) a disinterested third-party inspector of compressed gas cylinders; (5) a representative of labor unions which fill and/or handle cylinders; and (6) a representative of DOT other than Paul Seay.

DOT refused not only to participate in the undertaking but also to contact foreign facilities in order to gain access for the inspection team. Thus, without any DOT cooperation, a three-person inspection team was organized consisting of a domestc manufacturer, a domestic user of compressed gas cylinders and an independent inspector of cylinders. This inspection team visited six foreign manufacturing facilites during August and September, 1972. Every member of the fact-finding mission returned with serious doubts as to the ability and willingness of foreign compressed gas cylinder manufacturers to comply with DOT production specifications. This conclusion, fully documented, was filed with DOT on October 3, 1972.

An analysis of the record compiled during the 1971 and 1972 considerations by DOT of HM–74, reveals that practically all the statements in support of the proposed regulations were based on foreign trade, antitrust or supply considerations and did not address the safety question. Testimony of this type which seeks to establish that the current safety regulations are a nontariff trade barrier or provide the domestic cylinder manufacturers with a monopoly in the domestic cylinder market or limit the supply of cylinders available in this country is irrelevant to this proceeding and invalid. The sole basis for the implementation by the Office of Hazardous Materials Operation [OHMO] of HM–74 can only be safety considerations.

With regard to safety considerations, the record of Docket HM–74 contains material relevant to three issues: (1) Whether foreign manufacturers of compressed gas cylinders are capable of porducing such cylinders in compliance with DOT regulations; (2) whether foreign manufacturers of compressed gas cylinders in fact produce such cylinders in compliance with DOT regulations; and (3) whether DOT is capable of effectively enforcing its regulations against foreign manufacturers and testing agencies and thereby assure United States citizens that the compressed gas cylinders to which they are exposed meet the safety standards established by the regulations.

As the attached digest of the record compiled in HM–74 (see Appendix A) discloses, the principal proponent of the proposition that foreign manufacturers are capable of producing compressed gas cylinders manufactured and tested in compliance with DOT regulations is Chesterfield Tube. However, even Chesterfield Tube, when queried regarding the ability of all foreign manufacturers to produce and test compressed gas cylinders in compliance with DOT regulations, was unwilling to assert that all foreign manufacturers possess this ability. Chesterfield Tube's assertion that some foreign manufacturers may be capable of comoplying with DOT requirements was given some support by the reports

filed by Paul Seay. However, the support of Mr. Seay's reports is substantially limited by his statement that:

"The European philosophy of inspection and product verification requires verification and testing only of the finished product rather than by the "inprocess control" as well as finished product testing philosophy of the U.S. regulations." [Emphasis supplied.]

Thus Mr. Seay's report, while supporting the assertion that some foreign manufacturers have the potential to comply with DOT regulations, raises serious questions regarding whether such manufacturers do in fact, or will in the event of HM–74's adoption, produce compressed gas cylinders manufactured and tested in compliance with applicable regulations.

There has been no evidence introduced upon which DOT could rationally rely in asserting that its regulations could be effectively enforced against foreign manufacturers and/or testing agencies if HM–74 were adopted. A number of submissions assert that safe compressed gas cylinders are being manufactured outside of the United States, (see statements submitted by Chesterfield Tube, Societe Metallurgique de Gerzat and Metalver, S.A.), however, none of the statements submitted contains substantive evidence that foreign-made compressed gas cylinders are in fact being produced and tested in compliance with applicable DOT regulations. In contrast, the record contains numerous documented examples of foreign-made cylinders which failed to meet DOT required standards despite these cylinders' having been marked as having been produced and tested in compliance with DOT requirements. (See, evidence submitted by The Marison Company, the Compressed Gas Association, Pressed Steel Tank Company and Arrowhead Industrial Services, Inc.)

Finally and more important, while several submissions assert that DOT will lack the ability to enforce its regulations against foreign manufacturers and testing agencies in the event of HM–74's adoption, the record contains no evidence which can serve to rebut this assertion. Neither the record nor HM–74 itself contain any provision by which DOT can subject foreign manufacturers or testing agencies to the same deterrent factors to which domestic manufacturers and testing agencies are subjected. Further, neither the record nor HM–74 itself contians any indication of by what means DOT proposes to exclude compressed gas cylinders, manufactured prior to HM–74's proposed adoption and not in compliance with DOT or ICC requirements, from interstate commerce.

In summary, neither the record nor HM–74, itself, resolve fundamental safety issues raised by participants in this proceeding.

After October, 1972, DOT took no action with respect to HM–74. Since the overwhelming safety evidence presented to HMRB in response to its requests for comments revealed the inappropriateness of the proposals contained in the original June 10, 1971 notice, there was adequate basis for an assumption that DOT had decided to discontinue the docket.

However, Docket HM–74 was republished on January 13, 1976, in a slightly revised version including an altogether new proposal which would require disinterested third-party inspection of all compressed gas cylinders. Notwithstanding the apparent desire of OHMO, the successor to HMRB, to eliminate the domestic analysis and testing requirement for compressed gas cylinders manufactured abroad, ACMC asserts that the evidence available in 1976 only reaffirms the overwhelming evidence presented to DOT in 1971 and 1972 on the issue of safety. Safety considerations require that compressed gas cylinders be analyzed and be tested within the United States. Analysis and testing outside the United States of foreign manufactured cylinders cannot effectively prevent unsafe cylinders from entering United States commerce.

It must also be noted that ACMC on January 19, 1976, requested both an extension until May 1, 1976 to comment upon the proposals published on January 13, 1976, and that the May 1, 1976 effective date of the proposals be deleted. By letter dated February 13, 1976, Alan I. Roberts, Director of OHMO, denied the requests. Mr. Roberts' letter contained the following statement:

"The Hazardous Materials Regulations Board concluded in 1971, that approval of inspection and test verification outside the United States could be granted under appropriate conditions."

Mr. Roberts appears to be asserting that the substantive issue of permitting the performance of prescribed chemical analyses and testing of compressed gas cylinders outside the United States was settled five years ago and that the present concern is determining how best to implement this decision.

ACMC registers its complete and total disagreement with Mr. Roberts' assessment of the issues which have or have not been settled. ACMC has stressed this point in each of its previous submissions, and again clarified the record in this regard in a letter of February 18, 1976, requesting reconsideration of its denial for an extension of time to submit comments. In that letter which was written to Mr. James T. Curtis, Director of the Materials Transportation Bureau, ACMC explicitly stated:

"The actions taken by HMRB and OHMO since 1971 have never given ACMC reason to believe anything else but that it is still an open question as to whether inspection outside the United States should be allowed. If such is not the case, then:

> "Why did HMRB find it necessary, after the notice of June 10, 1971, to conduct an investigation in January, 1972, to determine if foreign manufacturing and inspection procedures could insure the production of safe and reliable cylinders?
>
> "Why did HMRB, aware of the purpose of ACMC's inspection of foreign plants conducted in 1972 not inform interested persons that the issue of foreign inspection had been settled and the only questions remaining were procedural matters?
>
> "Why, if procedural matters were all that had to be resolved, has it taken HMRB and OHMO more than five years to promulgate final regulations on foreign inspection of cylinders manufactured outside the United States?

"The only implication to be derived from the conduct of HMRB and OHMO since 1971 is that the substantive issue of whether (not how) foreign inspection of cylinders will assure safe cylinders for domestic use is still to be resolved."

SAFETY CONSIDERATIONS RELEVANT TO CYLINDERS MANUFACTURED OUTSIDE THE UNITED STATES

As stated above, the only information which OHMO may consider in its evaluation of the issues raised by HM–74 is information relevant to the safety of compressed gas cylinders introduced into interstate commerce. No evidence has been introduced in this proceeding which suggests that the adoption of HM–74 would improve the level of safety for compressed gas cylinders in interstate commerce. In contrast, there has been substantial evidence introduced showing that the adoption of HM–74 is likely to significantly reduce the reliability of compresed gas cylinders introduced into interstate commerce and thereby expose users of compressed gas cylinders to a substantial hazard from which they have been protected for over fifty years by the regulatory provisions which HM–74 seeks to eliminate.

It is essential to recognize the magnitude of the risk created by an improperly manufactured or inadequately tested compressed gas cylinder. The failure of such a compressed gas cylinder has a potential for destroying life and property equal to that of a small bomb. Thus, specifications and testing procedures have been developed over the last sixty years which are designed to minimize the possibility of a faulty compressed gas cylinder's introduction into interstate commerce. Any administrative action which could reasonably be interpreted as increasing the possibility of such a compressed gas cylinder's introduction into interstate commerce must be recognized as being inapposite to the purpose of these regulations and contrary to OHMO's statutory mandate.

The specifications and testing procedures applicable to compressed gas cylinders have been developed as a joint effort between manufacturers, users and regulators of compressed gas cylinders. In many instances, the regulations contain words which cannot be precisely defined. A valuable illustration of this point is provided by the specifications for 3A cylinders, which provide that such cylinders are to be made "by best appliances and methods; dirt and scale to be removed as necessary to afford proper inspection; no fissure or other defect acceptable that is likely to weaken the finished cylinder appreciably; reasonably smooth and uniform surface finish required."

The terms "as necessary," "likely to weaken . . . appreciably" and "reasonably smooth" are ambiguous. Such terms must be recognized as terms of art which only derive their meaning from the experience of those individuals applying them. It is clear that United States citizens who come in daily contact with compressed gas cylinders must depend for their safety upon the meaning imparted to these terms by the individuals applying them in the manufacturing and testing processes and upon the incentives for such individuals to produce

the safest product possible. The continuing improvement in the quality of compressed gas cylinders has been the result of the incorporation of improved technology into the understanding of applicable specifications and testing procedures possessed by the individuals who apply these standards. This incorporation of technology into the meaning imparted to terms contained in the regulations has to a large extent been the result of the incentives for such action generated by both public and private remedies to which domestic manufacturers and testing personnel are subject.

In summary, the safety of persons exposed to compressed gas cylinders is dependent upon: (1) The meaning given to ambiguous terms contained in applicable specifications and testing procedures by the individuals applying these specifications and procedures ;and (2) public and private remedies which create a strong incentive for manufacturers and testing personnel to incorporate beneficial technological developments in their understanding of these ambiguous terms.

Because the safety of United States citizens is dependent upon the meaning given to ambiguous terms contained in regulations by the individuals applying such terms, it is essential to note that foreign manufacturers and disinterested testing agencies do not share with domestic manufacturers and testing agencies a common understanding of regulatory terminology or testing procedures.

Over the past two decades, the United States has cooperated in an effort to establish cylinder standards for all countries through the International Standards Organization [ISO]. There are several features in DOT regulations which have been consistently rejected or omitted by foreign manufacturers: The concept of maximum design stress limitation; leakage tests on spun-type cylinders; definition of quench and temper heating treatment; and a precise definition of approved material. As previously noted in these proceedings, most foreign manufacturers also do not accept or understand the volumetric expansion test which United States manufacturers consider the most important safety feature contained in the regulations.

European practice is less stringent in transverse ductility requirements with increasing tensile strength. Domestic practice requires the same standards for ductility as evidenced by the 6T requirement for the crush test for both 3A and 3AA specification cylinders. Along with allowing only definitely prescribed steels in the 3AA specification, this crush test requirement and the yield tensile ratio in Specification 3A effectively limit the type of steel and strength level to which cylinders can be heat treated. In addition, the various tests conducted by foreign manufacturers result in less stringent ductility requirements as the strength of the steel increases. This is contrary to domestic practice which requires the same transverse ductility as measured by the crush test for all cylinders of a given specification.

Europeans generally heat treat their steel cylinders to higher strength levels than do domestic manufacturers. This can prove to be unsafe, particularly in hydrogen cylinders. DOT regulations for example do not permit the transportation of hydrogen in 3T specification tubes because of the possibility of a hydrogen induced brittle failure.

A final example of different practice is the difference in foreign and domestic manufacturers' understanding of "disinterested inspection." In the United States, the disinterested inspector is present at all times and witnesses all testing during cylinder production. In foreign manufacturing procedures, the disinterested inspector frequently enters the plant on only a periodic basis and performs tests only on randomly selected cylinders.

In short, the understanding of the regulations by foreign manufacturers and testing agencies, upon which United States citizens would be dependent if HM–74 were adopted, is significantly different from the understanding of these regulations held by domestic manufacturers and testing agencies.

In addition to the problems of interpretation of the regulations described above, the record in this proceeding contains evidence demonstrating that despite being marked as complying with DOT requirements, some foreign-made compressed gas cylinders failed to meet the standards established by DOT regulations applicable to compressed gas cylinders. This evience of intentional noncompliance when taken in conjunction with the problems inherent in foreign manufacturers' attempts to interpret and apply DOT regulations raises the issue of whether United States citizens who are in daily contact with compressed gas cylinders can rely on the safety of foreign-made compressed gas cylinders.

RECENTLY PERFORMED TESTS

Recently, the Taylor–Wharton Corporation, a domestic manufacturer of compressed gas cylinders, subjected two foreign-made compressed gas cylinders to the tests and anlyses required by applicable DOT regulations. The two cylinders tested were a Japanese cylinder and a cylinder manufactured in Italy. The results of these tests were as follows:

Japanese cylinder

A. *Description.*—The cylinder was manufactured in 1953 and was marked ICC 3A 2015. The cylinder was obtained from a retesting and rebuilding facility in New Jersey.

B. *Results of tests.*—This cylinder failed to meet DOT specifications for ductility. DOT regulations require such cylinders, upon being subjected to the mandatory "crush" test, to withstand compression between two knife edges without cracking on a longitudinal plane. Upon performance of the crush test, cracks in the longitudinal plane developed before the cylinder had been compressed to the 6T span required by the regulations.

When subjected to the "elongation" test required by the regulations as a measure of transverse ductility, this cylinder failed to meet the 20 percent elongation specifications mandated by applicable regulations.

Finally, this cylinder was not marked in any fashion which would permit the tracing of the steel used for its construction to a particular furnace "heat" as required by DOT regulations.

Italian cylinder

A. *Description.*—This cylinder was manufactured in October of 1975 and was improperly marked ICC 3AA 2400.

Results of tests.—This cylinder also failed to meet ductility standards required by applicable DOT regulations. Further, this Italian cylinder was also marked "overfilling 10 percent" rather than the DOT requirement "+" after the date of manufacture.

Upon performance of the required elongation test, the 2 inch gage bars, taken from the speciment in accordance with DOT regulations, failed to meet the 20 percent elongation requirements established by DOT specifications.

Comments

The above-described tests were witnessed and verified by a certified disinterested inspector from Pittsburgh Testing Laboratories.

The failure of the above-described cylinders to meet applicable DOT requirements emphasizes two problems discussed elsewhere in these comments. First, foreign manufacturers of compressed gas cylinders do not comply with standards established by DOT. The fact that an Italian cylinder manufactured in October of 1975 was marked "ICC 3AA" rather than "DOT 3AA" seven years after this most basic change, demonstrates either an unwillingness or an inability on the part of foreign manufacturers to understand DOT regulations.

Second, given that a substantial number of foreign-made compressed gas cylinders have been introduced into international commerce marked as having been produced in compliance with DOT regulations despite the facts to the contrary, HM–74 raises a significant safety question. HM–74 makes no provision whatsoever for exclusion of such compressed gas cylinders from introduction into U.S. commerce. In short, not only does HM–74 fail to provide DOT with an effective method of assuring that cylinders manufactured subsequent to the adoption of HM–74 will comply with DOT requirements, but also HM–74 provides no effective method by which DOT can preclude the introduction into interstate commerce of compressed gas cylinders which clearly have not been manufactured or tested in compliance with DOT regulations.

Given the inability or unwillingness of some foreign manufacturers of compressed gas cylinders to produce cylinders which comply with the requirements of the regulations, it is clear that the role of the disinterested third-party inspector as envisioned by HM–74 becomes particularly important. With regard to this point, it is essential to note that in the event of HM–74's adoption, DOT would for the first time become responsible for "qualifying" such inspectors.

Because HM–74 does not establish the criteria under which DOT will evaluate applications filed by individuals wishing to qualify as disinterested third-party inspectors, it is difficult to effectively comment regarding the propriety of DOT's

approach to this problem. However, it is clear that the concept of disinterested inspection held by foreign manufacturers of compressed gas cylinders, is substantially different from that held by domestic manufacturers and inspection agencies. Visits to foreign manufacturing facilities have disclosed that the "disinterested inspector's" visits to the facilities were irregular and that his inspection consisted of only inspecting a random sample of cylinders completed prior to his arrival.

Given the substantial variances between foreign practice and domestic practice for third-party inspection, it is essential that DOT's approval of third-party inspection agencies for foreign manufacturers be based upon the applicant's meeting stringent standards. Further, and more important, DOT must be capable of subjecting third-party inspectors to careful and repeated surveillance in order to assure that variances in understandings of the concept of disinterested third-party inspection of compressed gas cylinders do not result in the introduction into interstate commerce of compressed gas cylinders which have not been subjected, in compliance with the regulations, to all of the tests and inspections required thereunder.

Given the ambiguity of the regulations, the safety of individuals who come in contact with compressed gas cylinders is dependent upon: (1) The meaning imparted to the terms of the regulations by the individuals interpreting and applying them; and (2) a strong incentive to incorporate technological developments into the meaning imparted to the regulations. To these two elements must be added a third and most important consideration, enforcement.

Even if there were no substantial differences in the interpretation of the regulations between domestic and foreign manufacturers of compressed gas cylinders, HM–74, as it applies to testing and inspection of compressed gas cylinders manufactured outside of the United States, is fatally flawed by its failure to provide an adequate means by which DOT can assure United States citizens that the tests and inspections required by the regulations are in fact being performed.

The essential element in any system of regulation is the ability of that regulation to effectively deter the action against which that regulation is designed to protect a particular class of individuals. HM–74, if adopted, would expose individuals who come in contact with compressed gas cylinders, to a product which may have intentionally or unintentionally not be subjected to required tests, because DOT cannot effectively deter a manufacturer's noncompliance with DOT regulations.

Under the provisions of HM–74, once having been granted DOT's permission to test and inspect foreign-made compressed gas cylinders outside of the United States, a foreign manufacturer is subject to no supervision of its operations. Further, even in the event of a proven violation of DOT's regulations, such a foreign manufacturer is subject to no sanction other than DOT's withdrawal of its approval for foreign testing and inspection. This situation differs greatly from that involving domestic manufacturers of compressed gas cylinders.

Domestic manufacturers of compressed gas cylinders are subject to a number of factors which provide an extremely strong deterrent against any violation of the regulations. First, such manufacturers are subject to the powers given to DOT by the Hazardous Materials Transportation Act of 1974 [the Act] pursuant to which domestic manufacturers of compressed gas cylinders may be directly regulated by DOT. Under the Act, DOT may at its discretion, enter a manufacturer's plant, examine its procedures and records or take other appropriate action necessary to insure compliance with the provisions of its regulations. Not only does DOT have the power to effectively control domestic manufacturers of compressed gas cylinders' compliance with its regulations, it has the ability to do so, for DOT has access to domestic manufacturers' operations.

In the event that a domestic manufacturer is found in violation of DOT's regulations, the manufacturer can be subjected to fines, can be subjected to injuctive relief pursuant to which its operations are suspended and can be subjected to criminal penalties.

Finally, a domestic manufacturer of compressed gas cylinders is subject to privately imposed liability for any damage which is caused by a defective compressed gas cylinder which it has manufactured. Given the extremely dangerous nature of an improperly manufactured compressed gas cylinder and the conditions under which such cylinders are used, a private lawsuit arising out of a cylinder failure can subject a manufacturer to substantial monetary damages.

This private method of enforcement is in addition to any sanctions that may be imposed by DOT or the courts. Foreign manufacturers of compressed gas cylinders and nondomestic testing and inspection agencies, are not, as a practical matter, subject to such deterrents.

Subsequent to granting approval for a foreign manufacturer to test and inspect compressed gas cylinders outside the United States, DOT will have no practical enforcement capability because DOT will be unable effectively to supervise foreign facilities. The General Accounting Office reported in 1973 that the Department of Transportation was unable to police effectively the domestic manufacture of compressed gas cylinders. [GAO Report to Congress, "Need for Improved Inspection and Enforcement in Regulating Transportation of Hazardous Materials," 18 (May 1, 1973).] The GAO cited two reasons, among others, for this situation: DOT's broad safety responsibilities and relatively small inspection staff. [*Id.* at 28.] Therefore, if DOT cannot even handle its responsibility for assuring domestic compliance with DOT regulations in the manufacture of compressed gas cylinders, then *a fortiari* lack of personnel will preclude DOT from effectively monitoring foreign manufacturers as well.

While HM–74 would require a foreign manufacturer or testing agency to appoint a registered agent for the purpose of receiving service of process, DOT would have no ability as a practical matter to subject such a manufacturer or testing agency to the civil or criminal penalties to which it can readily subject domestic manufacturer or testing agency.

Finally, the adoption of HM–74 would expose individuals injured by a foreign-made cylinder to the risk of such damage without any effective method by which such individuals could be made whole or compensated.

While it is clear that upon the failure of a foreign-made compressed gas cylinder, a plaintiff injured thereby could theoretically go to court and receive a favorable judgment, there is no effective way by which such an individual could satisfy this judgment against the foreign manufacturer, unless that manufacturer has substantial assets in this country.

While HM–74 provides that the approval to test and inspect compressed gas cylinders outside of the United States could be withdrawn by DOT, such a sanction cannot be viewed as an effective deterrent to the risk created by a compressed gas cylinder which has not been subjected to the required tests and inspections. The impact of such a sanction would be to exclude from interstate commerce subsequent to a cylinder failure compressed gas cylinders which may have previously been excluded because of the nation's concern that they might be inadequately tested or inspected. This situation would permit foreign manufacturers to gamble their investment in receiving DOT approval against the possibility that a compressed gas cylinder which has not been properly manufactured or inspected will fail. The potential loser in this situation would be the individual injured by a foreign-made cylinder's failure.

In short, the adoption of HM–74 could result in the introduction into interstate commerce of hazardous compressed gas cylinders, and DOT's regulations would have no practical deterrent value against the faulty manufacturer of these cylinders.

Foreign-made compressed gas cylinders manufactured in the past will create a particularly difficult problem. The record in this proceeding contains substantial evidence documenting the existence of such cylinders which, while marked as having been manufactured in compliance with DOT regulations, fail to meet the standards established by those regulations. Despite this fact, HM–74 makes no provision for the exclusion of such compressed gas cylinders from interstate commerce. Given the fact that DOT is cognizant of the existence of foreign-made compressed gas cylinders which are marked as having been made and tested in compliance with DOT regulations despite the inaccuracy of this marking, any administrative action which would result in the exposure of United States citizens to such cylinders would clearly contradict the agency's mandate to protect these citizens from unnecessary hazards.

DISINTERESTED THIRD-PARTY INSPECTION OF LOW PRESSURE CYLINDERS

Revised Docket HM–74 published on January 13, 1976, contained, for the first time, a proposal to amend those DOT specifications which now permit inspection of certain types of compressed gas cylinders (essentially low pressure cylinders)

by "interested" inspectors.[4] The proposed regulation would require DOT approved independent inspection agencies (i.e., "disinterested third-party inspectors") to inspect and verify the tests of all compressed gas cylinders (both high pressure and low pressure) manufactured within and outside the United States.

ACMC does not oppose independent third-party inspection of all cylinders. However, ACMC questions whether such an amendment is necessary and believes that DOT has not fully taken into account the problems inherent in requiring third-party inspection of all cylinders and the alternatives available to DOT for strengthening inspection procedures which currently exist for low pressure cylinders.

The Hazardous Materials Regulations originally permitted low pressure cylinders to be inspected by interested persons while requiring disinterested inspection for high pressure cylinders because the "Safety Factor" is so much higher for low pressure cylinders. The Safety Factor is the ratio of rupture pressure to service pressure. In other words, it is a comparison of the pressure at which a cylinder will burst and the pressure at which it is filled for its intended use. In high pressure cylinders, the Safety Factor is a little over 2 to 1. In low pressure cylinders, the Safety Factor is approximately 4 to 1. Thus, inspection of low pressure cylinders by interested persons was permitted.

Therefore, ACMC questions the necessity for requiring disinterested third-party inspectors for low pressure cylinders especially in light of the impeccable safety record of low pressure cylinders which has been established over the years with the use of interested inspectors in the inspecting and testing of these cylinders. If DOT, nonetheless, believes that safety considerations dictate amending the specifications for low pressure cylinders by requiring all inspection and test verifications to be performed by disinterested third-party inspectors, then ACMC will not oppose such a measure. However, ACMC notes that DOT has presented no evidence on the manner in which safety will be enhanced by the elimination of interested inspectors for low pressure cylinders. Additionally, and more important, DOT has not discussed what alternatives, if any, were considered for providing greater assurances of the safety of low pressure cylinders and DOT has not revealed in any way that it understands and recognizes the ramifications of such an amendment to the regulations. DOT would be acting improperly if it were to revise an effective regulation without explaining the factors which entered into such a decision.

Presently, the Compressed Gas Association is attempting to develop uniform inspection procedures for both disinterested and interested inspectors. The industry recognizes that some "confusion" exists among the manufacturers as to what actions constitute compliance with the inspection specifications. ACMC would not be averse to DOT including the standards arrived at by the Compressed Gas Association in DOT specifications for low and high pressure cylinders. Thus, if increased safety through uniformity of inspection technique is DOT's goal in proposing disinterested third-party inspectors for low pressure cylinders as well as high pressure cylinders, it would appear that such a goal will not be reached merely by eliminating the present system of interested inspectors for low pressure cylinders. First, uniform inspection procedures must be adopted, and second, common sense would dictate that the need for "disinterested" inspection of low pressure cylinders could not be adequately evaluated until "interested" inspectors were given an opportunity to operate under specific inspection guidelines.

As the proposed regulation is written, ACMC respectfully questions whether the safety of low pressure cylinders will be enhanced by the use of disinterested third-party inspectors. Additionally, ACMC questions the thoroughness with which DOT analyzed its own proposal to require disinterested third-party inspectors for low pressure cylinders. The safety record of low pressure cylinders is not debated. It is excellent. While increasing safety is the only factor which DOT may take into account when considering new Hazardous Materials Regulations, the agency must justify its assumptions regarding safety before disregarding other factors completely. It is unclear whether DOT recognizes the impact which the adoption of these proposals could have on the compressed gas cylinder industry. For example, does DOT fully understand that in many instances employees on the assembly line have inspection responsibilities as part of their

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[4] Such a provision applies to the following specifications:
DO 3B, DOT 3BN, DOT 3C, DOT 3E, DOT 4B, DOT 4BA, DOT 4D, DOT 4B240ET, DOT 4AA480, DOT 4L, DOT 8, DOT 8AL, DOT 4BW, DOT 4C, DOT 39 (service pressure 900 psig or lower), and DOT 4E.

job description? How much of their responsibilities will be given to the third-party inspectors and how will this delegation be determined? Has an appropriate resolution of this matter been worked out with the unions involved?

As far as ACMC can tell, none of the aforementioned issues have been resolved by DOT. If such a situation where a substantial change in industry practices is being contemplated, it would appear that a more thorough understanding of such a contemplated change is necessary before the final rule is adopted.

Additionally, if DOT has determined that interested inspectors are not performing their function as well as they should, the use of disinterested inspectors is not the only alternative. For instance, the recently passed Hazardous Materials Transportation Act has greatly expanded DOT's inspection powers. Section 109 of the Act, 49 U.S.C. § 1803, states:

(a) *General.*—The Secretary is authorized, to the extent necessary to carry out his responsibilities under this chapter, to conduct investigations, make reports, issue subpoenas, conduct hearings, require the production of relevant documents, records, and property, take depositions, and conduct, directly or indirectly, research, development, demonstration, and training activities. The Secretary is further authorized, after notice and an opportunity for a hearing, to issue orders directing compliance with this chapter or regulations issued under this chapter; the district courts of the United States shall have jurisdiction, upon petition by the Attorney General, to enforce such orders by appropriate means.

* * * * * * *

"(c) *Inspection.*—The Secretary may authorize any officer, employee, or agent to enter upon, inspect, and examine, at reasonable times and in a reasonable manner, the records and properties of persons to the extent such records and properties relate to—

"(1) The manufacture, fabrication, marking, maintenance, reconditioning, repair, testing, or distribution of packages or containers for use by any person in the transportation of hazardous materials in commerce; or

"(2) The transportation or shipment by any person of hazardous materials in commerce.

"Any such officer, employee, or agent shall, upon request, display proper credentials."

Thus, a stronger DOT enforcement program perhaps could provide the necessary safety assurances without involving the myriad ramifications and still unresolved issues which accompany the proposed disinterested third-party inspection for low pressure cylinders.

CONCLUSION

DOT is required by its statutory mandate to consider only evidence relevant to safety in its evaluation of the proposals contained in Docket HM–74. More specifically, DOT must base its decision on whether it will or will not implement the amendments proposed in HM–74 on a determination that the adoption of these proposals will not increase the possibility that compressed gas cylinders which do not meet the standards established by applicable DOT regulations will be introduced into interstate commerce. Further, such a determination must be supported by the record developed in this proceeding.

A court's authority to set aside an agency's informal rulemaking proceeding is limited by the strictures of the Administrative Procedure Act, 5 U.S.C. § 706 (2)(A). However, such rulemaking can be annulled if the court finds that the agency's action was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." *Id.* While a court cannot substitute its judgment for that of the agency, it is also clear that for informal rulemaking to be upheld the agency must fully explain its course of inquiry, its analysis and its reasoning. The grounds upon which the agency relied in making its determination must be "disclosed in and sustained by the record." [See, *Tanner's Council of America, Inc. 1. Train*, Nos. 74–1740, 74–1753 (4th Cir. March 10, 1976).] This has not been done by DOT.

As stated above, neither the record in this proceeding, nor the proposals contained in Docket HM–74 resolve substantial issues regarding DOT's ability to enforce its regulations against foreign manufacturers and/or testing agencies. Further, neither the record of this proceeding nor the proposals contained in Docket HM–74 resolve the substantial issue regarding DOT's ability, if any, to

exclude from interstate commerce foreign-made compressed gas cylinders which have been previously manufactured in violation of applicable regulations.

Given the record's and the proposals' failure to resolve substantial issues of safety raised by participants in Docket HM–74, ACMC respectfully requests that DOT withdraw the proposed amendments to its regulations contained in this docket.

Respectfully submitted.

WILLIAM W. SCOTT.
R. TIMOTHY COLUMBUS.
MICHAEL D. SHERMAN.

AMERICAN MARITIME ASSOCIATION,
Washington, D.C., September 27, 1978.

MR. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress,
Washington, D.C.

DEAR MR. ROTHBERG: I am receipt of a letter of August 24 from Chairman Cannon of the Senate Commerce Committee inviting the views of this Association on your study of DoT's regulatory activities relating to the safety aspects of the transportation of hazardous materials.

In response, I am enclosing a copy of a memorandum prepared by AMA's principal liner operator, Sea-Land Service, Inc., which I hope will be helpful to you.

Should you require any clarification of these comments, I suggest that you directly contact Mr. M. T. Bohlman, Director of Regulatory Compliance, at the Sea-Land offices in Elizabeth, N.J. The telephone number is (201) 289–6000.

Also, if I or the other members of this Association can be of further assistance, feel free to contact me.

Sincerely,

ALFRED MASKIN,
Executive Director.

Enclosure.

INTEROFFICE CORRESPONDENCE

SEPTEMBER 20, 1978.

To: Menlo Park—P. J. Finnerty, Executive/Public Affairs.
From: Elizabeth—M. T. Bohlman, Executive/Regulatory Compliance.
Subject: Senate inquiry on hazardous materials statutes and regulations.

As you indicated you will be drafting a final version in reply to Al Maskin, I have taken the liberty of answering only the questions posed by Chairman Cannon and not putting forth any additional verbiage. These specific responses are:

1. Prior to the establishment of the Materials Transportation Bureau (MTB) DOT utilized as a coordinating vehicle between the modal administrations the Hazardous Materials Regulations Board. As opposed to the MTB the Board had no line authority and acted solely as a clearing forum for inter-modal decisions and regulatory proposals. Under the Board inter-model cooperation and awareness of each others' strengths and problems were greater than they have been under MTB.

The only weak link under the Board was the lack of a suitable framework for joint enforcement activity when more than one modal carrier was involved, or when the enforcement effort needed to cross modal boundaries to reach a shipper or container manufacturer. MTB has not been effective in promoting joint enforcement or enforcement actions against shippers. A case in point is an early 1977 incident in which we received a shipment, in our Oakland facility, of a very low flash point flammable liquid that was leaking from its packagings (open head drums). The packagings were obviously not in conformance with the regulations on several counts as confirmed by tests run by Sea-Land at our own expense. The matter was referred to the Director, OHMO who in turn requested investigative assistance from the Bureau of Motor Carrier Safety. The shipper, located on the U.S. East Coast, has not yet been cited or assessed any fines. It is the shipper who enters the hazardous material into the transport system and who oftentimes

initiates the regulatory violation that the carrier may be cited for, e.g. improper labeling, placarding, packaging or description of the hazardous material.

MTB has initiated enforcement activities against packaging manufacturers under the authority of the Transportation Safety Act of 1974, but their activity in this area has been restricted due to the lack of a suitably sized and trained enforcement staff.

2. *a.* There is a greater regulatory backlog today under MTB than ever existed under the Board. In all fairness this is partly a snowball affect and partly a result of new administrative procedures required by the Transportation Safety Act. However, it is also due in part to a considerably less efficient operation under MTB. The broad perspective that existed under the Board in setting regulatory priorities appears to be lost in MTB. There also appears to be a desire within MTB to only produce regulations that are perfect. While this in itself is laudable the practical result is that many regulations that are needed by the industry are held up several years past the time when they could be effective without any real benefit to anyone. A case in point is regulations on multi-modal portable tanks which could have been implemented as early as March 1976 but which are still being reviewed in-house by MTB. Had the regulations been proposed and implemented in 1976 or even 1977 many man-days of effort both within DOT and industry working on DOT exemptions for portable tanks could have been avoided.

b. The competence within DOT in the various technical fields relative to hazardous materials transportation is excellent. However, there is insufficient interreliance on expertise within the various modal groups and MTB. What is missing is a functional coordination of this available expertise to resolve problems at hand. There is also a lack of coordination of the R&D work undertaken by various groups within DOT concerning or having applicability to hazardous materials transportation.

c. Regardless of the competence of the technical expertise within any governmental agency reliance on industry and public input into the regulatory process is necessary to achieve viable regulations. In the area of hazardous materials DOT is responsive to public comment on regulatory proposals and does seek technical input to the majority of its regulatory programs at the formative stages.

d. MTB's educational activities have far exceeded those of the modal administrations. This is a much needed endeavor which should be pursued with even greater vigor by MTB, particularly with programs geared to freight forwarders and small shippers.

e. MTB's educational activities involving public officials concerned with safety have not appeared to be as well organized, nor have they appeared to have the same priority, as have their public and industry programs. This is an area of concern, particularly in regard to Congressional representatives and state and local authorities who can enact new legislation or implement local controls that can both derogate the safety of hazardous materials transport and adversely affect the U.S. economy.

f. As previously mentioned MTB's enforcement activity has been primarily limited to container manufacturers. Inter-modal coordination of enforcement activity is seriously lacking. The preponderance of all hazardous materials enforcement is undertaken by the Coast Guard due to insufficient staffing in BMCS, FRA, MTB, and FAA. As a result the marine carrier tends to view enforcement as harassment and the initiating carriers and shippers do not learn to correct their mistakes and avoid future incidents. This is an area that needs urgent resolution.

3. This question is answered in 2.a above. With the exception of the time factor the Office does discharge its functions properly.

4. There appears to be a large number of States and local municipalities enacting requirements that are more strict than the federal hazardous materials regulations. These local requirements are not being found inconsistent with federal rules, just more strict. The result of these activities, such as the New York City requirement prohibiting the movement of radioactive materials over the streets of N.Y.C., is to increase the costs of hazardous materials transportation, and hence the costs of most finished goods, and to alter natural traffic patterns, which can be extremely detrimental to the overall goal of safety.

5. We would recommend strongly the reestablishment of the Hazardous Materials Regulations Board with the functions and responsibilities it possessed in 1975 prior to its dissolvement. If reestablished the Board should consist of voting members from MTB (with line authority over container manufacturers and

responsibility to coordinate all multi-modal enforcement activities), USCG, BMCS, FRA, and FAA and a small technical, secretarial support staff. In addition we would urge the establishment within DOT under either MTB or one of the modal administrations of a 24 hour emergency hazardous materials information system capable of reaching shippers worldwide to procure needed product and emergency response information. A recent incident involving a shipment of a chemical with lachrymatory properties from Japan proved the inadequacy of both industry and government systems currently in operation. While it is recognized that no system can have information available immediately on all chemicals moving in commerce, it is felt a system can be established with worldwide ties so that this information could be obtained on any identified chemical within a few hours.

It must be said that DOT is on the whole more responsive and accessible than most other Federal Agencies. We will be happy to discuss any of the above answers with Mr. Maskin, Chairman Cannon, or their representatives if further elaboration is desired.

AMERICAN PETROLEUM INSTITUTE,
Washington, D.C., September 15, 1978.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress,
Washington, D.C.

DEAR MR. ROTHBERG: The American Petroleum Institute has received from Senator Howard F. Cannon, Chairman of the Committee on Commerce, Science and Transportation a letter dated August 7, 1978 in which he requested comments concerning the Department of Transportation's activities in the area of hazardous materials transportation.

Attached you will find our assessment with answers to the specific questions raised in Senator Cannon's letter. It is hoped that this attachment will be of value to you in developing material for the Committee.

If we can be of any further assistance, please do not hesitate to contact us.

FRANK N. IKARD,
President.

Attachment.

ASSESSMENT OF THE DEPARTMENT OF TRANSPORTATION'S IMPLEMENTATION OF ITS RESPONSIBILITIES CONCERNING THE TRANSPORTATION OF HAZARDOUS MATERIALS

AMERICAN PETROLEUM INSTITUTE

Introduction.—The member companies of the American Petroleum Institute are involved in the transportation of petroleum and its products by one or more of the following modes of transportation: highway, rail, pipeline and water. Many of our members use all four modes in delivering essential energy products, a number of which are classified as hazardous materials.

API shares the government's concern over the safety of transportation of hazardous materials. Protection of the public and the employees of our member companies is a number one priority.

We are faced with problems involving people—the public, emergency forces, and employees. Obviously where people are involved accidents will occur. The ideal situation would be that when the accidents happen there will be zero risk to people and property. Practically speaking this in an impossibility.

How do we approach this problem? This is the point at which the U.S. Department of Transportation enters the picture. As API sees its function, DOT should provide a reasonable regulatory framework for insuring the safe transportation of hazardous materials and establish a level of reasonable risk to be obtained by cost-effective methods.

In general, API believes the DOT does a good job in meeting the above requirements. There are areas where improvements could be made and these are discussed below in the order the questions were posed in Senator Cannon's letter. As a point of departure our understanding is that the Materials Transportation

Bureau (MTB) has jurisdiction of all hazardous materials other than marine bulk movements, regulated by the Coast Guard.

Questions and responses

Question 1. Assess the adequacy of operation of the Materials Transportation Bureau.

Response 1. From the viewpoint of those regulated, it is difficult to assess MTB as our working relationship is more directly with the individual components—Office of Hazardous Materials Regulation and Office of Pipeline Safety Regulation. If the criterion for evaluating MTB is its coordinating function in the general area of public safety, then we judge its operation to be adequate since there is little complaint as to incompatible regulations between the various modes.

In the process of "coordinating" the modal administrations, MTB does seem to require an overabundance of review of proposals from the administrators which affect only one mode of transportation. Generally, these proposals are well prepared prior to submission and additional staff analysis at the MTB level seems a waste of time and manpower. Coordination should be able to be effected with a minimal effort which should reduce the time required for processing proposals.

Question 2. Assess the DOT's implementation of its responsibilities concerning the transportation of hazardous materials.

Response 2.

(*a*) *Regulatory procedures.*—The administrative or procedural aspect of preparing and issuing regulations works reasonably well although there still seems to be a feeling that appeal procedures leave something to be desired in that there is no independent third party involvement. The on-going problems concerning Federal Motor Vehicle Safety Standard 121 on brakes issued by the National Highway Traffic Safety Administration (NHTSA), though not designed specifically for hazardous materials transportation, provide an example of what might have been avoided with a more effective appeals procedure. In this case, industry complaints about the brake standard had to be carried to the courts where at least count, the U.S. Court of Appeals has upheld the complainants. NHTSA is appealing the decision to the Supreme Court which has not yet decided whether to hear the case.

Another problem area involving regulatory procedures concerns the current proposals for hours of service of drivers (Docket No. MC–70–1). This proposal vitally affects the delivery of petroleum products and imposes a tremendous economic penalty on truck operators while adding little to safety. The Secretary of Transportation has proposed certain Policies and Procedures for Improving Government Regulations within the Department of Transportation issued pursuant to President Carter's Executive Order 12044. Docket No. MC–70–1 seems to comply with neither the letter nor spirit of the Executive Order or the DOT's proposed procedures. Improvements in procedures cannot be begun too early and should have been implemented in this rulemaking.

(*b*) *Competency of staff.*—DOT has hired professional, qualified transportation people. They have demonstrated competence to carry out their assigned duties though some lack the practical industry experience which is vital to a complete understanding of the problems of the regulated industries.

As to the Coast Guard personnel assigned to Merchant Marine Safety, they seem to be highly competent but the comparatively rapid rotation in their assignments results in a constant reeducation requirement for new personnel placed in a different specialty areas. A longer tour of duty should contribute to an even higher level of overall competence.

(*c*) *Public comment on regulatory proposals.*—We feel DOT generally is responsive to and makes good use of public comment on regulatory proposals. There are always exceptions which make it difficult to convince our members that their input is used. A notable example concerns the development of head shields for pressure tank cars. At considerable cost in time and money engineers for tank car builders and for the railroads developed and tested a head shield which was recommended to DOT. For unconvincing reasons, the best technology in the country was ignored and another head shield mandated which incidentally at that time had had minimum testing.

In spite of the above, our members are concerned with the ever-increasing requirements for data records, *etc.* which are time consuming, costly, and not

always used There are so many proposals, hearings, *etc.* by not only Federal authorities but by state and municipal regulators that no company or industry can expect to provide adequate input on all of them. Even if the proposals are not implemented, the costs for processing the proposals do exist and are a real burden to our members and ultimately, of course, to the public as the costs are reflected in consumer product prices.

Too often, it appears that the burden of proof is on industry to disprove the need for proposed regulations rather than on the government to substantiate the need for proposed additions or changes with adequate research and data. The effect of this is to force industry to do the work the DOT would otherwise be forced to do. Hopefully, implementation of the Secretary's new Policies and Procedures will overcome this criticism.

(*d*) *Educational activities involving the regulated industries.*—DOT personnel have regularly held seminars and participated in industry-sponsored conferences and schools to discuss the Department's philosophy of regulation and to inform industry of current, pending or proposed regulations. The MTB publishes varous reports and newsletters which have been helpful in keeping the industry apprised of news regulatory efforts and which, in some cases, have been useful in in-house employee safety programs. We believe that its educational effort for industry has been adequate.

(*e*) *Educational activities—public officials.*—In spite of the technical competence of the public officials involved in safety, there appears to be an occasional failure to understand the practical consequences of regulation as applied to the many and varied types of industries affected by a regulation. This probably results from a lack of industry background on the part of many regulators. If public officials lack this background, an active and continuous program of education conducted on-site at the various industries should be pursued. A field compliance staff of sufficient size would assist in mitigating the lack of industry background by providing practical input to the authors of regulations.

(*f*) *Compliance activities.*—Rather than additional regulations, enforcement of the existing regulations is indicated. Increased and consistent enforcement of the regulations would be a major contribution to safety.

Many operators are appalled by the length (1,037 pages) of the Hazardous Materials Regulations plus many pages of regulations by each modal administration. Despite conscientious efforts they find it difficult to comply. It follows that compliance officials are similarly burdened in enforcing the multiplicity of regulations. If the regulations were reduced to a third or less and included only the essential safety items, the compliance burden would be reduced to a practical level for both the regulated and regulators without any compromise in safety.

There does not always appear to be a systematic correlation by DOT between the identification of problem areas involving the transportation of hazardous materials and the promulgation of regulations. The impression is left that priorities are sometimes established on the basis of political pressures and/or the emotionalism generated by a particular incident rather than on the basis of reason and that departmental resources are, as a result, not as effectively utilized as they might be.

For example, according to DOT's own statistics, the nation's oil pipelines are by far the safest mode of transportation; they move about one-fourth of all intercity freight in the United States experiencing 4 fatalities in 1977, out of a total of 52,154 transportation-related deaths. This record speaks for itself and suggests that DOT set its regulatory priorities in the field of transportation of hazardous materials in those areas with less favorable safety history. More regulation of oil pipelines is not necessary.

Question 3. Discuss the functioning of the Office of Hazardous Materials Operations.

Response 3. The performance level of competence in this office is high and it is commendatory that so much is accomplished with the range of problems which demand attention. The extent of the term "hazardous materials" as evidenced in the Table of Hazardous Materials in 49 CFR Part 172 puts a huge daily workload on this organization which as a result occasionally results in long time frames for addressing some subjects. Although most petitions for rulemaking have generally been answered promptly, there is a need for an answer to each even if the answer is that the petition is rejected.

We do notice a preoccupation with subjects involving international transportation and an inclination to let the international "tail" wag the national "dog"

as far as hazardous materials transportation is concerned. Frequently, adoption of international standards in the area of bulk land transportation for the sake of standardization does not contribute substantially to safety, yet is expensive to transporters.

Question 4. Regulations or procedures which interfere with transportation of hazardous materials.

Response 4. (*a*) *Deepwater ports.*—The deepwater ports licensing regulations and procedures as promulgated by the Office of Deepwater Ports in DOT are a major deterrent to any company or group of companies wishing to establish a deepwater port, as evidenced by the withdrawal of a number of the initial partners in *LOOP* and the collapse of the Seadock project. The Deepwater Port Act was intended to facilitate the development of what both business and environmental interests agree is the most economical and environmentally sound method of importing the large amounts of crude oil this country requires. It is unconscionable that this nation should lag years behind the rest of the world in the development and use of this proven technology. The streamlining of the licensing regulations and procedures should receive the highest priority.

(*b*) *Marine safety information system.*—While the Coast Guard response to the President's directive in this area appears good and data on substandard ships are available on request, public dissemination has not occurred.

(*c*) *Pipeline regulation.*—Present regulations and regulatory procedures do not interfere with the transportation of hazardous materials by pipeline, but anything that can be done to promote a single regulatory concept for oil pipelines can only result in more economic and efficient transportation. It should also be pointed out that there is a growing tendency among regulatory agencies to regulate by specification rather than by performance standards. This type of regulation should be avoided as it is counterproductive both as to safety and cost.

Question 5. Legislative or administrative changes to improve transportation of hazardous materials.

Response 5. (*a*) *Vessel Traffic Systems (VTS).*—Despite the fact that the nation is now moving ahead, implementation of VTS has lagged badly behind Europe. We hope that efforts will be made to expedite implementation of this program.

(*b*) *LNG/LPG Marine Terminal Sites.*—We believe the time is over-due for a basic Federal governmental provision promoting new LNG/LPG marine terminal sites.

(*c*) *Overlapping jurisdiction.*—Industry is faced with confusion and overlap among Federal agencies. A price example occurs in regulation of hydrocarbon emissions. The Environmental Protection Agency is proposing equipment regulations for motor vehicles, tank cars and ships rather than setting performance standards, and then allowing the modal administrators such as the Coast Guard, Federal Highway Administration and Federal Railroad Administration to exercise their legally assigned authority. Memoranda of Understanding have been used with less than satisfactory results where other departments have been involved. Legislative review of legal authority for the various organizations could greatly assist the regulators and the regulated industries.

(*d*) *Hazardous Materials Review Board.*—We recommend that consideration be given to establishment of a board to review all proposals for additions to or changes in regulations addressed to or generated by the MTB in order to establish validity prior to initiation of detailed staff work. This board to screen proposed changes could operate similarly to the Coast Guard procedure in the Chemical Transportation Industry Advisory Committee which involves participation by those being regulated.

(*e*) *Emergency Response Center.*—There seems to be general support for a hazardous materials information system to provide emergency advice concerning accidents involving the transportation of hazardous materials but there is opposition to this being a "federally-run" organization. The very valid arguments stem from the fact that the expertise for the materials concerned lies in the industry, not the government. An industry operated organization, at no cost to the government, should be more effective in handling emergency situations.

Conclusion

In conclusion, we wish to reiterate that we find that personnel involved in regulating hazardous materials transportation have demonstrated competence to carry out their assigned duties. We also wish to re-emphasize the necessity for DOT to devote the major part of its resources to identified safety problem areas.

AMERICAN TRUCKING ASSOCIATIONS, INC.,
Washington, D.C., September 15, 1978.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division, Congressional Research Service, Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: We are writing in response to Senator Cannon's letter asking for our comments on the Department of Transportation's regulatory activities relating to the safety aspects of the transportation of hazardous materials.

Our comments are numbered to coincide with the questions in Senate Cannon's letter of August 7. Our comments are directed at the operations of both the Materials Transportation Bureau and the Office of Hazardous Materials Operations as these two bodies are closely related.

1. The Materials Transportation Bureau is hampered by a staff and budget that is far too small to adequately deal with the complexities of hazardous materials transportation and the pressures generated by industry, the public, the new media, other nations, and the Congress. The problem is compounded by requirements for economic impact analysis which are essential, but time consuming for staff.

We believe that the resources and capabilities of MTB must be increased so that it can more effectively:

"Study transportation practices and problems so that its interpretations and regulations will be more practicably directed. The Materials Transportation Bureau does not have the specialization or the time to develop the necessary in-depth and up to date knowledge of operations and problems of specific modes and so regulatory proposals and interpretations are not always as practical as they might be.

"Study and consider comments and proposals from the private sector. It is obvious today that the staff of MTB is making a dedicated effort to review all comments and to give them proper consideration. However, it is just as obvious that the shortage of manpower detracts from the staff ability to make detailed studies and to give in-depth consideration to comments and proposals from the private sector.

"Provide timely interpretations of the regulations and timely rulemaking action. Rulemaking action dealing with repair of hazardous materials vehicles indoors has been delayed for several years.

"Provide current data about causes and frequency of spills, leaks, and other incidents involving hazardous materials in transportation. The trucking industry supports the requirements for reporting to the MTB all hazardous materials incidents. The incident report data received by MTB is compiled in a computer bank but it is not utilized very effectively. From time to time MTB publishes limited information about hazardous materials transportation problems as indicated by the incident reports it receives. However, it does not have a program which provides information to shippers and carriers on a regular basis about the problems by types of materials, by types of containers, by cause, etc. If detailed statistics and data were published on a regular basis and distributed to shippers and carriers, it would be most helpful in evaluating the effectiveness of hazardous materials programs.

"Work for simplification of the regulations. The regulations are complex because of the complexity of the materials and the transportation function. A concentrated effort would result in regulations that are more easily understood and complied with.

"Monitor shipper compliance with regulations. At the present time most hazardous materials regulations enforcement is carried out by the Bureau of Motor Carrier Safety. The Bureau has 133 inspectors who combine hazardous materials inspections with inspection and enforcement activities to ensure compliance with the Federal Motor Carrier Safety Regulations of the Bureau. The MTB is responsible for assuring compliance with regulations applicable to shippers and intermodal operations. There has been very little enforcement effort by MTB in these areas and as a result the trucking industry frequently receives hazardous materials shipments that are not in compliance with regulations. If motor carriers do not detect the violations, and reject the shipments, the carriers become subject to penalty for accepting such shipments."

2*a*. We feel that the regulatory procedures established by MTB and OHMO are adequate, but that they cannot be effectively carried out until the agency has the manpower necessary to do the job.

b. The trucking industry has limited technical knowledge on such matters as the determination of hazards and shipping container requirements. Therefore, we are not knowledgeable about the competence of staff in many of these technical areas. We do know that a number of technical specialists have left the agency. We also know that the current staff with expertise about the transportation of radioactive materials is very limited in number and this is of grave concern to us because of current pressures, for example, for more restrictive controls on radioactive materials transportation.

c. As indicated earlier, we believe the agency makes every effort to review comments and to give proper consideration to public comments on regulatory proposals. However, we believe that the comments do not receive the time and attention needed and that this problem could be resolved with increased manpower.

d. To our knowledge, there is no structured educational program within MTB and this is vitally needed. It is especially important that shippers be better informed about the regulatory requirements. Motor carriers usually receive educational information at meetings from BMCS personnel and this has been quite adequate. However, we are concerned, as noted earlier, that shippers frequently tender hazardous materials shipments that do not comply with the regulations. Usually this is because the shippers are uninformed about regulatory requirements.

e. There are not sufficient structured educational programs for public officials concerned with safety of transportation of hazardous materials. We believe that such programs are necessary for those who develop state regulations, so they will be better informed before they consider the adoption of state hazardous materials regulations. If they are properly educated, the result is more likely to be uniformity of regulations between DOT and the state agencies. A structured educational program is needed for emergency personnel. MTB has engaged in some activities but they have been infrequent and have reached a limited number of people.

f. The BMCS has enforced the regulations extensively among motor carriers. Heavy civil penalties have been imposed and in some instances we feel that the penalties have been excessive for the nature of the violation. Motor carriers are also subject to extensive enforcement activity by states which have adopted the DOT hazardous materials regulations. We are concerned that there has not been a comparable level of enforcement activity to bring about increased shipper compliance with the regulations.

We believe that the major problem areas concerning hazardous materials transportation are identified by DOT, but not in a systematic fashion. It appears that the MTB is in a "react" situation because of its manpower limitations and because it is not able to utilize, to our knowledge, the extensive information available to it from its incident report program.

3. The previous discussion has been for both the Office of Hazardous Materials Operations and the Materials Transportation Bureau. We believe the Office of Hazardous Materials Operations has good intentions about responding in a timely fashion to requests, but it is unable to do so because of the limited manpower and the demands made on it by other regulatory agencies, Congress, industry, and the news media.

4. We do not know of any federal regulations or regulatory procedures that can be deemed to interfere with the transportation of hazardous materials. The complexity of regulations makes such transportation more expensive in complying with the regulations. Shipping document requirements are an example. The regulations require certain entries on the shipping documents by the shipper. When the information from the shipping documents is transferred to the carrier's freight bill there can be no omissions, errors or abbreviations. Many of the hazardous materials violations involve shipping papers. At the present time, there are state regulations which interfere with the transportation of radioactive materials. Certain states have established routing prohibitions and/or advance notice of radioactive materials transportation into the state. We believe that the Department of Transportation has authority to preempt state law and to thus assure the efficiency and safety of interstate movements of radioactive materials. However, it has not done so, although it has recently issued an advance notice of rulemaking on the subject.

5. We do not believe that there is a need for legislation to improve DOT's activities concerning the transportation of hazardous materials. Recent administrative changes may strengthen the position of the Materials Transportation Bureau and result in a closer working relationship with the modal administra-

tions. We have been concerned for several years that the trucking industry is subject to regulatory controls over the transportation of hazardous materials by DOT, EPA, and OSHA. The one legislative need would be to concentrate authority with DOT for regulatory control of all hazardous materials and hazardous substances in transportation. This would avoid conflict and duplication that has arisen between the separate agencies.

We have given extensive consideration to the matter of a federally run hazardous materials information system. I am enclosing a copy of a recent letter to Mr. Woodruff Price, Special Assistant to the Secretary of Transportation which sets forth our views.

We hope that the foregoing information will be helpful to you and that you will contact us if you need further assistance.

Sincerely,

BENNETT C. WHITLOCK, Jr.

Enclosure.

AUGUST 18, 1978.

Mr. WOODRUFF M. PRICE,
Special Assistant to the Secretary,
Department of Transportation,
Washington, D.C.

DEAR MR. PRICE: In its role as a member of the Hazardous Materials Advisory Council (HMAC) the American Trucking Associations, Inc., is pleased to have this opportunity to respond to questions you posed to the Annual Meeting of HMAC concerning the continuing role of the department in dealing with hazardous materials emergencies. The opinions expressed are a consensus of views expressed by the National and Regional Officers of the ATA Council of Safety Supervisors, and by the members of the Council's Hazardous Materials Committee.

Individual shippers have had emergency assistance programs in effect for many years and can provide information and can send expert personnel to the scene of an emergency if necessary. To the best of our knowledge, all of the shippers having assistance programs are willing to help out whether or not their own products are involved. Our people do not believe that government can improve upon these private industry programs.

The trucking industry has found Chemtrec to be a most helpful source of information. In addition to its own resources, Chemtrec maintains liaison with the emergency assistance programs of shippers and shipper organizations and contacts them whenever necessary.

We found little support in our industry for the establishment of Federal "strike teams" to assist at hazardous materials emergencies. Motor carriers are aware of the ability to obtain this type of assistance from shippers either directly, or through Chemtrec. They have found the assistance available to be effective.

Several of those who responded to us expressed reservations about the cost-effectiveness of a Federal "strike team" system. Despite their severity, major hazardous materials emergencies are relatively infrequent. On the other hand, the costs of a Federal "strike team" program for recruitment and maintaining of manpower, and the acquisition and maintenance of equipment, would be very high, especially in view of the limited anticipated use of such teams.

The trucking industry does believe that the Department of Transportation and other agencies can play a useful role in providing leadership and assistance in closing the gaps in hazardous materials response.

DOT as well as others can do the greatest good by working to increase the awareness of Chemtrec. DOT should take the lead in further publicizing Chemtrec, what services it provides, how to contact it and what information it needs.

The effort which was undertaken by the National Fire Protection Association, working under a DOT contract, to develop hazardous materials training tools for the fire services is most commendable. Had such an effort been undertaken following the major revision of the hazardous materials regulations in 1967, the revisions proposed under HM–103/112 might not have been necessary.

We urge that DOT provide the maximum possible assistance in promoting knowledge of the NFPA training program, in encouraging the fire services to utilize it, and in encouraging its inclusion in fire sciences education.

The one criticism we have heard from motor carrier people who have been involved with the NFPA course is its length. For this reason, consideration might be given to breaking it down into three parts:

1. *A Command Course.*—For Fire Officers (to include all of the present material).

2. *A Firefighters Course.*—For the rank-and-file, limited to those elements of immediate concern on the scene of the emergency.

3. *Highway Emergencies.*—A course for those departments with no likelihood of dealing with railroad emergencies. This course might also be subdivided into a Command Course and Firefighters Course.

Some investigation reports of hazardous materials accidents have indicated inadequacy of communications as a significant problem. If the problem is attributable to equipment, then we believe that DOT might profitably explore ways in which to help the emergency services to secure more adequate equipment. One possibility is a loan or grant program comparable to the program of the Law Enforcement Assistance Administration under which police departments have received aid in updating equipment or obtaining new equipment. Such a program might be administered by DOT or by the National Fire Prevention and Control Administration.

There is a proliferation of requirements for reporting emergencies to the government. Current requirements covering major hazardous materials emergencies and oil spills require calling different DOT telephone numbers. In the relatively near future, it appears that EPA will require the reporting of emergencies involving hazardous waste to the National Response Center. Additional reporting requirements appear to be possible for the future.

The trucking industry believes that all requirements for reporting such emergencies in transportation should be reportable to a single telephone number within the Department of Transportation. Personnel handling such calls should then ascertain whether or not the incident has been reported to any other federal agency, or to any state agency that may be involved. If the additional reports have not been made, the DOT personnel should perform that function.

If a one-number reporting system is set up, consideration should be given to the handling of radioactive materials incidents in lieu of the Radiological Assistance plan of the Department of Energy which utilizes regional telephone numbers.

Finally, we urge that DOT take more vigorous action to defend the efficacy of its regulations. Numerous states and their political subdivisions have considered restrictions or prohibitions affecting the movement of hazardous materials. The trucking industry believes these actions are unwarranted. Many of the restrictions proposed set up irreconcilable conflicts between one jurisdiction and others so that a motor carrier cannot hope to comply while maintaining its ability to perform transportation in an efficient manner. In some states notification requirements would impose burdens on the emergency services that they cannot live with.

All too often, in these situations, there appears to be a total lack of awareness of the existence of the present Federal regulations governing the transportation of hazardous materials—let alone their effectiveness.

Despite the infrequent occurrence of serious situations in hazardous materials transportation, the overall safety record is excellent. We believe this is the case because there are effective regulations. This fact must not be lost sight of, even as the Department works for further improvements.

Sincerely,

WILLIAM E. JOHNS.

ASHLAND CHEMICAL CO.,
DIVISION OF ASHLAND OIL, INC.,
Columbus, Ohio, August 30, 1978.

Hon. HOWARD W. CANNON,
Chairman, Committee on Commerce, Science, and Transportation,
U.S. Senate, Washington, D.C.

DEAR MR. CANNON. Here is our response to the questions set forth in your August 7 letter concerning the DOT hazardous materials program.

These comments represent the thinking of Mr. E. A. Von Doersten, President of Ashland Chemical; Mr. W. A. Thompson, our Traffic Manager; and myself.

As you can see, I have forwarded a copy of this information to Mr. Paul F. Rothberg. If we can be of further service, please let us know.

Very truly yours,

ROBT. C. FULTON,
Vice President, Administration.

Enclosure.

MEMORANDUM

To: R. C. Fulton.
From: W. A. Thompson.
Subject: Reply to Howard Cannon, U.S. Senate.

Regarding the letter received from Senator Cannon, below are Traffic's comments regarding the five questions asked:

1. We have no specific complaints about the Materials Transportation Bureau and believe they are doing an adequate job. It is difficult to assess whether MTB is properly coordinating the functions or activities of other modal administrations with DOT that bear on the transportation of hazardous materials. However, because we have heard of no discord, we assume a degree of harmony exists that fosters a positive atmosphere of cooperation and coordination. Prior to formation of MTB in 1975, there was much confusion among the various modal administrations as to proposed rulemaking, conflicting regulations for various modes and in general a lack of any coordinated effort to insure the safe movement of hazardous materials.

2*a*. As to regulatory procedures, the new Part 102 of Title 49 which provides for general notices of proposed rule making to be published in the Federal Register, has been a significant improvement since its inception in 1975. Of significant importance has been the consolidation, reorganization and reissuance of the hazardous material regulations that used to appear in 14 CFR Part 103, 46 CFR 146 and 49 CFR Parts 170–179.

2*b*. In our dealings with the staff members of MTB, we have found everyone to be competent.

2*c*. Regarding public comment on regulatory proposals, we feel the procedures are adequate and afford responsible industries ample opportunity to express their views. The only suggestion we would offer would be that the MTB continue to solicit more comments and input from all classes of the public including private citizenry.

2*d*. The educational activities have been good, with widespread coverage throughout the country.

2*e*. While we are not completely aware of the educational effort presently being put forth involving public officials who are concerned with safety, we certainly feel this area needs much attention. With the unfortunate accidents involving hazardous materials and the national attention received, it is especially important the public not be misinformed, particularly those who must respond to emergencies, etc.

2*f*. As to compliance activities (including penalty actions), we feel the present level of compliance auditing is entirely too low. In a recent article in *Traffic World*, Dr. Robert A. Kaye, Director of Bureau of Motor Carrier Safety of the Federal Highway Administration, reported that his bureau had only 133 investigators and inspectors in a field attempting to regulate over 3MM trucks and 4MM drivers.[1] We would like to see more enforcement of existing regulations and we feel this in itself will result in less new regulations and proposed rulemakings which are all too often reactionary remedies than preventative.

It appears to us the MTB and OHMO are busy solving problem areas after a crisis situation has occurred (i.e., the recent tank car derailments). In case like this, public reaction becomes as much a problem to deal with as is the problem itself. This type situation often dictates a regulatory change that is often too little and too late. There needs to be improvement in identifying these problem areas before the crisis stage.

3. We have no complaints about the Office of Hazardous Materials Operations within the MTB. This office does respond in a timely fashion to the varied requests we make of them (usually by phone). As far as we are concerned, they are carrying out their functions as mandated.

4. We are not aware of any existing regulations or procedures that interfere with the transportation of hazardous materials. We foresee some legislative actions on the part of some state and local governments that might impede the flow of commerce. This makes the educational effort that much more important.

5. We do not see any need for a federally operated emergency reponse program. We feel through the collective efforts of the MCA (CHEMTREC) and other trade assoications plus the efforts of individual shippers and carriers, we are well on our way toward comprehensive and responsive systems of emergency response. This is not to imply that improvement and new inovations are not needed; on the

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[1] August 21, 1978 issue (page 31–32).

contrary, we feel the role of the DOT, OHMO and MTB should be to encourage industry to continue improving our ability to deal with transportation emergencies, particularly those involving hazardous materials. We would like to see the D.O.T. become more active in educational activities with many emergency groups throughout the country (i.e., fire department, police, etc.).

CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION,
Washington, D.C., December 20, 1978.

Re Analysis of DOT regulatory activities relating to safety aspects of hazardous materials transportation.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division, Congressional Research Service,
Library of Congress,
Washington, D.C.

DEAR MR. ROTHBERG: The Chemical Specialties Manufacturers Association (CSMA) is a voluntary, non-profit organization consisting of more than 400 member companies engaged in the manufacture, processing, and distribution of chemical specialty products. Accordingly, CSMA member companies are affected by the hazardous materials program of the Department of Transportation (DOT). The Association therefore offers the following remarks in response to the solicitation of specific comments by Senator Cannon regarding DOT regulatory activities relating to the safety aspects of hazardous materials transportation.

Question 1. Do you think that MTB is properly coordinating the functions or activities of other modal administrations within DOT that bear on the transportation of hazardous materials?

Within the last 3 years, there has been an improvement in coordination of activities in the MTB. There does seem to be a certain reluctance on the part of modal administrations to cooperate with each other. Continued time-consuming review of well prepared and documented proposals which have been examined and approved by the primarily affected mode seem redundant and wasteful. More vigorous administrative oversight or direction may serve to resolve this situation.

Question 2. Please assess the DOT's implementation of its responsibilities concerning the transportation of hazardous materials.

(*a*) Regulatory Procedures—

Regulatory procedures, while improving, are still time-consuming. Major proposals are generally presented in a clear and concise manner. The response time demanded of the public seems most often to be unreasonably short and results in numerous petitions for extension. A similar, self-imposed deadline on the part of DOT in reacting to public response would result in more timely rulemaking.

(*b*) Competence of staff in the various technical fields involved in regulatory procedures—

The staff is competent but over-burdened. Technical competence to respond to *all* areas of expertise needed in the regulations field just cannot be generated in a very few people. We believe that additional staffing with highly trained technical personnel is necessary. We have also seen that public requests by the staff for information concerning technical matters relating to regulations quite often are not answered by shippers. These shippers in turn may complain after the fact when regulations are issued.

(*c*) Response to public comment on regulatory proposals—

Response to public comments is good. The often heard remark that the more vocal commenters are usually more effective is probably correct. Comments which agree with positions previously taken by DOT staff are naturally going to be considered quite favorably. There have recently been adverse comments by politically motivated sectors which point out some possible administrative gaps but do little to show how to increase the safety of shipment of hazardous materials.

(*d*) Educational activities involving the regulated industries—

DOT has, through seminars, open meetings, available literature, and participation in conferences afforded industry ample opportunity to become aware of present and proposed regulatory activities.

(*e*) Educational activities involving public officials who are concerned with safety—

Education of public officials and emergency personnel concerned with public safety is affected by two factors: The limited funds and staffing by DOT and the willingness and ability of officials to receive the information. Cooperation between various emergency services is usually present but coordination of education and training opportunities is difficult by the nature of their respective activities. DOT has been active in this area and has directed much of their available resources in this direction.

(*f*) Compliance activities, including penalty actions—

There is evidence of increased compliance activities. The visible violations of labeling, placarding, shipping papers, storage and use of specification containers are more readily detected. Detection of technical violations in construction and operability of containers and their devices is more difficult. The limited number of transportation compliance personnel available is obviously a handicap to intense activity in this area.

Question 3. Discuss the functioning of the Office of Harzardous Materials Operations with the MTB.

From a manufacturer's or shipper's point of view, the functions of the Office of Hazardous Materials are slower than desired. This attitude is influenced by the economic impact which responses to questions or petitions may have. While it is understood that some specific requests may require long-term consideration for the development of interpretation of data, it is equally apparent that other requests are routine as far as the Department is concerned and should be given quicker consideration.

The Department certainly has the competence to respond to requests. The problem seems to be one of not having sufficient manpower to handle petitions or requests in a timely manner.

The reorganization that occurred in the DOT in early 1978 was an apparent downgrading of the MTB by having it report to the Administrator of the Research and Special Programs Administration. The obvious downgrading of this function has had its impact in the relationship of this function with the modes. Looking from the outside, although the OHMO was delegated the responsibility for exemption authority, it appears that exemption petitions are being passed through the modes thus significantly delaying processing. In addition, as a result of such processing, it is almost impossible to learn the status of an exemption through a telephone inquiry. Although the OHMO has made a significant dent in outstanding exemptions incorporating them into the code, it takes more than 120 day's required by the OHMO rules to process a request for an exemption.

Question 4. Are there any regulations or regulatory procedures that, in your opinion, interfere with the transportation of hazardous materials?

Yes—overpackaging should be allowed without the requirement of applying for an exemption. Overpacking is allowed by DOT only for compressed gases. Many petitions for exemptions relieving the OHMO from requirement of processing could be eliminated by an appropriate rule allowing overpackaging.

Question 5. What are the legislative or administrative changes that you believe might improve the Federal Government's activities concerning the transportation of hazardous materials?

We believe the Federal Government, through its legislative contact with the MTB, National Transportation Safety Board, news media, and public statements, has been over-reacting in its criticism of the transportation of hazardous materials and the regulation of the transportation of hazardous materials. In viewing the transportation of hazardous materials, it should be put in its proper perspective with other transportation or risk situations that post a much greater threat to public safety and which receive far less attention. The criticism of the transportation and regulation of hazardous materials is far out of proportion to the actual record. In viewing the accident situations, it must be remembered that the volume of hazardous materials shipped is in the hundreds of thousands of tons annually representing over 250,000 individual shipments tended daily with the ton miles of movement running into the billions. This is not to say that improvements should not be sought nor critical critiques taken of accident situations but merely that they be kept in proper perspective. The deaths and injuries attributable to hazardous materials over the last five years should be compared with those incurred in such public exposed areas as automobile and commercial and private air transportation as well as others. We believe it indicative of the dis-

proportionate criticism of the transportation of hazardous materials that the hazardous material causing the greatest number of deaths each year is gasoline. The record will disclose that the transportation of gasoline causes more deaths annually than all of the other hazardous materials combined.

It is not felt that a federally-directed hazard information system is needed. CHEMTREC is in place and working. Information is supplied by shippers and manufacturers and represents the highest degree of technical competence. Establishing a federally-run center of information can only dilute the quality of response. The tendency of federal agencies to establish satellite offices leads to inconsistent reactions or responses to request. In emergency situations, well developed, technically correct and consistent instructions are needed.

We believe that DOT is performing very well in their legislatively mandated duties. We feel that the media over-reacted to many situations and has attempted to place responsibilities for incidents in the wrong area. The best classified, marked, labeled, and packed material cannot stand catastrophic occurrences such as a railroad wreck. We also recognize that DOT has responsibilities for import and export shipments and that they are vigorously working toward harmonization of international regulations without compromising U.S. standards.

The Chemical Specialties Manufacturers Association appreciates this opportunity to provide input to this study of DOT regulatory activities in the hazardous materials transportation area. The Association provides these comments in a positive vein to facilitate the study and aid the Senate Committee on Commerce, Science, and Transportation in exercise of its oversight responsibilities. We offer such further assistance as we may provide to promote a sound regulatory program and a safe transportation system.

Sincerely,

RALPH ENGEL,
President.

THE CHLORINE INSTITUTE, INC.,
New York, N.Y., September 13, 1978.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress,
Washington, D.C.

DEAR MR. ROTHBERG: We are in receipt of Senator Cannon's August 7, 1958 request for comments on the regulatory activities of the Department of Transportation, in particular its Materials Transportation Bureau.

The Chlorine Institute is an Industry Association of chlorine producers and associated manufacturers, whose mission is to promote safety in the manufacture and handling of chlorine. Its 37 North American producer members account for over 98% of the three countries' total chlorine capacity of nearly fourteen million tons annually. Other producer members account for a substantial portion of chlorine production on all continents. Its 72 associate members represent equipment makers and other firms concerned with the efficient and safe manufacture, packaging, transportation and use of chlorine.

Rather than reply to each question as presented in the letter, it is felt that an association like ours can contribute more by summarizing our assessment of the Materials Transportation Bureau and its relationship with the modal administrations. We favor a strong MTB, equal in rank to the modal administrations within DOT. At times, it appears that the needed authority to coordinate the activities of involved modal administrations is lacking and thereby the effectiveness of the rule-making process is diminished. Stronger directives and incentives to cooperate are needed to improve the effective output of DOT regulatory activity.

Our industry feels that the Materials Transportation Bureau, including its Office of Hazardous Materials Operations, is performing as well as can be expected under the circumstances. As is true in any agency or organization, they have some very competent people as well as others who are not. During the rule-making process these competent individuals, apparently due to imposition of other priorities, are seldom available for discussion with shippers and carriers. This delays the decision-making process. We believe that these other priorities are there because of adverse publicity and resultant congressional involvement in DOT affairs.

In addition to receiving new mandates from Congress since being formed in 1968, DOT has inherited quite a back-log of outstanding regulatory dockets from ICC. A method of systematically identifying the most pressing problem area is lacking. It is understandable that DOT must react in areas given substantial publicity by the media but it should not be at the expense of the output of MTB. For example, we are aware of outstanding petitions for rule-making that are over eight years old and have yet to be docketed. Today we are seeing more states and local municipalities looking to impose their own regulations on the movement of hazardous materials. Much of this is prompted by publicity. If this trend continues, it will result in total disruption of commerce, add to cost and confusion, while not solving problems as intended. Hazardous materials regulations are burdensome to comprehend and in many cases need to be updated. OHMO is aware of most of these problems but has been unable to resolve them because of matters deemed to have higher priority. Simplification of regulations and streamlining the decision-making process would certainly help. The past ten years have seen too much changing of goals, both legislative and departmental, and too little effort on the effective pursuit of already established goals. Compliance with present regulations is more often the problem than inadequate regulations.

We feel there should be increased cooperation and coordination between the legislative, regulatory and public sectors. There have been occasions when issues of substantive nature are given only the minimum period for industry comment. On other occasions rule-making has not been initiated, thus causing shippers and carriers to gamble on the outcome of potential rule-making proceedings. The threat of imposing more restrictive regulations prompts an unwise decision regarding the movement of certain materials. The desire to minimize potential future costs is an honest business decision, but should not be prompted by fear because of the sheer weight of publicity.

We need federal support of a private sector response system. A federal alternative to CHEMTREC is not what is needed. Technical expertise on hazardous materials is greater in the private sector. Systems such as our CHLOREP program are linked with CHEMTREC in the United States, as well as TEAP in Canada, to provide response to the scene of an incident. It operates on a 24-hour, 7 day a week basis with established phone contacts. We know that expertise of personnel at the scene is vital to the success of such a program.

CHEMTREC is the contact between the transportation emergency site and the shipper. A broader communications network is needed to embrace the needs of carriers, emergency services, involved government representatives and the media. Coupled with this is the need to improve training programs for all parties involved. We understand discussions regarding this are in progress.

We appreciate the opportunity to offer our comments to your important study.

Very truly yours,

ROBERT L. MITCHELL, JR.,
The Chlorine Institute, Inc.

COMPRESSED GAS ASSOCIATION, INC.,
New York, N.Y., October 6, 1978.

DR. PAUL F. ROTHBERG,
Science Policy Research Division, Congressional Research Service,
Library of Congress, Washington, D.C.

Subject: Senate Committee on Commerce, Science, and Transportation, DOT's Regulatory Activities Relating to Transportation of Hazardous Materials.

DEAR DR. ROTHBERG: This will respond to Senator Howard W. Cannon's letter of August 7, requesting comments on DOT's regulatory activities relating to the safety aspects of the transportation of hazardous materials. We have not attempted to develop a committee response to your inquiry since any evaluation of DOT's performance is apt to be somewhat subjective based on the personal experience of any given individual who has worked with DOT in its Hazardous Materials operations. The thoughts that follow therefore are principally my own based on twenty-six years of direct experience in dealing with the DOT and its predecessor, the Interstate Commerce Commission. During all of this time we have worked very closely with officials of the ICC and DOT.

The Compressed Gas Association, Inc. was founded in 1913 and currently represents 260 companies engaged in the production and distribution of more

than two hundred different compressed, liquefied and cryogenic gases and thousands of mixtures classified by DOT as compressed gases. Our membership also includes manufacturers of containers, valves and other hardware necessary for the safe transportation, storage, handling and use of compressed gas products. While CGA is a trade a association by definition, in that it represents companies that compete against one another in the market place, this association is somewhat unique in that all of its activities focus on technical and safety matters involving compressed gas products. The CGA does not engage in trade promotion, marketing or lobbying activities. All of the publications issued by the CGA, including the Handbook of Compressed Gases, which is a primary resource text on compressed gases, are devoted to details of safety requirements involving different aspects of the compressed gas industries. Since 1913, CGA has worked very closely with the Interstate Commerce Commission and now works closely with DOT and other regulatory agencies that are concerned with safe handling of compressed gases.

With the heavy publicity recently given to a few major accidents involving compressed gases, we can well understand Senator Cannon's interest in reviewing and analyzing the DOT's regulatory activities. The Senator's letter of August 7, poses a number of very good questions and we hope the analysis will be performed in a highly objective manner so that maximum benefit will result from the study. We believe the Materials Transportation Bureau is doing a good job under today's environment and we look forward to even a better job being done in the year's ahead if MTB officials can devote their full time to the technical and safety job before them. MTB has some very good people, but unfortunately they also have lost some of their better staff people recently. One of our chief concerns is the possibility of repeated re-organizations within the MTB in the future which in our opinion could badly damage the continuity of the MTB efforts.

We feel that MTB is doing the best it can under the present circumstances in coordinating the activities of the other modal administrations. When MTB was first established with its director at the same level as the administrators of the four modal administrations, it established an organization that conceivably could provide stronger direction and coordination of hazardous materials regulations writing. We support the centralization of regulations-writing in this area as one that would be less costly to administer and more efficient in the use of manpower to develop sound regulations.

The best organization on paper can only work effectively if the right people are there to make it happen. The long established bureaucracy within DOT makes it very difficult for changes to occur unless there is strong direction from the top; in this case from the Office of the Secretary of Transportation. It is our opinion that there is presently a growing tendency for the DOT to allow political issues to interfere with the objectivity that should be brought to bear on matters that are essentially technical in nature.

Recently the OST has given far greater attention to hazardous materials regulations and with a better understanding of the complex problem of developing effective safety regulations for the transportation of hazardous materials, it may now be possible for OST to give stronger direction to MTB and the four modal administrations in order to assist MTB to do a better job of coordinating this activity.

We believe the ability of MTB to coordinate the work of the modal administrations was negated as a result of the recent reorganization which placed MTB under the Research and Special Programs Administration and thereby placed the director of MTB at a level below that of the modal administrators.

The regulatory procedures of DOT are reasonably sound, but their manner of implementation could be made more effective. Often the response time allowed on major proposals is far too short for the public to develop well considered responses. Often times DOT staff has worked on a project for years and then the public is given 30 to 60 days in which to respond. It is our belief that more frequent informal conferences between the DOT and affected parties would help considerably in the development of sound safety regulations and we strongly urge that thi stype of activity be encouraged prior to the formal issuance of a notice of proposed rulemaking.

The new practice of publishing a schedule of the year's work ahead on rulemaking may be helpful, but we hope that this practice will not reduce the necessary flexibility required to handle new priority items as they arise.

Prior to the first issuance of the announcement of rulemaking priorities, CGA submitted a list of 34 petitions it had submitted for rulemaking which had not yet been acted upon. Only one of these, HM–115, "Cryogenic Liquids" was listed for action during the first year program. The CGA petition to establish a new cargo tank truck specification for cryogenic liquids, such as hydrogen, oxygen, nitrogen and argon, was submitted to the Interstate Commerce Commission in 1965, over 13 year's ago. Much of the technical input by government was handled by the Bureau of Motor Carrier Safety, both within the ICC and the DOT after it was established in 1967. In this case, a great amount of technical review was given the proposal by both FHWA and MTB and we feel certain there was much duplication of effort that might have been avoided.

CGA responded to the notice on HM–115 with over 200 pages of technical input. This is one prime example where we wonder if DOT makes the proper use of public comment on regulatory proposals. On this issue our members believe they did a thorough job of presenting a sound technical case on a number or important issues. However, in our various subsequent conferences with DOT we were unable to learn of any technical reasons for some of the DOT positions on these same issues. We believe it would be helpful to all concerned if guidelines could be established to more clearly indicate the type of justification DOT wants to have from industry. Once such guidelines are developed, DOT should be prepared to justify its position based on the same guidelines.

The use of a safety analysis to justify proposals is getting a lot of attention today, but until some logical guidelines for the preparation of a safety analysis have been more clearly defined, the requirements for justifying a proposal differ from each segment within DOT as well as between individuals. MTB is doing a much better job all the time in explaining its positions in the preambles to rulemaking notices and amendments, but there are still occasions where DOT acknowledges it has considered comments, but simply does not agree with the comments received, without giving any technical justification.

DOT is stepping up its compliance activities and we have always felt that this is of major importance in assuring the safe transportation of hazardous materials. Too often when an accident occurs the immediate response from government is to snuggest the need for tighter regulations, when in fact the real problem is often a lack of enforcement of existing regulations. Two examples of this come to mind; one was the development of a new MC–331 cargo tank truck specification to replace MC–330, following certain accidents that focused public attention on this area in the 1960's. Tighter regulations impose an additional burden upon the reliable companies, but do not encourage compliance by the marginal or uninformed shippers or carriers.

With respect to the recent congressional and public attention given to derailments of tank cars carrying compressed gases, here again all of the focus seemed to be on changing the specifications for tank cars while very little attention was given to the lack of compliance with already existing standards for track and other rail safety requirements not related to the hazardous materials.

We believe that intelligent and judicious enforcement in areas where the greatest improvement in safety is involved can do a great deal to improve compliance in the areas that will be most beneficial to the public.

We believe the Office of Hazardous Materials Operations does a good job under the circumstances, and in general, we feel they respond well to our requests even though this may not always result in a final rulemaking which usually must be coordinated with one or more of the modal administrations.

We believe that one of the serious impediments to the proper functioning of DOT in the hazardous materials rulemaking area has been the excess attention given to this activity by the public, much of it encouraged by politicians and others. As a result the DOT has had to spend an undue amount of time educating and informing congressmen, senators and others concerning the complex area of the safe transportation of hazardous materials. We hope the work of Senator Cannon's committee can produce some results which will avoid the repetitive demands on DOT to respond to many of the same questions over and over again. Unfortunately, the climate today puts what should essentially be a technical rulemaking function into the political and emotional arena. This only complicates the problem for all concerned without achieving greater safety commensurate with the cost involved in trying to provide it. We share the concern of government officials when anyone is injured as a result of a compressed gas incident. We do not believe the public or public officials are yet aware of the cost of the

rulemaking effort today involving hazardous materials. All of these costs will be passed on to the ultimate consumer who has no idea of the price he will ultimately have to pay.

The cost-benefit approach to safety regulations is often spoken of, but here too we lack any sound guidelines for developing reasonable approaches that can be intelligently understood and applied with uniformity by the various parties concerned.

There is one point that I feel strongly on that relates to many of the questions you are asking. The attitudes of the legislators, their staffs and the regulating agencies of government vary from time to time to pro-business, anti-business and sometimes cross the line of coming into the proper balance where the best interest of the public and our economy is served. Recently, anti-business attitudes seem to show at the regulatory writing level and this makes the job of the regulators and the regulated far more difficult, more costly, and without in our opinion improving the desired end result which is to improve safety in the transportation of hazardous materials to protect the public. DOT staff has been expanding in recent years and we are sure many legislators and many regulatory people would like to see it expanded many times over again. While DOT has some competent people, they lack some competence in certain areas. We do not believe that the addition of more staff experts is the answer to this problem. Intelligent personnel at DOT with the ability and desire to fully explore with the technical experts of industry the various problems in the safe transportation of hazardous materials can provide the most cost beneficial solution to safety problems that are rightfully demanded by the public. Our economy cannot afford to staff DOT or any other regulatory agency with all the technical experts it might need to deal with the many and varied technical problems that must be dealt with by industry every day. The technical expertise is readily available to government simply for the asking. The role of the regulatory agency technical specialist should be to intelligently evaluate input from industry and others where the knowledge exists and to apply this in the best interests of all concerned.

To make this work effectively, we must have direction from the top to require the technical regulators to seek out the technical input from industry and others where it is available, rather than to go off on their own and attempt to reinvent the wheel when a new regulation seems in their judgment to be needed. We strongly encourage some "zero based budgeting" for our regulatory agencies and while we can offer no statistics, we seriously wonder how much improvement in the safe transportation of hazardous materials has been achieved in view of the steadily increasing costs of hazardous materials regulations under DOT as opposed to the cost by the ICC prior to 1967. We believe the compressed gas industry is one of the most highly self-regulated industries that exists and our sole purpose in CGA is to establish a high level of safety standards for our industry that will hopefully avoid the need for government regulation. We realize that some government regulation is necessary, but it must be kept in its proper perspective.

One important point that government officials often forget is that simply writing a new regulation does not improve safety. Most accidents are caused by human failure rather than equipment failure. To effectively improve safety requires the involvement of all parties from government and top management to the worker at all levels plus emergency crews and even the public.

Our members have actively participated since 1949, with the International Standards Organization (ISO) in areas dealing with compressed gases. The United Nations Committee of Experts on the Transportation of Dangerous Goods is now becoming involved in gases and we have offered our technical experts from industry to work with DOT in specific areas of mutual concern. We realize UN activities put an additional strain on MTB and we were recently dismayed with State Department directives to limit the size of USA delegations to UN meetings on the Transport of Dangerous Goods. For international activities some additional staffing may be desirable and we were utterly confused when we learned recently that Dr. Hans Neumark, who has been an advisor to MTB on UN activities, was terminated.

We are convinced that UN recommendations and other international standards will find their way into USA standards and DOT regulations some day and it is important, therefore, that the USA play an active role on the international scene. Here, too, DOT must draw more on the expertise in industry to properly staff its delegation. Arbitrary numerical limitations of USA delegations by the State Department serve no useful purpose.

The last question on which we will comment is the need for a federally run hazardous materials information system to provide emergency advice. We do not believe this is desirable. It would be almost a total duplication of the CHEMTREC program of the Manufacturing Chemists Association, which is totally financed by industry. We believe both government and industry are well aware of this program and the need to strengthen it, and steps are already being taken by various elements of our society to provide better emergency advice and response to transportation accidents. Committees of the Compressed Gas Association are taking another hard look at this matter to encourage our members and others to do more to help improve the emergency response for compressed gases. We are cooperating with the CHEMTREC program and are currently reviewing many of the Chem-cards to be sure the information is current and the best available.

We feel the role of government should be to stimulate and encourage industry to improve the already existing national Hazardous Materials Information Center rather than set up another government bureaucracy which will ultimately cost the taxpayer's and our economy far more dollars than would be the same program if supported by private funds.

CGA and its members are as interested in the safe transportation of compressed gases as much or even more so than DOT.

Every accident that occurs with our products costs us dearly, both in direct dollars and indirect damage to our industry as a whole. Since both government and industry share the same objectives in achieving a reasonable level of safety for the transportation of hazardous materials, it is important that we improve the communications between government and industry so that these goals can be achieved in the most cost effective way possible. Our Federal Government has only scratched the surface of all the resources available to it from industry that will help DOT in doing a better job to achieve safety. We urge DOT to make a concerted effort to call upon industry more and more for their technical input to satisfy DOT's goals of providing sound safety regulations.

We appreciate the opportunity to respond to Senator Cannon's inquiry. If we can be any further help in your study, please feel free to call upon us.

Respectfully submitted.

EDWIN A. OLSEN,
Managing Director.

AIRESEARCH MANUFACTURING COMPANY OF CALIFORNIA,
September 1, 1978.

Reference Senator Howard W. Cannon letter to Aerospace Industries Association of America dated August 7, 1978 (copy attached).

PAUL F. ROTHBERG,
Science Policy Research Division, Congressional Research Service, Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: In response to Senator Cannons' request to the members of the Aerospace Industries Association to provide information that may assist the committee in its responsibilities regarding hazardous materials transportation, we have attempted to answer the questions in the order outlined in the referenced letter.

1. Adequacy of M.T.B.—We have had no experience with the M.T.B. other than the utilization of CFR 49 (parts 100–199) as an operating manual for the purpose of shipping hazardous materials.

2. D.O.T. Implementation—Again our experience has been very limited with the exception of D.O.T. educational activities. In this area D.O.T. has provided educational seminars that some of our personnel have attended. Our personnel have reported very favorably as to the content, organization and method of presenting these seminars.

We feel they should be presented on a regular schedule semi-annually or annually on a local basis. This would allow us to send different personnel for training and also maintain a current understanding of hazardous material transportation requirements.

3. Office of Hazardous Materials Operations—We have not found it necessary to utilize the services of this office.

4. Regulatory interference with the transportation of hazardous materials—Two areas concern us very much.

(1) Occasional conflict when the airlines refuse to carry hazardous materials even though the regulations permit the shipment by air.

(2) The lack of adequate and descriptive labeling by manufacturers of hazardous materials. Many times only a brand name with the notation "flamable" is found on packaged materials with little or no description of the generic composition making it difficult to classify.

5. Legislative or administrative changes—We have no recommendations for this question but we believe there may be a need for an emergency advice office for accidents, particularly if "exotic" hazardous materials are involved.

Please advise if we can be of any further assistance.

Sincerely,

L. A. PEFFER,
Manager, Transportation & Distribution.

GENERAL DYNAMICS, FORT WORTH DIVISION,
Fort Worth, Tex., September 9, 1978.

Senate Oversight Committee Questionnaire/Department of Transportation Activities/Hazardous Materials.

Mr. PAUL F. ROTHBERG,
Science and Policy Research Division, Congressional Research Service, Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: General Dynamics/Fort Worth Division believes that the Materials Transportation Bureau of the Department of Transportation is doing an excellent job of coordinating the functions of all modes of transportation dealing with hazardous materials.

We feel that the consolidation of the regulations for all modes of transportation of hazardous materials into one single source (Code of Federal Regulations 49, Parts 170–189) was a major step forward in the simplification and effective usefulness of the regulations for both the shippers and carriers.

In addition, we also believe the Materials Transportation Bureau and the Office of Hazardous Materials Operations to be highly competent, respond reasonably well to our questions on regulations and regulatory proposals and provide adequate educational instruction for shippers and carriers.

The only real suggestion we can offer is for DOT to continue to consolidate and simplify the regulations. The only problems we have encountered were due to varying interpretations of these regulations.

Yours very truly,

J. T. JONES,
Chief of Traffic.

HAZARDOUS MATERIALS ADVISORY COUNCIL,
Washington, D.C., November 28, 1978.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress,
Washington, D.C.

DEAR MR. ROTHBERG: This letter responds to the letter of August 7, 1978 from Senator Howard H. Cannon raising questions about the Department of Transportation's activities in regulating the transportation of hazardous materials.

The Hazardous Materials Advisory Council (HMAC) is the only private, national independent organization devoted to promoting safety in the transportation of hazardous materials that represents all modes of transportation, shippers of varying size and scope in their distribution operations, container manufacturers, insurance companies and associations of shippers, carriers, container manufacturers and others in the hazardous materials community. Our more than 200 members package, ship, transport and distribute materials of every hazard class by every mode of transportaiton in both domestic and international commerce. HMAC, therefore, has a vital interest in the effectiveness, competence and reasonableness of the regulations promulgated and administered by the Department of Transportation.

In response to specific questions in Senator Cannon's letter of August 7, we respond as follows:

1. Adequacy of MTB operations

We believe there has been marked improvement in the adequacy of MTB's functions and operations but that there are deficiencies that need correction. Recognizing the improvement in MTB's activities as the coordinating agency among DOT's modal administrations, we believe that MTB should provide greater uniformity in the response of these agencies, particularly in regulatory interpretation and in compliance and enforcement philosophy and procedures. The desirability of greater uniformity may be more evident to our shipper members than to other members who are involved primarily with individual modal agencies such as the U.S. Coast Guard, FAA, FRA, and the FHWA. Our members in the latter group, however, especially those with responsibility for carrying official regulatory, interpretive and compliance statements into tariff and operation publications, need assurance of greater uniformity, deliberation and notice in the issuance of such statements.

Because the office of hazardous materials operations provides leadership for the U.S. Delegation to the United Nations and, at the same time, is responsible for enunciating domestic regulatory policy, greater coordination of these two related resopnsibilities is required. We attach to this letter, a statement HMAC submitted in April of 1977 to the Director of MTB which states HMAC's position on this important issues.

2. DOT implementation of its responsibilities

(A) Regulatory Procedures:

(1) Announcement last Spring of DOT compliance with the requirements of Executive Order 12044 was a welcome indication of increased information and notice to the public and of more effective planning of regulatory activities. Greater public participation in rulemaking should result from this step, but attention needs to be directed to specific areas of concern which follow.

(2) It would be helpful to set a "sunset" provision for DOT response to petitions or its decisions in final rulemaking actions.

(3) A method needs to be developed to permit interested and participating members of the public to review and respond to the comments of others involved in proceedings, particularly those involved with major regulatory rulemaking. Existence of a public docket room is helpful, but it does not meet the needs of those to whom it is not readily accessible and who have a stake in the proceedings and need to know more about the public record involved.

(4) The Department should consider establishing an "appellate" group possibly in the Research and Special Programs Administration of DOT. No method of appeal or review of decisions made by MTB or the modal administrations now exists, and one is needed, especially for decisions with a major impact on the public or that conflict with those of other agencies.

(5) Implementation of departmental responsibilities at times is so formalized as to inhibit public participation and the exchange of vital information among departmental representatives and those affected by proposed regulatory activities prior to the onset of proceedings or even of the announcement of final rulemaking. Often the result is to set the Department on a course inconsistent with public needs or with practical considerations. Recognizing the Administration's concept to limit "informal" discussions with industry, we suggest that the DOT develop some means of enhancing the informal "ex parte" exchange of information, perhaps by the use of prehearing conferences with parties known or that can be reasonably expected to be affected or concerned with the proceeding. Public notice and disclosure could be required and public attendance widely encouraged at such conferences. The resulting exchange of information should be helpful in the promulgation of reasonable and effective regulations with greater clarity and possibility of full compliance.

(6) The Department has taken steps to considerably increase public participation in and knowledge of the development of international regulations. Extension of this principle is exceedingly important because of the inter-relationship and impact of domestic and international regulations on each other and their potential for causing problems for U.S. shippers and carriers. Consideration needs to be given to public notices and participation prior to the development of official U.S. positions by authorized delegates to U.N. meetings. This will provide greater assurance that the United

States meets its obligations both to the public and in its international relationships.

(B) Staff Competence: (1) We believe that as a general rule the staff is competent. Competence and effectiveness, particularly in developing regulations and in compliance activities, would be enhanced by more extensive staff contact with and knowledge of industrial, carrier and packaging operations that are subject to regulatory activity. DOT should take steps to increase that. It will find such steps will be welcomed and encouraged by members of the private sector. A second observation is that there appears to us to be a turn-over of competent staff people and at times inadequate numbers of staff to meet Department requirements and public response. These may be the result of staffing and budgetary restraints although we believe that appropriations for this fiscal year may have moved toward helping correct this situation. Additional attention needs to be directed to it, however.

(C) Response to Public Comment: (1) Subject to our previous suggestions, we believe the Department makes reasonable efforts to respond to public comment. Naturally, individual proceedings and individual parties to them may at times lead to the reverse conclusion, but in general it appears that this is not an area of major concern.

(D) Educational Activities: (1) DOT has exhibited a strong sense of the need to educate the public and those affected by its regulations. It has undertaken many educational programs and has issued a large number of publications to increase public awareness and knowledge of the regulations.

(E) Education of Public Officials: (1) Except to the extent of our concern for the training of those responding to emergencies, we cannot comment knowledgeably on this point. However, we know of no departmental, or indeed any other effort to esablish an effective program training volunteer firefighting and other local emergency organizations, which often are the first to arrive at the scene of a transportation emergency incident. With adequate training, such forces have a great potential for reducing the risks to life and property. Untrained, they are often at a loss to act effectively and at times have contributed to increasing the risks and results of the incident. Attention needs to be directed to this aspect of the training of public officials.

(F) Compliance Activities: (1) Compliance activities and penalties are increasing. An increase in attention should be directed to those violations that have an effect on safety in operations (packaging is an example) as contrasted with "proforma" violations. The objectives of regulations are to minimize risk in transportation and to communicate to those handling shipments and responding to emergencies, the hazards of the material and their potential for personal and property damage. Emphasis in compliance should be commensurate with those objectives, and compliance agents need to be thoroughly grounded in the practical aspects of the effects of such violations. Penalties and notices should follow promptly from the observance of non-compliance and should take into acount the potential for increasing the risk of accident and damage and the record of the persons cited.

(G) Identification of Problem Areas: (1) It is difficult for us to adequately respond to this. It appears that improvement in a "systematic review" and selection of problems to be solved by DOT will be enhanced by following the requirements of the Executive Order 12044, by increased public participation in proceedings and by greatly increased government-"private sector" discussions of issues and considerations most needed to promote safety and to reduce risk in the transportation and distribution of hazardous materials. We stress again the need for the latter with our complete understanding that it needs to be hedged with reasonable precautions and measures to prevent abuse.

3. Office of Hazardous Materials Operations

We believe that within the limits of staff and budget OHMO does its work effectively. We would like to see more prompt response to inquiries and we hope for improvement in that respect and in its handling of exemptions.

HMAC collectively observes that there is a delay in replying to petitions and a backlog of other work in the Office of Hazardous Materials Operations. The Agency should review its staff and procedures to resolve these difficulties. We would not presume to assert whether staff, budget or priorities are the cause.

4. Interference with Transportation

Interpreting "interference" to mean delays occasioned by restraints other than those authorized by the application of established and clear regulations, we

see interference occurring principally because of jurisdictional and operational conflicts among some DOT agencies and among various Federal agencies. Although DOT and EPA appear to be making efforts to coordinate their activities and to reduce the "interference" of their different regulations, continuing jurisdictional conflicts between and among Federal and state of local authorities lead to interference. We recognize that the eventual resolution of some of these interferences may call for legislative action.

5. Legislative and administrative changes

We have already suggested some such changes in other contexts. We see no need for added regulations, but we do see a need to resolve jurisdictional conflicts, especially at the Federal level and with the states to codify and clarify existing regulations, and to work toward uniform and coordinated interpretations and compliance.

6. Emergency response

It is difficult to envision an effective national emergency response system without a national "clearing house" to establish rationale, objectives and methods that would be involved in it. That almost necessarily requires DOT participation in the definition of the system and the identification of needs, possibly using a rulemaking proceeding or an ex-parte discussion with wide public participation. However, we believe that the private sector can and should provide the national system needed for emergency response, and we are confident that given coordinated public effort involving all parties to identify the needs of a national response and the elements it needs to contain, the private sector will and should provide that national response system. To some extent it is already doing so. Its efforts need to be coordinated, and they need to take into account all aspects of the problem.

The Hazardous Materials Advisory Council appreciates the opportunity to participate in this study of DOT's hazardous materials regulatory activities. Recognizing the difficulty any governmental agency has in keeping current with technological development, with the changing needs of the public and with the methods that are available for minimizing risk and enhancing safety, we support the activities of the Department of Transportation and agree that generally these efforts are effective in protecting the public interest.

We look forward to continuing to work with the Department in the promotion of safety and are available to discuss with you any further points that may be helpful in the study you are making.

Sincerely,

BRUCE HAMILL,
Chairman.

APRIL 29, 1977.

Mr. JAMES T. CURTIS, Jr.,
Director, Materials Transportation Bureau,
Department of Transportation,
Washington, D.C.

DEAR JIM: At our meeting in your office on April 15, HMAC agreed to establish a central organization to cooperate with DOT and the greater public participation in the development of U.S. positions in international regulations of the transportation of hazardous materials and to nominate a member of HMAC to be qualified as an advisor to the U.S. Representative to the U.N. group of Rapporteure. I am very pleased to tell you that Morris Hershson. President of the National Barrel and Drum Association, has agreed to serve as Chairman of HMAAC's INTEREC Committee. Under Mr. Hershson's chairmanship and direction, this committee will consist or qualified and expert representatives of shippers. air carriers, water lines, motor carriers, railroads and container manufacturers. Its objective will be to assist in developing informed comment on U.S. positions on International regulatory matters.

We are fortunate to have a person of Mr. Hershson's stature to represent us. We look forward to meeting with you and your staff in the near future so that Mr. Hershson can become acquainted with you and so that we can discuss mutual objectives and problems in this area that is so important to American commercial transportation and trade interests.

Sincerely,

DON BOYD,
Chairman.

INSTITUTE OF MAKERS OF EXPLOSIVES,
New York, N.Y., November 7, 1978.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress,
Washington, D.C.

DEAR Mr. ROTHBERG: In response to the letter of Senator Howard W. Cannon, Chairman of the Senate Committee on Commerce, Science and Transportation, dated August 7, 1978, presented herein are the comments of the Institute of Makers of Explosives (IME) on Senator Cannon's questions concerning the regulatory activities of the Department of Transportation (DOT) relating to the transportation of hazardous materials. IME is appreciative of the extended time allowed for filing of its comments.

We are pleased that Senator Cannon requested comments of IME as recognized experts in the field of hazardous materials transportation. Safety in transportation explosive materials has been a hallmark of our association since its formation in 1913. Since that time, the member companies of IME have shipped more than 56 billion pounds of explosive materials. Our experience includes shipment by all modes of transportation.

We will first respond to the specific questions presented by Senator Cannon, and thereafter, we will offer our general comments on the regulatory activities of DOT. IME's responses represent the consensus of our member companies.

Question 1. Please assess the adequacy of operation of the Materials Transportation Bureau. Do you think that MTB is properly coordinating the functions or activities of other model administrations within DOT that bear on the transportation of hazardous materials?

The performance of the Materials Transportation Bureau (MTB) of DOT is inadequate at the present time. MTB does not have the manpower to comply with its Congressional mandate under the Hazardous Materials Transportation Act of 1974, 49 U.S. Code §§ 1801, *et seq.* Because of this lack of personnel, the MTB is often slow in acting to resolve industry's transportation problems involving hazardous materials.

Further, there have been five reorganizations in MTB within the last four years. Consequently, communication lines with industry were broken, and the personnel had to learn new areas of responsibility. These reorganizations affect interpretation and enforcement of regulations because of changing personnel assignments.

Coordination between MTB and the other modal administrations within DOT is inadequate. From our experience, there is often disagreement among modal administrations on the interpretation of the hazardous materials regulations which the Department enforces. For example, stowage charts or tables in 49 CFR Parts 174 (Rail) 177 (Highway) and 176 (Vessel) conflict in some respects. The jurisdictional change between modes creates an unnecessary risk by requiring additional handling of hazardous materials.

Question 2. Please assess the DOT's implementation of its responsibilities concerning the transportation of hazardous materials.

We would welcome your comments on such areas as:

(*a*) Regulatory procedures,

(*b*) Competence of staff in the various technical fields involved in regulatory procedures,

(*c*) Use of, and response to, public comments on regulatory proposals,

(*d*) Educational activities involving the regulated industries,

(*e*) Educational activities involving public officials who are concerned with safety, and

(*f*) Compliance activities, including penalty actions.

(a) DOT's procedures for promulgating regulations have several shortcomings. Additional time for public comment on proposed rules is invariably necessary. Further, DOT rarely affords a realistic effective date for final regulations, which reflects the Department's lack of understanding of how industry functions, such as its need for disposition of field inventories before the effective date of a new regulation.

Furthermore, Title 49 of the Code of Federal Regulations only includes the amendments in effect and enforceable at the time it is published. We were ad-

vised in August, 1978 that the October, 1977 edition of Title 49 CFR was just published and was available. Therefore, some regulations which became effective since October, 1977 are not included in the current edition of the CFR. This requires industry policing of many references to find applicable regulations.

One suggestion for improving understandability and enforcement is to make DOT regulations effective at the same time as the annual publication of the Code of Federal Regulations, not when the rules are published in the Federal Register. This would improve safety in transportation in that current regulations would be readily available to all shippers and carriers in a recognized source.

(b) In evaluating competency of the DOT staff, our comments concern those officials dealing with shipment of explosives and related materials with whom we have had experience. The technical ability of the staff is satisfactory. The primary concern of industry is that the staff does not place sufficient priority on keeping current with developing technology. This may be because of insufficient personnel. In order for DOT to promulgate technically sound regulations, its staff must have knowledge of field problems and laboratory testing methods and data.

(c) Our experience with DOT's use of and response to public comments on regulatory proposals has varied. In some cases, industry's comments have been acknowledged and given consideration. However, the explosive industry's experience has been that DOT often ignores its comments in favor of a preconceived decision.

In this regard, proposed DOT rules on occasion are not based on data. Examples include proposed Docket Nos. MC–70–1 (proposing requirements for truck drivers of interstate carriers of hazardous materials), HM–143 (proposing classification of and tests for blasting agents), HM–161 (proposing classification of blasting caps as Class C explosives) and the existing requirement for special brakes under Vehicle Standard No. 121. We recommend that DOT regulations proposed for public comment be supported by realistic data from adequate studies and not be based on theory, thereby leaving industry the costly task of justifying DOT's positions.

(d) DOT has made an effort to promote educational activities which would benefit the industry and public. The Department has some films which industry and the public may use. However, higher priority is needed for educational programs because regulations are being changed so frequently.

(e) We applaud the DOT's sponsorship of NFPA's training program for local public officials, employes and the public in general, who are concerned with safety. To date, the number of seminars conducted have been limited. We believe such a program should be expanded to reach more local public officials.

(f) By compliance activities, we assume Senator Cannon means enforcement activities. In our experience, DOT's enforcement program has been sporadic and poorly organized and directed, which has a negative impact on both industry and the public.

In order to be more effective, such compliance activities need to be educational in nature, as well as penalty-oriented. The past practice of allowing a time period for correction of violations before fines were levied is a good example of an educational approach. In this regard, availability and uniformity of regulations to the industry become of critical importance.

Further, we do not believe that DOT systematically identifies problem areas concerning the transportation of hazardous materials. Problem areas are sometimes identified only after an accident occurs. One example of this was DOT's proposal of Docket No. HM–144, requiring special head shields on tank cars, only after a head-on accident between two tank cars.

Question 3. Please discuss the functioning of the Office of Hazardous Materials Operations within the Materials Transportation Bureau. Does this office respond in a timely fashion to your requests? Does this office carry out its regulatory functions, practices, and procedures adequately?

As set forth above, OHMR often provides a short response time to proposed regulations, proposes rules with inadequate technical basis, and promulgates non-uniform regulations.

Further, OHMR's response to matters such as interpretation of regulations is extremely slow. Thirty to 100 days is a typical response time. On requests for exemptions, however, OHMR is meeting its 120-day minimum deadline regularly.

One positive program is OHMR's effort to eliminate exemptions and obsolete or ineffective regulations. IME supports this effort.

Question 4. Are there any regulations or regulatory procedures that, in your opinion, interfere with the transportation of hazardous materials? If so, please provide specific examples in your response.

Particular regulatory procedures and regulations which in IME's view impede the transportation of hazardous materials are as follows:

First, the 120-day time period for DOT to issue an exemption is excessive. Sixty (60) days is recommended.

Second, DOT is proceeding with public hearings for Docket MC–70–1 (proposed requirements for truck drivers of interstate carriers of hazardous materials) in spite of negative public comments to date, Executive Order 12044, which directs Federal agencies to rescind regulations that don't contribute materially to safety, and excessive cost to both Government and industry. This is a prime example of a proposed rule which lacks supporting data, fails to take into account opposing public comments, and reflects adversely on the competency of DOT staff.

Question 5. What are the legislative or administrative changes that you believe might improve the Federal Government's (primarily DOT's) activities concerning the transportation of hazardous materials? Is there a need for a Federally-run hazardous materials information system to provide emergency advice concerning accidents involving the transportation of hazardous materials?

IME believes present legislation is more than adequate. Further, the preemption provision of the Hazardous Materials Transportation Act of 1974, 49 U.S. Code § 1811(b), should not be amended. This section provides that any state or local requirement which is inconsistent with a Federal requirement promulgated under the Act is preempted by the Federal requirement, thereby insuring uniformity of regulations governing transportation of hazardous materials.

From the standpoint of administrative priorities, DOT should concentrate on simplifying existing regulations and deleting obsolete regulations before promulgations of new rules.

Finally, IME recommends that the DOT recognize CHEMTREC as best suited to accomplish the task of an emergency response system. No system run by the Federal Government is needed.

General comments

Congressional support permitting trade association imput to DOT and United Nations committees should be affirmed. Resolution of conflicts among the regulations of international organizations such as IMCO, IATA and others will require the strongest support for our country's position. Industry's participation is essential to promotion of safe transportation of hazardous materials in the United States and on an international scale.

IME's member companies must comply with safety regulations of a number of agencies which control the manufacture, transportation, storage, handling and use of explosive materials, including such diverse U.S. agencies as the BATF, DOT, EPA, MSHA, OSHA, and the U.S. Coast Guard. There is a widespread lack of uniformity between the hazardous materials regulations of these agencies. For example, DOT permits transportation of electric blasting caps with other high explosives, a practice which is not permitted by MSHA. IME has long urged the various agencies of the Federal Government to remedy the conflicts in existing regulations which by their very inconsistentcies create safety hazards in the handling of hazardous materials. Congressional action to this end would be most helpful.

In sum, IME is concerned that its expertise is underutilized in matters related to transportation of hazardous materials. Improvements can be made by:

(1) mutual cooperation of DOT with the explosives industry in developing technically sound regulations;

(2) uniform interpretation of the regulations by the many administrations within DOT; and

(3) educational activities related to enforcement, and for simplifying and clarifying existing regulations.

Thank you for the opportunity to present our comments. If IME can be of any further assistance on matters concerning DOT, pleases do not hesitate to call upon us.

Sincerely yours,

FRANK H. GORDON,
Counsel to the
Institute of Makers of Explosives.

DEPARTMENT OF FIRE AND RESCUE SERVICES,
MONTGOMERY COUNTY, MD.,
Rockville, Md., September 25, 1978.

MR. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: Thank you very much for giving the International Association of Fire Chiefs (IAFC) the opportunity to provide input to the Senate Committee on Commerce, Science and Transportation. We certainly have a great interest in the safety aspects of the transportation of hazardous materials.

Before answering your specific questions, I would like to give you some background information on the role of the fire service at a transportation incident.

When a transportation accident occurs and involves a spill, leak, or fire of a hazardous material, some immediate action is necessary. Because of its traditional role of being able to supply immediate action to an emergency, the fire service has emerged as the first responder to a hazardous materials incident. They are usually on the scene within minutes and begin the procedures necessary to protect life and property.

Other emergency personnel such as law enforcement officials are also available quickly, but they lack the manpower pools, technical expertise, and specialized equipment to cope with the incident.

In some jurisdictions civil defense personnel might be available to respond to the incident, but they too lack the resources to handle the accident.

So, no matter who might have the ultimate responsibiliy for supervising the incident, the actual work at the scene will be done by fire service personnel. It is important to recognize this, because they are the ones who will need technical assistance for handling the call.

Now, to answer your specific questions:

1. One of the greatest problems faced by the fire officer on the scene of a hazardous materials incident is to obtain the name of the specific commodities involved. Each mode of transportation has a different way of recording the data and providing warnings to emergency personnel. Placard requirements vary for truck and train transportation. Shipping documents and the information they carry also is different. Enforcement of the regulations is sparce or almost non-existant creating even further problems. It appears that the coordinating function is not accomplishing its goal of standardization and the modal regulatory agencies still operate very autonomously.

2A. The Federal government regulatory process leaves a great deal to be desired. Notice of a proposed rule making is published in the Federal Register with a short turn-around time for comments. This creates a problem because almost no fire chief has the time nor the staff to review these documents. Therefore, an organization such as the IAFC must read and comment on the proposal and try and disseminate information on the proposed new rules to the 35,000 affected fire chiefs. The elapsed time for all these to take place results in few comments from the fire service. This, in turn, is interpreted by the regulatory agencies as approval of the rule, while, in fact, the exact opposite might be true. Some system of improved notices of proposed rule making and a longer time for comments are necessary to make the system responsive to the needs of the fire service.

2B. In our dealing with the staff of DOT we have found them to be technically competent. As in any large organization, however, there are a few who need to be made aware of the needs of the emergency response people as opposed to the needs of the shippers.

2C. The problems with public comments on the regulatory procedures are outlined in 2A above.

2D. and E. The educational activities of DOT are very poor. First the need is to disseminate information in an understandable manner. Second, special training of emergency response personnel is necessary so that they can use this information to handle an incident. Third, technical training by experts in the tactics of handling a hazardous materials incident are necessary. In each of these areas DOT does not perform satisfactorily.

(1) DOT publishes a great many booklets, books, and folders on the regulations yet many individuals in the emergency services are unaware of its existence. No list of available publications is published. The only way to know that a document is available is by word of mouth. No attempt

is made to get the information out to the people who need it. In fact, in many cases the attitude seems to be to withhold the documents so that a stock of the material is always kept on hand.

(2) Training of emergency services personnel by DOT representatives on the rules, regulations, and procedures is necessary. While some attempt has been made in this area, only small numbers of fire service personnel have been reached. The interpretation of the shipping documents, knowledge of the required containers, and information on what help can be expected from DOT are all important. With the need to reach 35,000 different fire departments, all of whom could be the supervisor of an incident, DOT must develop a better delivery system.

(3) The training of fire service personnel in the correct tactics for handling an incident is a critical need for protecting lives and property. Here the instructors need credibility with their fire service peers as well as the technical knowledge to conduct the class. In addition, with over 90% of the fire departments in our country depending on volunteers, the cost must be kept reasonable and the schedules convenient. DOT must keep in mind that the objective is to reach the individuals who will be in charge of the incident. The current DOT slide tape program is a beginning toward this effort but the cost puts it out of reach of many fire departments. In addition, the decision making process needs an instructor present to answer questions and carry the discussion further. Much more work needs to be done in this area.

2F. Information on compliance activities is available in summary form from the OHMO Newsletter. However, the fact that this newsletter is available is not well known. Another case of not getting the information to the people who need it.

3. We have had very few dealings with the Office of Hazardous Materials Operations. Comments are submitted and a form postcard is returned acknowledging receipt. No other information is forthcoming on our comments. In fact, when final adoption occurs those who commented are not even notified. We never really know what impact our comments have unless a careful reading of the new regulations reveals a change. Better feedback to the concerned individuals and organizations is necessary.

4. The regulations for the transportation of hazardous materials are a patchwork of procedures with exceptions and variances which make our job more difficult. The question is not whether the regulations interfere with transporting hazardous materials, but to develop regulations which consider the public safety first.

5. Currently CHEMTREC, run by the Manufacturing Chemists Association provides immediate information to the incident commander. We feel that our needs can be met by CHEMTREC and that entry into the field by DOT would only cause confusion and duplication. In addition, we do not feel that the government has the resources at its disposal for having access to the manufacturers and shippers. We therefore strongly urge that a single agency, CHEMTREC, be retained and that the attempts by various government agencies to carve an additional responsibility out of the information system phase be stopped. This is an instance where private enterprise can do a better, quicker, cheaper job than the Federal government.

I hope this has provided you with some insight into the problems of the fire service and the handling of hazardous materials transportation incidents. If you have any further questions, please do not hesitate to give me a call.

Sincerely,

Chief WARREN E. ISMAN,
Director, Fire and Rescue Services,
and Chairman, IAFC Committee
on Hazardous Materials.

MANUFACTURING CHEMISTS ASSOCIATION,
Washington, D.C., September 15, 1978.

Subject: MCA Evaluation of DOT's Regulatory Activities Relating to the Transportation of Hazardous Materials.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division, Congressional Research Service, Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: In response to Senator Cannon's letter of August 7 to Mr. James R. Carnes (retired), we are pleased to have this opportunity to par-

ticipate in your review and analysis of the Department of Transportation's (DOT) regulatory activities relating to safety in the transportation of hazardous materials.

The Manufacturing Chemists Association is a nonprofit trade association having 190 United States company members representing more than 90% of the production capacity of basic industrial chemicals within this country. Our member companies operate nearly 1500 plants which produce chemicals, many of which are classified under DOT regulations as hazardous materials and shipped in packages and bulk via all modes of transportation.

We believe that the administration of regulations governing the transportation of hazardous materials should be confined to the DOT agencies in order to minimize overlapping and conflict with other agencies. On balance, we are pleased with the performance of the DOT agencies in this arena. We have noted perceptible improvement in several of them over the last two to three years.

There is, nevertheless, considerable room for further improvement. The attached responses to your questions address themselves to problem areas and opportunities for additional progress.

We would like to commend the Administration on its concerns and intent which resulted in Executive Order 12044. As DOT continues to develop its regulatory processes, we note improving but not yet adequate sensitivity to these concerns. We commend early achievement of the intent of 12044. Further, DOT agencies should recognize that increasing efforts must be expended. Increasingly improved teamwork by government and industry is essential to provide an optimum balance of values for our society.

Please get in touch with me if further information is required.

Sincerely,

ROBERT A. ROLAND,
President.

Enclosure.

DOT HAZARDOUS MATERIALS REGULATORY ACTIVITIES MCA EVALUATION

Question No. 1. Please assess the adequacy of operation of the Materials Transportation Bureau (MTB). Do you think that MTB is properly coordinating the functions or activities of other modal administrations within DOT that bear on the transportation of hazardous materials?

Answer. MTB operations have undergone considerable improvement over the past three years, and are presently judged at least fair—but still need stronger coordination impact on other modal administrations within DOT. The ability of MTB to coordinate the activities of the modal administrations must be strengthened and improved. For example, U.S. Coast Guard progress relating to portable tank regulation, Federal Railroad Administration regulation of rail equipment, and Federal Aviation Administration positions on packaging of air shipments do not appear to be effectively influenced by MTB recommendations. This impedes the effectiveness of this current structure. We do not believe a change in structure is needed—rather, strong directives from the modal administrators to their personnel that coordination with MTB objectives is expected.

Question No. 2. Please assess the DOT's implementation of its responsibilities concerning the transportation of hazardous materials.

Answer. (*a*) Regulatory Procedures need further improvement. The publication of regulatory proposals to rule making and notices takes excessive time. On major proposals, inadequate time is allotted for public response. DOT action drags, or appears to go dormant without further notice. Docket notice of June 1, 1978 setting forth proposed regulatory policies and procedures was a very helpful move in the right direction. Procedure of initiating advanced proposed rule making principles has merit. However, use of pre-conference hearings to facilitate proposals and proper time planning would lead to quicker, better rule making.

(*b*) Competence of staff in technical areas. The staff is generally competent in most areas. It is not possible to be competent in all areas. Staff does rely on the transportation industry for technical assistance. It should consult even more with shippers of hazardous materials to obtain their available technical experience.

(*c*) Response to public comment. DOT does attempt to consider and be responsive to public comments. We do perceive that DOT's actions result from

the confluence of many public and political forces. We would ask that DOT formulate their own position only after receiving sufficient public inputs, substantiate this position by developed facts and thoughtfully promulgate the basis for decisions to all concerned.

(*d* and *e*) Educational activities involving regulated industries and public officials. DOT appears to recognize the importance of educational activities. We agree with DOT's posture of directing the necessarily limited resources to the education of public officials rather than industry. We agree with DOT's view that industry has the responsibility to educate itself, with some help from DOT. We perceive that local governments and public officials need a much better understanding of DOT regulations. DOT could well enhance its effectiveness in this education by better utilization of available help and participation.

(*f*) Compliance activities, including penalty actions. We have noted a marked increase in compliance activities and penalty actions in the last 12 months. We expect such activity to be sustained until all industry is educated in regulatory compliance. However, too much compliance effort is directed to minor, but easily detected violations; i.e., compliance with communications (placards, shipping papers, etc.) is overemphasized. More compliance attention directed to the shipping container (vents, safety reliefs, closures, etc.) would achieve a more positive contribution to hazardous materials safety. It appears that penalty actions by the U.S. Coast Guard and Federal Aviation Administration have tended toward the minor or "technical" violation side, while the Federal Highway Administration and Federal Railroad Administration appear to concentrate more on significant violations of a repetitive nature which pose undue hazards.

(*g*) Has the DOT systematically identified hazardous materials transportation areas; are DOT's resources devoted to priority areas; and does DOT have technical competence to perform its functions? DOT's recent publication of the future regulatory plan of approach, and establishment of priorities within this plan is commendable, but the process of setting priorities can be improved. Public comments should have been requested on priority setting. The incident reporting system should be used to point out probable cause and to identify priorities. DOT appears to have the general technical competence, in-house or by contract, to perform its functions. However, because of the broad spectrum of technical areas it must address, DOT could make better use of the reservoir of specialized technical talent available from industry.

Question No. 3. Please discuss the functioning of the Office of Hazardous Materials Operations (OHMO) with the Materials Transportation Bureau. Does this office respond in a timely fashion to your requests? Does this office carry out its regulatory functions, practices and procedures adequately?

Answer. An adequate and generally creditable job is being performed by OHMO. Its operation has improved considerably over the last three to four years. While the timing of a number of responses are adequate, most response times must be shortened. Responses to requests for information and interpretation of regulations vary from promptly to never. The bottlenecks could be the number of people, competence, or decision-making freedom. It is impossible to learn the status of exemption authority requests by telephone. Although OHMO has made a significant dent in outstanding exemptions, it still takes more than 120 days to process a request for exemption.

Question No. 4. Are there any regulations or regulatory procedures that, in your opinion, interfere with the transportation of hazardous materials? If so, please provide specific examples in your response.

Answer. Programs which are disruptive to the flow of goods in the nation's transportation system should be undertaken only when the additional safety offsets the adverse effects, the expense on the nation's resources, productivity, and added cost to the consumer. Compliance with Executive Order 12044 would greatly assist in this area. Some specific examples of regulations that interfere with the transportation of hazardous materials are:

The Federal Railroad Administration Inspection of Rail Cars.—This worthy program as promulgated, places the responsibility for such inspection on the nation's railroads. Yet car owners and lessees today are hardpressed to find a railroad which will inspect their cars, resulting in potential serious disruption of normal traffic.

Overpackaging.—Current regulations are relatively restrictive in permitting the use of packagings of more stringent requirements than those shown

in the regulations. A program to increase the flexibility of use of equal or better packagings on appropriate ladings, at the shipper's option, could eliminate many petitions for exemptions.

High Explosive Movement to a Port.—In many instances, the movement of these products are dependent to a great extent on the whim of the local authorities and/or U.S. Coast Guard.

Radioactive Materials.—Local regulations may on occasion impede the free movement of these materials through various locations.

Basic Communications (shipping papers, placarding, labeling).—If these regulations are to be readily understood and implemented by the industry, the inconsistencies requiring exceptions and modal variations must be minimized.

Packaging Regulations.—These regulations should be revised in terms of performance requirements to the extent possible.

Question No. 5. What are the legislative or administrative changes that you believe might improve the Federal Government's (primarily DOT's) activities concerning the transportation of hazardous materials? Is there a need for a Federally-run hazardous materials information system to provide emergency advice concerning accidents involving the transportation of hazardous materials?

Answer. (*a*) We believe the major change which would improve DOT activities concerning hazardous materials would be provision for greater industry participation in rule making in addition to the normal public comment route. Greater participation in the developmental stages is needed, so that published rules reflect a greater consensus of the private and public sectors, in their intent to improve safety.

(*b*) The Federal Government's regulation concerning the *transportation* of hazardous chemicals should be promulgated solely through DOT. Dispersing the authority to regulate the transportation of hazardous materials to other governmental agencies would result in confusing and conflicting regulations.

(*c*) We believe that a Federally-administered hazardous materials advice system is inadvisable because we cannot visualize a system that could perform as effectively as the now-proven Chemical Transportation Emergency Center (Chemtrec). Chemtrec has ready access to thousands of experts within the shippers' organizations, each of whom has highly specailized knowledge of emergency procedures for a limited number of specific chemicals. No one individual or modest sized group of individuals could duplicate the in-depth knowledge of the chemical in question that is available through Chemtrec. Further, through specialized organizations and mutual aid groups such as the Chlorine Emergency Plan (CHLOREP) and the Pesticide Safety Team Network (PSTN), Chemtrec has the additional capability of obtaining local assistance in specific cases regardless of the manufacturer.

The Federal Government might assist in the updating of available communications facilities to permit more direct communications from the accident scene, particularly in rural areas. The Federal Government might also simplify the mandatory DOT and Environmental Protection Agency reporting requirements for incidents involving hazardous materials by providing a single reporting telephone number which, however, should not impede the communication of emergency advice to the incident scene.

The seven years' operating experience with Chemtrec demonstrates the wisdom of Mr. W. C. Jennings, when in August 1969 as Director, Office of Hazardous Materials, DOT, he approached MCA suggesting that the chemical industry take action to provide emergency information for handling chemical transportation emergencies.

(*d*) Finally, the Federal Government, which must regulate in the public interest, should perceive that escalating efforts must be expended as we approach 100% safety. These escalating efforts result in increased costs, and then prices, which will be borne by consumers. Continuous participation by government-industry is essential to provide an optimum balance of values to our society.

NATIONAL AGRICULTURAL CHEMICALS ASSOCIATION,
Washington, D.C., November 6, 1978.

Re NACA Evaluation of DOT's Regulatory Activities Relating to the Transportation of Hazardous Materials.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: This has reference to Senator Howard W. Cannon's letter of August 7, 1978, to Mr. Parke C. Brinkley, now retired, requesting our Association's participation in your evaluation of the Department of Transportation's regulatory activities relating to the safety aspects of the transportation of hazardous materials.

The National Agricultural Chemicals Association (NACA) is a nonprofit trade association representing manufacturers and formulators who produce and sell virtually all of the pest control chemicals and most of the formulated pesticide chemicals used for agricultural protection in the United States. As a substantial volume of the materials offered for transportation via all modes by our member companies may be defined as "hazardous" under Department of Transportation regulations, NACA and our member companies have maintained a close working relationship with the Materials Transportation Bureau (MTB) and its precursor since their inception, and we are thoroughly familiar with that Agency's functioning and operation. We are also acutely aware of their manifestations upon the shipping public and transportation industry alike.

We are gratified by Senator Cannon's invitation to participate in your study relating to the safe transportation of hazardous materials. We hope our attached responses to the questions posed will prove beneficial in your overall assessment of DOT's regulatory activities and, hopefully, serve to further increase the efficiency and improve the overall functioning of an already effective and well-regarded government Agency.

We will be pleased to provide you with any additional information you may require to complete your study.

Very truly yours,

JACK D. EARLY,
President.

Attachment.

NATIONAL AGRICULTURAL CHEMICALS ASSOCIATION

Evaluation of DOT Hazardous Materials Regulatory Activities

Question No. 1. Please assess the adequacy of operation of the Materials Transportation Bureau. Do you think that MTB is properly coordinating the functions or activities of other modal administrations within DOT that bear on the transportation of hazardous materials?

Answer. The Materials Transportation Bureau (MTB) staff is a generally competent one that does coordinate the functions of the MTB with other modal administrators, although not as forcefully and efficiently as envisioned by Congress under the mandate of P.L. 93–633. While there is coordination, there is a decided lack of cooperation by the modes with MTB in the flow of information and processing matters that seriously impede the effectiveness of the current organizational structure. Often there is no agreement between MTB and the modes on interpretations of the regulations which they are expected to regulate and enforce. To rectify this problem, strong directions are required from modal administrators to their personnel that cooperation with the MTB is mandatory, and that some measurement of the performance of such personnel in such matters is required. No change in the present structure is deemed necessary. MTB's efficiency and operations do, however, suffer markedly when key personnel appointments are delayed and frequent reorganizations disrupt the normal flow of activities. A more permanent organization would tend to reduce public confusion that emanates from these frequent changes. It does appear that some regulatory proposals are a result of Congressional pressure and/or special interest groups. As a result, many proposals are not carefully analyzed from a cost-benefit standpoint and the transportation industry and shipping public are faced with the expenditure of millions of dollars on compliance with regulations that have little, if any, benefit to increasing public safety.

Question No. 2. Please assess the DOT's implementation of its responsibilities concerning the transportation of hazardous materials.

Answer. (*a*) *Regulatory Procedures.*—This is an area for major improvement. While MTB has been sensitive to this solicitation of public comment on their proposals, frequently no more than a minimum period of time is provided for industry comment on issues of a substantive nature. Once comments have been received, an inordinate period of time frequently ensues before a final rule is published. Some dockets are kept open for years without conclusion or withdrawal. Greater use of pre-conference hearings and a lengthened comment deadline would lead to more efficient and expeditious rule-making. Exemption procedures are extremely cumbersome and not responsive to shippers' needs. A major improvement in this area has been the rule-making procedures under Docket HM–139, "Conversion of Individual Exemptions to Regulations of General Applicability."

(b) *Competence of Staff in Technical Areas.*—The competency of the staff is generally good. There are extremely competent people and a few whose competency is open to question. In our opinion, the technical staff is too small to effectively perform their required mission. However, technical expertise is readily available and freely offered by industry. The use of this input should be encouraged and expanded upon for the good of the public in general.

(*c*) *Response to Public Comment on Regulatory Proposals.*—As noted above, MTB is sensitive and responsive to public comment. However, at times they tend to lean on weaker commentators who support an internal position of the DOT or respond to political or activist theories rather than upon sound or accepted practices. The public record made by MTB in commenting upon an adopted position should reflect the internal position of modes or MTB members when differing from public comment and when used to base the adopted position of MTB.

(*d*) *Educational Activities Involving Regulated Industries.*—DOT regulations require industry to educate and train their employees with regard to applicable hazardous materials regulation. MTB's posture is leaning in this direction, and rightfully so, by relying more on the regulated industries and other private-sector businesses to develop and administer such educational programs necessary to accomplish the regulatory requirements. MTB does not possess the extensive staff nor the facilities to engage in an activity of this magnitude.

(*e*) *Educational Activities Involving Public Officials.*—Educational activities involving public officials who are concerned with safety in transportation are virtually non-existent, but badly needed. It is in this area that MTB's limited training facilities and efforts should be directed. It is preferable that public officials be educated by knowledgeable personnel rather than by the media or others whose knowledge of technical detail or facts in a particular area is largely superficial, or worse, and based primarily on sensational reports of incidents.

(*f*) *Compliance Activities, Including Penalty Actions.*—Evidence we have seen substantiates the fact that compliance activities and penalty actions have notably increased in the past year. We expect even greater emphasis will be devoted to these activities in the foreseeable future. We feel it unfortunate, however, that what appears to us to be the greater area of concern to the regulators is, all too often. the minor and readily apparent infractions of the regulations such as a missing placard, misplaced label or marking or improperly prepared shipping documents. Of far more importance to safety and transportation would be to effect greater compliance and enforcement toward the proper selection, use, and maintenance of shipping containers and transport vehicles. It is in this area where the maximum benefits to safety are to be reaped. We do agree that broadly publicizing the results of enforcement actions on a regular basis services as an educational tool and also is a deterrent through negative example. We would also comment that compliance activities must be educational in nature as well as penalty oriented.

Do you believe that problem areas concerning hazardous materials transportation are systematically identified by the DOT? Are DOT's resources devoted to priority areas? Does DOT have the technical competence to perform its functions?

Answer. MTB has recently published its program of future regulatory examination and plan of approach. Priorities within the plan have been identified. In establishing the plan and priorities, public comment was not solicited so the final program is one devised by the regulators without the benefit from those

in the field who actually ship and transport hazardous materials. MTB could use additional technical competence because of the broad spectrum of technical areas it must address in its functioning. Industry, however, does have an unlimited reservoir of technical talent which could be used effectively by the MTB, thus precluding the expansion of personnel and budget. Industry has a major interest in developing sound and effective regulations for the safe movement of hazardous materials. The present Congressional and regulatory attitude is to avoid the direct use of the talents of the regulated. We recommend a change in this attitude.

Question No. 3. Please discuss the functioning of the Office of Hazardous Materials Operation within the Materials Transportation Bureau. Does this office respond in a timely fashion to your requests? Does this office carry out its regulatory functions, practices, and procedures adequately?

Answer. The reorganization that occurred in the DOT in early 1978 was an apparent downgrading of the MTB by having it report to the administrator of the Research and Special Programs administration. The obvious downgrading of this function has had its impact in the relationship of this function with the modes. Although the OHMO was relegated the responsibility for exemption authority, it appears that exemption petitions are being passed through the modes, thus significantly delaying their processing. In addition, as a result of such processing, it is almost impossible to learn the status of an exemption through a telephone inquiry. Although the OHMO has made a significant dent in outstanding exemptions, incorporating them into the code, it takes more than 120 days required by the OHMO rules to process a request for an exemption.

Question No. 4. Are there any regulations or regulatory procedures that, in your opinion, interfere with the transportation of hazardous materials? If so, please provide specific examples in your response.

Answer. Regulations which impede the flow of goods in commerce should be promulgated only when mandated from proven safety requirements. Examples of regulations which interfere with the transportation of hazardous materials are:

(*a*) *Over-Packaging.*—Existing regulations are too restrictive in authorizing shippers to use packagings constructed to more stringent standards than those provided for in the regulations. If flexible provisions were made for shippers to use equal or superior packagings to those now provided for designated hazardous materials, a greater number of petitions for exemption would be eliminated.

(*b*) *Packaging Specifications.*—Regulations should be revised to simplify and reduce the excessive number and types of packagings now authorized for use. Stress should be put on performance requirements rather than material specifications where possible.

(*c*) *Rail Car Inspection.*—Requirements for rail car inspection promulgated by the Federal Railroad Administration designate the railroads as being responsible to conduct inspections. While we fully support this program, private car owners and lessees are having a difficult time getting the required inspections made within the allotted time frame provided. The railroads themselves may have a difficult, if impossible, task of complying with these requirements on their own cars as well. We can envision a serious disruption of normal traffic unless some relief in this area is provided.

(*d*) *Hazard Communication.*—Greater standardization of the hazard communication means between all modes is essential if shippers are to understand and fully comply with the regulations. There are presently too many inconsistencies in the shipping paper, placarding, marking and labeling requirements prescribed for the several modes which cause extreme hardship for proper compliance by shippers and carriers. We also believe strict compliance with the provisions of Executive Order 12044 should be mandatory.

(*e*) *Excessive Time to Obtain Exemptions.*—The 120-day time limit to obtain an exemption for other than emergency situations is excessive and not responsive to industry's needs. We feel a 60-day period should be sufficient to process such applications.

Question No. 5. What are the legislative or administrative changes that you believe might improve the Federal Government's activities concerning the transportation of hazardous materials?

Answer. We believe the Federal Government, through its legislative contact with the MTB, National Transportation Safety Board, news media, and public statements, has been over-reacting in its criticism of the transportation of hazardous materials and the regulation of the transportation of hazardous materials.

In viewing the transportation of hazardous materials, it should be put in its proper perspective with other transportation or risk situations that pose a much greater threat to public safety and which receive far less attention. The criticism of the transportation and regulation of hazardous materials is far out of proportion to the actual record. In viewing the accident situations, it must be remembered that the volume of hazardous materials shipped is in the hundreds of thousands of tons annually representing over 250,000 individual shipments tendered daily with the ton miles of movement running into the billions. This is not to say that improvements should not be sought nor critical critiques taken of accident situations but merely that they be kept in proper perspective. The deaths and injuries attributable to hazardous materials over the last five years should be compared with those incurred in such public exposed areas as automobile and commercial and private air transportation as well as others.

We firmly believe that all Federal Regulations promulgated with regard to the transportation of hazardous materials, via all modes, be done through the DOT. Divided authority among various governmental agencies to promulgate and enforce such regulations can only result in mass confusion within the shipping public and transportation industry.

We strongly support greater industry participation in the rule-making process which should be in addition to the normal public comment route. Such participation is essential, particularly in the development stage so that final rules may represent a greater consensus of the public and private sectors in their objective to increase safety in transportation.

Lastly, we do not support nor recommend a federally administered hazardous materials advice system. We fully believe that the necessary technical expertise on hazardous materials is more prevalent within the private sector. Indeed, the private sector has provided such a system which has been publicly acknowledged as an effective organization for emergency response information. This proven system is the Chemical Transportation Emergency Center (CHEMTREC) which has ready access to thousands of experts within the shipping industry. No federally administered system could duplicate the in-depth knowledge available through CHEMTREC. Through specialized organizations and mutual aid groups such as the Pesticide Safety Team Network (PSTN) and the Chlorine Emergency Plan (CHLOREP), CHEMTREC has the additional capability of obtaining local assistance in specific cases, regardless of the manufacturer. Combined with effective industry emergency response programs and educated public emergency response personnel, CHEMTREC's effectiveness could not be exceeded by any federally operated system.

NATIONAL LP–GAS ASSOCIATIONS.
Arlington, Va., October 12, 1978.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: Responding to Senator Cannon's letter of August 23, enclosed are our comments in answer to the questions posed in that letter.

Cordially yours,

ARTHUR C. KREUTZER,
Executive Vice President and General Counsel.

Enclosure.

RESPONSE OF THE NATIONAL LP–GAS ASSOCIATION (NLPGA) FOR COMMENT ON DOT'S REGULATORY ACTIVITIES RELATING TO THE SAFETY ASPECTS OF THE TRANSPORTATION OF HAZARDOUS MATERIALS

FOREWORD

This comment is being submitted by NLPGA in response to Senator Howard W. Cannon's letter of August 23, 1978. NLPGA is the trade association of the LP–Gas industry having a membership of over 3700, including 44 affiliated states. Its membership includes producers, distributors and retailers of LP–gas, primarily propane. Distributors and dealers predominate in this membership. Its

members are engaged in the transportation of LP–gas, classified as a hazardous material, by all transportation modes. This distribution system includes 225,000 miles of cross-country pipeline, 25,000 transport and delivery trucks, 22,000 railroad tank cars, 250 primary storage facilities with a capacity of seven billion gallons, a fleet of 400 barges and tankers, 8000 bulk storage and distribution points, and 25,000 retail outlets. A Fact Sheet further amplifying this industry's position, as may be related to the study, is enclosed as Attachment A ("Facts About Liquefied Petroleum Gas").

NLPGA is vitally concerned with safety in the transportation of LP–gas. Safety is essential in maintaining the industry's position as a supplier of an energy source to the consuming public. We share governmental concern in providing protection for the general public, our customers, and our employees. With this brief foreword in proper perspective, we submit the following response to the indicated questions from Senator Cannon's letter:

1. Please assess the adequacy of operation of the Materials Transportation Bureau. Do you think that MTB is properly coordinating the functions or activities or other modal administrations within DOT that bear on the transportation of hazardous materials?

Inasmuch as our more direct contact is with the Office of Hazardous Materials Regulation and Office of Pipeline Safety Operations our assessment is more reflective of these contacts. However, in the overall view, we consider that MTB has performed with reasonable effectiveness in coordinating the modal administrations. We are aware of little complaint as to incompatibility. We are aware of some criticism as to the time consumed in what is considered as excessive and unnecessary proposal review by others where only one transportation mode is involved. We consider this a minor point of easy correction. Our satisfaction with the coordination effected by MTB does not imply that there is no room for added implementation as time and *experience* dictates. This opportunity is always open.

2. Please assess the DOT's implementation of its responsibilities concerning the transportation of hazardous materials.

We would welcome your comments on such areas as:

a. Regulatory procedures

We consider that the consolidation of DOT regulations for transportation of hazardous materials by various modes was well handled. However, we believe that additional work is needed on simplification and deletion of cumbersome and confusing regulations. It is also our belief that some changes in procedure would be of help to both the regulator and the regulated. These changes would involve (1) ability for greater participation by the regulated, and (2) appeal procedures providing for independent third party involvement. In this respect we particularly cite the development of Docket No. MC 70–1 on hours of service, considered to add little to safety but to create a substantial and unnecessary economic burden.

b. Competence of staff

DOT staff includes professional, qualified transportation people. They have demonstrated competence to carry out their assigned duties through some lack the practical industry experience which is vital to a complete understanding of the problems of the regulated industries. This is added reason for greater industry involvement and use of the censensus standards such as NFPA, ASTM, API, AAR and ANSI.

c. Use of, and response to, public comment on regulatory proposals

DOT is generally responsive to, and recognizes public comment on regulatory proposals. A possible exception was in the development of head shields for tank cars wherein we considered that the best technology of tank car builders was ignored. Related to this the impression arises that the burden of proof is placed on the respondent to disprove the need for proposed regulations rather than on government to substantiate the need with adequate research data. We would hope that DOT's new Policies and Procedures will correct this. However. in no way should this criticism detract from the desirability and need for public comment.

We did note a recent disregard for industry comment. Form RSPA–3, concerning annual leak reports on small petroleum gas systems, proposed in June 1978, was sent to OMB prior to a review of comments.

d. Educational activities involving the regulated industries

Educational activities are considered adequate. DOT seminars for industry and MTB's reports and newsletters have been of great help in keeping the industry informed.

e. Educational activities involving public officials, and the public

LP-gas distribution at the state level has been very fortunate in having informed and competent safety regulatory officials for many years. Attachment B is a list of state laws under which these state officials function. The regulations employed incorporate federal regulatory provisions, where appropriate, and represent national uniformity through use of national standards. Any educational activity directed at these officials should be directed at any necessary update on pertinent federal regulatory changes. The DOT field staff could assist in providing this input.

Educational activities on LP-gas directed at the local fire service has been of greater need. Here again, channels now in use are considered to be of greater value in presenting existing expertise rather than superimposing MTB activity. The National Fire Protection Association (NFPA) has prepared and distributed many training aids that are being widely used by fire departments. NLPGA has assisted in this NFPA work, and in addition carries on educational programs for local fire services.

However, in addition to any program directed at the education of the public official, it will be of help to advise the public of the cost involvement of regulation with relationship to the safety experience and any possible contribution to safety.

f. Compliance activities

Present compliance inspections and activities are considered adequate. Officials may be burdened in enforcing the multiplicity of regulations. If the regulations were reduced to a third or less and included only the essential safety items, the compliance burden would be reduced to a practical level for both the regulated and regulators without any compromise in safety.

There does not always appear to be a systematic correlation by DOT between the identification of problem areas involving the transportation of hazardous materials and the promulgation of regulations. The impression is left that priorities are sometimes established on the basis of political pressure and/or the emotionalism generated by a particular incident rather than on the basis of reason and that departmental resources are, as a result, not as effectively utilized as they might be. DOT should establish to a greater degree priorities with concentration on those modes where the greatest number of deaths and injuries do occur. Again, the concentration should be on the basic cause, i.e. derailment, and not the effect.

3. Functioning of Office of Hazardous Materials Operations.

Performance by this office is considered to be of a high degree, particularity when related to the range of problems requiring attention. This work load does occasionally contribute to delay in response. This may also result from possible unnecessary overemphasis, at least in our opinion, on use of international standards. On balance, we consider present practices and procedures commendatory and would not benefit by additional regulation.

4. Regulations or regulatory procedures that interfere with transportation of hazardous materials.

Present regulations are adequate and do not tend to interfere with transportation by pipelines. However, if the present regulations are expanded, they could result in serious interferences occurring. Example: Class location could result in reduced through-puts on LPG lines. Another possibility of unnecessary and costly regulatory interference is action by OPSO in asserting jurisdiction and attempting to regulate LP-gas systems that are entirely on the consumer's premises. Safety regulation has existed and been enforced by competent state officials for many years as demonstrated by Attachment B. This same possibility of unnecessary regulation exists in any expansion of federal activity to purely intrastate truck movements of LP-gas, such as consumer deliveries.

5. (*a*) Legislative or administrative changes; (*b*) need for federally-run hazardous materials information system.

(*a*) 1. There is a growing tendency among regulatory agencies to regulate by specification rather than employing performance standards. This should

be avoided as it may be counterproductive to safety and does create unnecessary cost.

2. Greater receptiveness to comments from industry associations, and standards writing groups is desirable.

3. Consideration should be given to establishing a Board of Review to establish the validity of MTB proposals prior to initiation of staff work.

(*b*) 1. We do not consider a "federally-run" system necessary. Overview can be carried on without direct involvement. The expertise on the materials involved lies in the industry, not in the government. An industry organization, at no cost to government, will be more effective. This now exists in Chemtrec.

However, to make Chemtrec more effective there is need for a "good samaritan" type law to protect industry companies and personnel providing assistance in emergency situations. Without this protection there is understandable reluctance on exposure to liabilities that may arise.

2. While not related to on the spot emergency situations, there also exists valuable industry assistance to government in the AAR Tank Car Committee. We consider this of value in providing another no cost service, with expertise in tank car construction, maintenance, and repair. This expertise has been particularly valuable in a knowledgeable recognition of the need for compatibility with other equipment, and the problems of interchange rules in providing efficient and speedy service. This AAR Committee has also issued educational material in its manual and publications that serve to protect the public and in its recommendations is supportive of DOT in development of regulations aimed at safe rail transport.

CONCLUSION

We repeat our confidence in the competence of DOT personnel handling hazardous materials regulations. Any need that may exist is in greater receptiveness for industry input, and simplification of regulation, as may be possible, to serve both the regulator and the regulated in advancing safety, particularly when the regulated, as in LP-gas distribution, are now overburdened with federal regulation. We express our conviction that any federal regulation should be limited to interstate movement and intrastate regulation left to the effective and knowledgeable state system that now exists.

* * * * * * *

LP-Gas regulation by State

State and State Authority	*Standards*
Alabama—LP-Gas Commission	NFPA 58.
Alaska—Department of Public Safety	All applicable NFPA.
Arizona—Division of Safety, Fire Marshal	NFPA 58.
Arkansas—LP-Gas Board	NFPA 58.
California—Division of Industrial Safety	Regs parallel 58.
Colorado—State Inspector of Oils	NFPA 58, 54.
Connecticut—State Police; State Fire Marshal	Regs parallel 58.
Delaware—State Fire Marshal	NFPA 58.
Florida—Insurance Commissioner; Fire Marshal	NFPA 58, 54.
Georgia—State Fire Marshal	NFPA 58.
Hawaii—State Fire Marshal	All applicable NFPA.
Idaho—State Fire Marshal—LPG	All NFPA.
Illinois—Dept. of Law Enforcement, State Fire Marshal, Fire Protection Division	NFPA 58.
Indiana—State Fire Marshal	NFPA 58.
Iowa—State Fire Marshal	NFPA 58.
Kansas—State Fire Marshal	LPG Regs parallel 58.
Kentucky—Commr. of Insurance, Fire Marshal	NFPA 58.
Louisiana—LP-Gas Commission	NFPA 58, generally.
Maine—Insurance Commr., Fire Marshal	NBFU 54, 58.
Maryland—State Fire Protection Comm	NFPA 54, 58.
Massachusetts—State Fire Marshal	NFPA 54, 58.
Michigan—Dept. of State Police (Fire Mars)	NFPA 58.
Minnesota—State Fire Marshal	NFPA 58, generally.
Mississippi—Motor Vehicle Comptroller, LG Div	NFPA 54, NBFU 58 & rogs.

Missouri—Agriculture Dept., LPG Inspection Auth	NFPA 54, 58.
Montana—State Fire Marshal	NFPA 58.
Nebraska—State Fire Marshal	NFPA 54, 58.
Nevada—LP Gas Board	NFPA 58.
New Hampshire—Board of Fire Control	NFPA 58.
New Jersey—Comm. of Labor and Industry; State Police	Regs parallel 58.
New Mexico—LP-Gas Commission	NFPA 54, 58 & regs.
New York—Dept. of Environmental Conservation (see note 4)	
North Carolina—Commr. of Agriculture, LP-Gas Board	NFPA 54, 58.
North Dakota—State Fire Marshal	NBFU 58.
Ohio—State Fire Marshal; Dept. of Industrial Services	NFPA 58, plus regs.
Oklahoma—LP-Gas Administrator; LP-Gas Bd	NFPA 54, 58.
Oregon—State Fire Marshal	NFPA 54, 58.
Pennsylvania—Dept. of Labor and Industry; State Police	NFPA 58, plus regs.
Rhode Island—State Fire Marshal	NFPA 58.
South Carolina—LP-Gas Board; State Fire Mars	NFPA 58.
South Dakota—State Fire Marshal	NFPA 54, 58.
Tennessee—State Fire Marshal	NFPA 54, 58.
Texas—LP-Gas Div., Railroad Comm	NBFU 58 plus regs.
Utah—State Fire Marshal	NFPA 58.
Vermont—Dept. of Public Service, State Fire Marshal	NFPA 58.
Virginia—State Fire Marshal	NFPA 54, 58.
Washington—Div. of Safety, Dept. of Labor and Industry; State Patrol	NBFU 58.
West Virginia—State Fire Marshal	NBFU 58.
Wisconsin—Industrial Comm., Dept. of Labor and Industry	NBFU 58, generally.
Wyoming—State Fire Comm. (State Fire Marshal)	NFPA 58.

Notes

1. The above is an outline of the current status of state regulation of the LP–Gas industry as taken from a 1967 NLPGA compilation of state laws, and Appendix XVI–4, Vol. 2, of the GAO report "Liquefied Energy Gases Safety" (EMD–78–28, July 31, 1978). This list should *not* be considered to be all-inclusive or authoritative.

2. NFPA means the National Fire Protection Association, and NBFU means the National Board of Fire Underwriters. NBFU 58 is merely a re-adoption of NFPA 58, the Handbook on the Storage and Use of LP–gas. NFPA 54 is the National Fuel Gas Code.

3. The regulatory authorities listed may not be all-inclusive. For example, some states have split the authority for regulation over transportation, safety, construction, weights and measures, and other matters among several authorities, typically the State Fire Marshal, State Police, and the Department of Labor and Industry. Thus, reference should be made to particular state codes for additional authorities not listed.

4. A 1976 statute gave the Dept. of Environmental Conservation authority over LNG and LP–gas facility siting and transportation. The PSC has published regulations regarding the storage of LP–gas, and the Dept. of Motor Vehicles, the Dept. of Transportation, and the New York Port Authority all have regulations covering the transportation of LP–gas. Finally, the City of New York has adopted regulations effecting LP–gas. "All applicable NFPA standards have been adopted."

5. Where adoption of NFPA or NBFU standards is indicated, these are frequently supplemented with local regulations adapted to a state's own needs.

Facts About Liquefied Petroleum Gas

The LP–gas industry serves over 18 million customers

The liquefied petroleum gas industry provides more than 18 million residential, farm, commercial, industrial and recreational vehicle customers with modern gas

service that is dependable and safe. A rough calculation of the total market in the United States indicates that approximately 60 million people depend on LP–gas for one or more uses. During 1976, all classes of consumers in the U.S. used more than 16 billion gallons of LP–gas, an increase of 33% in just 10 years.

The dimensions of the LP–gas industry are as impressive as the industry's rapid growth in sales volume and numbers of customers served since its founding 66 years ago. Capital investment in the industry in excess of $7.5 billion includes 225,000 miles of pipelines in which LP--gas is transported, 25,000 transport and delivery trucks, 22,000 railroad tank cars, 250 primary storage facilities with capacity of 7 billion gallons, a fleet of 150 barges and tankers, 8,000 bulk storage and distribution points and 25,000 retail outlets. The distribution of LP–gas to millions of consumers requires the effort of more than 86,000 people in the U.S.

As one of the nation's most versatile sources of energy, LP–gas is stored and transported as a liquid under moderate pressure, the liquid occupies a mere 1/270th the space of the gas. When withdrawn from its container either in liquid or vapor form, depending on its use in appliances and equipment, the liquid is changed to a clean-burning gas similar to natural gas. The principal LP-gases are propane and butane, but propane is by far the predominant fuel.

LP–GAS INDUSTRY DEDICATED TO SAFETY

The LP–gas industry is dedicated to safety and the development of sound practices that result in safe handling, storage, transport and utilization of this essential fuel. Safety standards are developed and improved as new materials, equipment and techniques are developed. Then these standards must be approved by well-trained and experienced people in industry and government before they may be applied to the complex business of providing modern, efficient and safe gas service for millions of Americans.

Safe storage and handling of LP-gas, at bulk storage plants and everywhere, is a primary concern to the LP-gas industry. Without safe practices the LP-gas industry could not exist. Assisting the industry in its continuing efforts to safeguard people and property, the National Fire Protection Association prepared detailed standards for proper storage and handling of LP-gas. These standards are entitled "Storage and Handling of Liquefied Petroleum Gases, NFPA No. 58."

The National LP-Gas Association, in existence since 1931, has as one of its primary original and continuing activities the development and stimulation of use of safety standards for handling LP-gas. In this activity, NLPGA participated in the development of NFPA No. 58 when it was first issued in the 1930's. It became an American National Standards Institute standard in the 1960's. NFPA No. 58 reflects the combined thinking of experienced people in regulatory, insurance and industry fields. These standards are revised periodically in light of current technology.

NLPGA has endorsed these standards and the American National Standards Institute has adopted and published them. They are also used in Federal regulations such as the Federal Highway Motor Carrier Safety Regulations and the Occupational Safety and Health Administration Regulations. In addition, most states have adopted NFPA 58, in part or in its entirety, as their regulations.

LP-gas bulk storage containers are fabricated from high tensile strength steel and are constructed according to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VII, Division I, and the requirements of state and municipal authorities concerned.

Design working pressures for various sizes of containers are specified in NFPA No. 58, but it is usual industry practice to design all containers for a minimum working pressure of 250 pounds per square inch gage.

The LP-gas container is protected against excessively high internal pressure by its safety relief valve which, when necessary, opens to let LP-gas vapor escape until the tank pressure drops to its normal range. Then the pressure relief valve closes automatically.

Another important safety device on an LP-gas container is the excess flow valve which polices the volume of LP-gas vapor or liquid moving through the piping system connecting with the tank. For example, if a pipe in the system should be severed accidentally, the container's excess flow valve would close automatically, thus preventing a massive escape of gas. Bulk plants are also equipped with quick-closing valves for fast control of LP-gas under normal and any emergency conditions. They are being equipped with emergency shut-

off valves to protect against ruptured hoses during unloading and loading of trucks and tank cars.

INDUSTRY TRAINING AND EDUCATION

The LP-gas industry has been devoted to training firefighting personnel and the employees of the industry. The objective is to provide the information necessary to permit these capable individuals to deal with any emergency situations that might arise.

Close contacts and cooperation with state and local agencies is extremely important in developing these programs. State Departments of Fire Prevention and State Fire Marshals are almost always involved. The NLPGA has worked very closely with the National Fire Protection Association in the development of NFPA training materials and educational films. Safety information has also been prepared for railroads that outlines the proper procedures for handling LP-gas.

During the last five years the LP-gas industry has conducted 1150 service schools training 44,855 LP-gas industry employees as well as 785 fire schools for 74,326 fire fighters.

TRANSPORTATION AND STORAGE—ESSENTIAL DIFFERENCES

There are many essential differences between an LP-gas bulk storage facility and railroad tank cars transporting LP-gas. Bulk storage containers are permanently mounted and when part of large installations are adequately protected by a fenced enclosure to prevent tresspassing and tampering. These bulk storage containers would never be subjected to the same types of forces involved in train derailments.

Bulk storage plants operated by LP-gas marketers function similarly to warehouses where merchandise is stored before distribution to retail outlets or directly to consumers. LP-gas bulk storage plants are important links in the chain extending from the natural gas wells and refineries where LP-gas is produced to the burners in millions of gas appliances.

Safety record of permanent type LP-gas storage

LP-gas permanent storage installations have experienced an excellent safety record. According to data compiled by the NFPA and NLPGA, there were only 14 incidents in a period of 34 years where tanks larger than 500 gallons capacity have ruptured. This experience includes the use of over 200 billion gallons of LP-gas in these tanks during this period. Many of the causes of those accidents have since been corrected through the improvement of standards.

TRANSPORT OF LP-GAS

LP-gas is moved from sources of production (natural gas liquids extraction plants and oil refineries) and/or intermediate storage locations to centers of retail distribution by trucks, railroad tank cars, pipelines and trucks, pipelines and tank cars, and tankers or barges. The following table indicates the volumes of LP-gas transported by each mode:

HOW LP GAS WAS SHIPPED[1] 1976–75

[Thousands of gallons]

	1976	Percent of total	1975	Percent of total
Truck	677,655	3.4	745,883	3.8
Rail	180,398	.9	289,191	1.5
Pipeline—Truck	17,878,796	90.6	18,207,971	91.9
Pipeline—Rail	899,201	4.6	521,753	2.6
Tanker or barge[2]	107,184	.5	44,436	.2
Total	19,743,234	100.0	18,809,234	100.0

[1] The figures reflected here involve movements of LP gas from points of production or import to distributor or storage facilities.

[2] Approximately 90 percent of the volume in this category is transported by pipelines prior to tanker or barge movement.

Source: Energy Information Administration and NLPGA.

SAFETY EXPERIENCE OF RAIL TRANSPORT OF LP-GAS

Although rail movement of LP-gas has been declining in recent years, it is significant to note that in the 20-year period from 1957 to 1977, 40 billion gallons of this product was transported by rail exclusively. This does not include the very substantial amounts of product transported by combination pipeline-rail.

Federal Railroad Administration statistics on railroad accidents have not been compiled in enough detail to provide data on LP-gas only. The information instead covers the type of rail cars involved. The data indicated that during the 1969–1974 period—a time of widespread publicity on freight train accidents—23 people were killed and 936 injured throughout the United States in accidents involving cars of the type used to transport LP-gas. Some of these accidents involved substances other than LP-gas.

The LP-gas industry is vitally concerned with the safe transportation of LP-gas by rail. Accidents like the one that occurred at Waverly, Tennessee on February 24 produce immediate, natural and severe adverse reactions. Unfortunately, in reacting too often the public and the media fail to consider many important points.

The program to provide protection against the puncture of tank car heads or ends is based on an assumption that derailments will continue to occur. The program fails to deal with the basic problem, which is derailments. LP-gas tank cars and the products in them have not been the cause of derailments.

The root cause of derailment include : conditions of roadbeds, failure of running gear, mostly associated with other cars ; and improper operating and maintenance practices. The March 27, 1978 issue of Business Week magazine noted that 55% of 7,700 derailments in 1976 were caused by bad tracks, and that in 1973, 48 of 7.839 derailments were caused by track problems. It is estimated that 12% of the nearly 300,000 miles of track in the U.S. is not in proper condition.

A number of important steps are being taken to improve tank car design and construction. The LP-gas industry and other industries together with the government were involved in a $4 million research project which led to the development of modifications to pressure tank cars. These include protection of the tank heads against puncture, interlocking couplers, paint-on coatings to protect cars from overheating should fire break out in a derailment, and heat-resistant insulation covered by a heavy steel jacket.

The LP-gas industry is currently involved in a stepped-up program to retrofit existing tank cars with these safety measures. Starting January 1, 1978 new cars being built are equipped with these protective measures. The retrofit program alone is costing the LP-gas and tank car industries $300 million. That figure covers the cost of the modifications and time out of service for he cars.

The LP-gas industry is also involved with a Task Force of the Manufacturing Chemists Association and the Association of American Railroads on Rail Transportation of Hazardous Materials. John H. Nichols, Jr., First Vice President of NLPGA and Executive Vice President of Suburban Propane Gas Corp., Whippany, N.J., is on the steering committee of this task force. The group is investigating railroad operating practices, maintenance, inspection, training, emergency response, and future retrofit measures.

TRUCK TRANSPORTATION AND DELIVERY

Trucks are indispensable in the transport and delivery of LP-gas from centers of production and terimnals to bulk storage plants, and finally to residential, commercial, industrial and farm customers. Most LP-gas customer throughout the nation depend on trucks to deliver their LP-gas either in bulk or in cylinders. As with rail transportation the LP-gas industry devotes consideration attention to the safe transportation of LP-gas by truck.

Shipment of LP-gas by truck from production sources and terminals to bulk plants and to some large volume users is by vehicle commonly called a "tank truck transport." These vehicles have cargo container capacities generally from 3,500 gallons to 10,000 gallons and are constructed and operated in accordance with the U.S. Department of Transportation Regulations. They are owned and operated by common carriers and private carriers. It is estimated that there are approximately 7,000 of these trucks in LP-gas service. Some trucks travel over 100,000 miles annually. It is estimated all of these trucks travel 430 million miles annually. Cargo tanks of these units are generally constructed of high strength steels of the quenched and tempered type and are equipped with safety controls.

The other type of tank truck used in the transportation of LP-gas is the "bulk delivery truck." These vehicles have cargo containers with capacities from 800

to 3,500 gallons and are used in retail delivery from bulk plant to ultimate consumer. The cargo tanks of these trucks are generally constructed of conventional mild steels and also meet U.S. Department of Transportation Regulations. It is estimated that there are 18,000 trucks of this type in operation. These trucks travel a total of nearly 700 million miles in a year's time. A third mode of truck delivery is that of the cylinder delivery type and the total number of trucks is unknown.

LP-gas truck transportation is regulated by U.S. Department of Transportation Regulations and state regulations. Substantially all of the states use or apply the standards of the National Fire Protection Association as set out in their Pamphlet No. 58, "Standard for the Storage and Handling of Liquefied Petroleum Gases." LP-gas tank trucks are requalified periodically for worthiness according to DOT Regulations. Drivers of trucks subject to DOT Regulations must be qualified and operate the vehicle in accordance with the Bureau of Motor Carrier Safety Regulations.

Safety experience of truck transport of LP-Gas

An Analysis of LP-gas truck accident experience covering the past five years from records available in the NLPGA files indicates a very good safety experience. This analysis shows there have been a total of 192 highway and bulk plant accidents involving LP-gas trucks during the past five years. In this period, 5.65 billion miles were travelled and a total of 146.9 million gallons were delivered with 25,000 tank trucks in operation in each of the 5 years or 125,000 unit years. Half of the 192 accidents were of the highway vehicular type where no LP-gas was released from the trucks. Fifty involved tank trucks with some leakage which was controlled while 32 incidents involved fire or rupture. The remainder involved cylinder delivery trucks. Most of those accidents involving fire or rupture occurred within bulk plant facilities during loading operations. Accidents of this type will be alleviated with the installation of new emergency valves required in NFPA 58.

EMERGENCY RESPONSE TO ACCIDENTS

The NLPGA has cooperated with the Chemical Transportation Emergency Center (Chemtrec) since it was established. Chemtrec is a public service of the Manufacturing Chemists Association based in Washington, D.C. which provides 24-hour telephone service, seven days a week, in supplying emergency information, and coordinating shipper and carrier efforts in coping with accidents such as derailments involving hazardous materials.

The NLPGA has provided Chemtrec with its membership directory containing nearly 5,000 listings of locations where assistance may be obtained. Members of the Association have responded and assisted with LP-gas tank car accidents at the request of Chemtrec.

NATIONAL TRANSPORTATION SAFETY BOARD,
Washington, D.C., September 15, 1978.

MR. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress,
Washington, D.C.

DEAR MR. ROTHBERG: On August 7, 1978, Senator Howard W. Cannon, Chairman of the Committee on Commerce, Science and Transportation, requested that the National Transportation Safety Board respond to questions about Department of Transportation activities in the transportation of hazardous materials. Our response to this request, with supporting information, is enclosed.

We trust you will find the information helpful for your study. Should you require additional information about any of our responses, we will be happy to try to furnish it to you.

Sincerely yours,

JAMES B. KING,
Chairman.

Enclosure.

Question 1. Please assess the adequacy of operation of the Materials Transportation Bureau. Do you think that MTB is properly coordinating the functions or

activities of other modal administrations within DOT that bear on the transportation of hazardous materials?

With respect to the adequacy of operations of the MTB in the hazardous materials safety area, we refer you to testimony of Chairman King before the Committee on April 18, 1978; and to testimony of Member Driver before the Committee on August 21, 1978. We also refer you to testimony of Member Hogue on March 20, 1978, before the Governmental Affairs Committee, and to Chairman King's testimony before the House Subcommittee on Government Operations on April 25, 1978. Additional comments are contained in the material which follows. The Board has observed indications of coordination problems between the Materials Transportation Bureau and other entities within the Department of Transportation. Some examples follow.

The Director of the Materials Transportation Bureau considers the MTB's centralized reporting system as the Department of Transportation's primary source of hazardous materials "incident" data. Yet a separate reporting system is maintained in the Coast Guard for certain marine casualties. Pipeline accident and leak information is retained in another system. The practical effect of these multiple-reporting systems is that a consolidated record of national hazardous materials losses is not maintained and published by the DOT, and the establishment of program priorities is hindered. In his Seventh Annual Report, the Secretary reports that there were 27 fatalities associated with hazardous materials incidents in 1975. Pipelines are not mentioned in the report, yet most materials moving through pipelines are "hazardous" in that their release can create serious harm; thus, most pipeline casualties are attributable to "hazardous" materials. The same report indicates that there were zero "marine" fatalities and one injury in 1975. Yet, in 1975 four fatalities, 22 missing persons, and 11 injuries were reported in a vessel collision, fire, and explosion involving a crude oil cargo on the Delaware River.[1] In that same year, a bulk liquid vessel unloading operation led to an onshore spill, fire, and explosion which took eight lives,[2] and a gasoline barge fire killed a young tankerman.[3] None of these casualties were counted as hazardous materials casualties because of the way "hazardous" materials are regulated by these modes. Thus, this lack of coordination presents a distorted picture of the comparative safety record achieved among the transportation modes handling hazardous materials.

On March 26, 1974, the National Transportation Safety Board recommended to the Federal Aviation Administration that, to improve compliance levels, it institute rulemaking to require air carriers to notify the shipper and the FAA when a hazardous materials shipment or its documentation deviates in any manner from Federal or air carrier regulations. During recommendation followup conferences with the Federal Aviation Administration, the FAA stated that information for an NPRM to incorporate the recommendation had been forwarded to the Materials Transportation Bureau, Hazardous Materials Board. MTB told FAA that an NPRM would be issued in April 1976. At a subsequent meeting with the MTB staff, MTB's Office of Hazardous Materials Operations personnel stated they were not aware of the reported action. Despite a recommendation by the U.S. House of Representatives' Committee on Government Operations on March 29, 1976,[4] no NPRM has been issued in this important matter. The reasons for this breakdown have been requested, but have not yet been furnished to the Safety Board.

The issuance of the final rulemaking in Docket HM–144 in 1977 also suggests coordination problems. The final NPRM proposing the installation of couplers, head shields, and insulation on Type 112A/114A tank cars was announced in the Federal Register on November 29, 1976. The final deadline for comments to the NPRM was March 13, 1977. Despite the urgency of this problem, announcement of the final rulemaking establishing a 4-year retrofit program was not announced until September 15, 1977. The slight differences in wording between the NPRM and final rules suggest that the delays within DOT were primarily procedural, rather than technical; the reasons for the delays have not been confirmed by the Safety Board.

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[1] Report No. USCG/NTSB–MAR 77–2 "SS Edgar M. Queeny—S/T Corinthos, Collision at Marcus Hook, Pennsylvania on January 1975 with Loss of Life."

[2] *Fire Command,* January 1976.

[3] Hazardous Materials Transportation Accidents, SSP–49, National Fire Protection Association, Boston, MA. 1978.

[4] Committee on Government Operations, House Report No. 94–975, page 39.

Development of cryogenic tank vehicle specifications for highway transportation of cyrogenic fluids has been a matter of industry and regulatory interest since 1960. In 1971, the Safety Board recommended that regulations for oxygen tanks be promulgated at the earliest feasible date.[5] To date, no regulation for cryogenic oxygen or other cargo tanks has been issued by the Department. A Notice of Proposed Rulemaking for cyrogenic tank specifications was issued by the Hazardous Materials Regulations Board (HMRB) on March 1, 1974, in its Docket HM–115. The notice was converted to an Advanced Notice of Proposed Rulemaking on September 10, 1974, with an October 17, 1974, closing date for public comment. During this entire period, cargo tanks built to a variety of designs have been operating under special permits, to transport oxygen, LNG, and other hazardous materials.[6] This delay in the rulemaking suggests coordination difficulties between MTB and the Bureau of Motor Carrier Safety; the specific difficulties have not been identified by the Safety Board.

Question 2. Please assess the DOT's implementation of its responsibilities concerning the transportation of hazardous materials.

We would welcome your comments on such areas as:

a. Regulatory Procedures—

The Board has expressed concerns about hazardous materials regulatory procedures in two areas—rulemaking and exemptions.

With respect to rulemaking difficulties, the problems discussed in the Safety Board's special study of "Risk Concepts in Dangerous Goods Regulations" still exist.[7] These problems included the unclear purposes of the regulations, unevenness of risk under the regulations, and the basis for the existing scheme of the regulations.

With respect to the exemption procedures, the Safety Board has previously testified to the need for improvements before the Committee on April 18, 1978. The best example was described in the Safety Board's letter of August 17, 1971, to the Hazardous Materials Regulations Board.[8] The Safety Board closed its recommendation when Congress adopted Section 107 of the HMTA of 1974. Administration of the regulatory program covering oxygen and LNG highway transportation in bulk vehicles by MTB indicates that the problem was not corrected by Section 107 of the HMTA of 1974. In the absence of cargo tank regulations, pressurized oxygen and LNG moves in cargo tanks operated under exemptions. One of the reasons for issuance of the exemptions, according to MTB, is "to develop information and gain experience concerning innovated forms of packaging, shipping conditions, or carrier operation."[9] Other options for developing such information and experience, such as transporting nonhazardous materials during the test periods and more rigorous safety analysis, would appear much more prudent.

2.b. Competence of staff in the various technical fields involved in regulatory procedures.

Section 109(d)(1) of the HMTA requires the Secretary of Transportation to "establish and maintain facilities and technical staff sufficient to provide, within the Federal government, the capability of evaluating risks connected with the transportation of hazardous materials and materials alleged to be hazardous." We would make two points. In testimony on April 18, 1978, before your Committee, the Materials Transportation Bureau, attempting to rebut NTSB testimony, asserted that "the classification system is the means of identifying hazardous characteristics of materials by their nature and degree, and is the key to the overall regulatory system for hazardous materials, including packaging, marking, labeling, documentation and vehicle placarding."[10] This assertion serves as an excellent example to illustrate basic differences between the perception of risk evaluation by the Materials Transportation Bureau and its staff, and by the National Transportation Safety Board. The determination of the risk posed by hazardous materials in transportation requires consideration of many other factors than just the inherent properties of a material. Risks are a function of many factors—not just the inherent characteristics of materials. Risks are a function of containment system; the handling of containment systems during loading, trans-

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[5] NTSB Recommendation H–71–46.

[6] See Seventh Annual Report of the Secretary of Transportation on Hazardous Materials Control, pages E–1 through E–41.

[7] NTSB Report STS–71–1 "Risk Concepts in Dangerous Goods in Transportation Regulations."

[8] Letter to Chairman, Hazardous Materials Regulation Board, dated August 17, 1971.

[9] See Reference 6, page E–1.

[10] Page 39, Hearing report No. 95–76.

portation, unloading and storage; what happens to the container and the hazardous materials contents in accidents; the emergency response actions during such accidents; the time available for persons to react to unintentional releases; the performance of safeguards and procedures designed into the transportation system; routes of movements; maintenance practices; driver capabilities; and numerous other factors, in addition to the inherent nature of the materials. The identification of these factors and their relationships during anticipated transportation conditions is required to identify risks and achieve adequate control over these risks.

The MTB's announced intention to contract studies for risks analysis of hazardous materials transportation is an indication of the degree to which it has complied with section 109(d)(1) of the HMTA. With in-house capabilities to evaluate risks envisioned by Congress, the MTB would have the staff capabilities to establish rational regulatory safety priorities, evaluate the efficiency of alternative countermeasures, improve its program management information systems, and prepare the risk analysis guidelines recommended by the Safety Board for both exemptions and regulatory actions.[11] As an example of the adverse practical consequences of this lack of in-house analytical capability, consider the lack of safety analysis guidelines. Without such guidelines, petitioners for rulemaking or exemptions must guess about supporting materials they are required to submit for analysis by the Office of Hazardous Materials Regulations during consideration of the petitioner's request. How is one to demonstrate conformance to the "level of safety" requirements of section 107 of the HMTA? How can MTB assure equitable technical treatment of petitioners? How can the public commenters identify the adequacy of the controls if the concerns to be addressed are not identified through a risk analysis?

It is of interest to note that more than 5 years after the Safety Board's recommendation was released,[12] and approximately 3 months after the House Committee on Government Operations discussed the adequacy of MTB's safety analyses,[13] the Office of Hazardous Materials Operations announced in its June 1976 news letter that the Materials Transportation Bureau intended to undertake the task of formalizing, into a definite methodology and format, safety analysis which will be used as a basis for rulemaking and exemptions in its regulatory actions. Approximately 2 years later, the Board was informed that a request for proposals was being circulated to analyze the risk of transportation of certain explosives in three modes. During this entire period, rulemaking and issuance of exemptions has continued unabated; the analytical basis and criteria for these safety actions remain hidden from technical scrutiny and assessment.

2.c. Use of, and response to, public comment on regulatory proposals.

The Materials Transportation Bureau has generally been responsive to comments on rulemaking proposals by the National Transportation Safety Board in the preambles to notices amending the regulations.

Solicitation of comments from members of the public who have responded to Notices of Proposed Rulemaking or Advance Notices of Proposed Rulemaking would seem appropriate for the Committee's study. The Safety Board is aware of informal complaints about placarding suggestions by respondees to Notices of Proposed Rulemaking in MTB Dockets HM–103 and HM–112, for example, but has not acted specifically on these complaints because the safety analysis guidelines would resolve them. Problems with effective dates for amendments in these and other dockets are also known to have occurred.

2.d. Educational activities involving the regulated industries.

The Safety Board has relied on the description of the Department's efforts in the area of education and training found in the Annual Reports of the Secretary of Transportation on Hazardous Material Control.

In addition to the Department's programs, trade publications and individual firms in the private sector also give extensive coverage to hazardous materials regulatory activities and training programs, which heightens awareness of the existence of hazardous materials safety regulations.

The Department's activities will be addressed in the Safety Board's forthcoming report on Compliance Assurance Programs for Hazardous Materials Regulations.

2.e. Educational activities involving public officials who are concerned with safety.

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[11] NTSB Recommendations HM 75–1, I–76–2.
[12] NTSB Report STS–71–1, released April 12, 1971.
[13] House Report No. 94–975, dated March 29, 1976.

One of the major continuing concerns of the Safety Board has been improved education of public officials who are confronted with hazardous materials transportation emergencies during the course of unintentional releases or accidents. In a 1969 recommendation, the Safety Board proposed that the Department develop a training program to enable local public safety officials to achieve safer outcomes in such emergencies. Such a program was finally developed in late 1977, and is now being distributed through the National Fire Protection Association, primarily to fire service officials.

A very significant although subtle issue is what public officials should be instructed to do in hazardous materials transportation emergencies. Presently, guidelines are published in numerous reference books or pamphlets, and these guidelines are sometimes at variance with each other. In addition, they are usually couched in general terms which are intended to cover a broad range of emergencies. However, individual decisionmakers must deal with the specifics of any emergency which arises. These decisions reflect the expected behavior of the hazardous materials involved in the emergency. Methods for identifying this behavior are presently receiving very little attention. Improved safety analysis of petitions for rulemaking or exemptions could be used to attack this problem. Until this occurs, programming the emergency response of public safety officials will continue to be speculative, at best. Of concern to the Safety Board is that public safety officials must continue to improve their actions on the basis of their interpretations of training materials to which they have been exposed. The hazardous materials emergency response network envisioned by the Safety Board to overcome these problems is discussed in its report of its April 1978 hearing.[14]

Other Departmental actions were discussed by Chairman King in the Committee's hearing report on S. 1896, April 18, 1978, and in testimony before the House Government Operations Subcommittee on April 25, 1978.

2.f. Compliance activities, including penalty actions.

The Safety Board is concluding a special investigation of the Department of Transportation's compliance assurance activities in connection with hazardous materials transportation safety regulations. A full report of its investigation and findings will be issued before the end of 1978.

2.g. Do you believe that problem areas concerning hazardous materials transportation are systematically identified by the DOT?

Are DOT's resources devoted to priority areas? Does DOT have the technical competence to perform its functions?

The Safety Board has expressed its concerns that problem areas concerning hazardous materials transportation safety are not systematically identified by the DOT, and resources are not devoted to safety priority areas. In addition to reasons described in the Safety Board's testimony at the Committee's April 18, 1978, hearings, our concern was reinforced by information furnished to the Safety Board during its April 4–6, 1978, public hearings on Derailments and the Carriage of Hazardous Materials, by the Bureau of Explosives of the Association of American Railroads. The Bureau of Explosives has been involved in achieving safe hazardous materials transportation since 1905 in the railroad industry. In its May 15, 1978, reply to questions raised during the hearing, the Bureau's Director stated:

"It is difficult to understand the regulatory direction taken by the MTB. There are no clearly delineated goals or objectives that I can identify which define their regulatory priority. They have taken the lead in consolidating the hazardous materials code for all modes and all shippers into one document. This, of course, has been generally welcomed by the hazardous materials industry. However, of the 160 Petitions for Rulemaking developed by the Department over the past 10 years, relatively few have spoken to the issue of the safety in the transportation of hazardous materials. HM–38, HM–90, HM–144, and HM–125 are the most notable. Most other regulatory actions have been taken without any clear statement as to how these actions would improve safety in transportation. More fundamentally, there has been no followup to assure that the regulatory actions undertaken by MTB have created the desired results. Without clearly identify-

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[14] Report No. SEE–78–2 "Safety Effectiveness Evaluation—Analysis of Proceedings of the National Transportation Safety Board into Derailments and Hazardous Materials, Apr. 4–6, 1978."

ing problem areas and following up on the effectiveness of the solutions, it is difficult to believe that the MTB's regulatory activity has made substantive impact on the safe transportation of hazardous materials."

Our previous comments about DOT's in-house capability to evaluate risks are revelant to the latter part of this question.

Question 3. Please discuss the functioning of the Office of Hazardous Materials Operations within the Materials Transportation Bureau. Does this office respond in a timely fashion to your request? Does this office carry out its regulatory functions, practices, and procedures adequately?

With respect to Safety Board hazardous materials recommendations, responses have not always been timely. In one instance, the Department did not respond to Recommendations I–77–2&3 within the prescribed statutory limit. The number of open hazardous materials recommendations for which the Office of Hazardous Materials Operations is the responding entity is large in portion to the total number of recommendations issued. The recommendation status is summarized on the attached Appendix A.

With respect to the regulatory functions, practices, and procedures carried out by the Office of Hazardous Materials Operations, the Safety Board's assessment would be influenced by significant differences in the philosophy and approach to hazardous materials regulatory programs. Some of these differences can be observed in the conflicting testimony between the MTB and the NTSB during the April 18, 1978, hearing before the Committee. For example, MTB views the objectives of the classification system as signifying accident risks before accidents occur; the Safety Board views the classification system as unsuited for this purpose. (NTSB RAR–72–6) The MTB has viewed CHEMTREC as meeting the public need addressed by Section 109(d) of the HMTA; the Safety Board views CHEMTREC as only one part of the effort needed under that section (NTSB–SEE–78–2). The Materials Transportation Bureau refusal to consider a bulk carrier registration program and its interpretation of Section 106 of the HMTA reflects another significant difference from the views of the National Transportation Safety Board. (NTSB Recommendation I–76–5). The role of exemption procedures and their administration is another area of significant difference between the Safety Board and the MTB (NTSB Recommendation H–71–45, I–71–2&3, HM–75 1&2). The role of the Office of Hazardous Materials Operation in developing risk analysis capabilities is another area of difference (Recommendations H 71–28 thru 32, HM 75–1&2, I–76–2, I–76–11). The absence of a mechanism for evaluation of DOT emergency response advice and regulatory actions is still another area of substantial differences (Recommendation I–76–9, 10&11).

One result of these differences is that the Safety Board uses different criteria for evaluating the success of the regulatory programs. Under the circumstances, the resultant conclusions about the regulatory program adequacy in Hazardous Materials will be quite different between the MTB and the NTSB.

Question 4. Are there any regulations or regulatory procedures that, in your opinion, interfere with the transportation of hazardous materials? If so, please provide specific examples of your response.

One aspect of the regulations that impedes safety and may interfere with the transportation of hazardous materials is the multiplicity of regulations, particularly in export/import transportation. The Safety Board proposed that the Department publish a cross-reference list of commodity descriptions contained in various international hazardous materials regulations to reduce the likelihood of misdescribing regulated shipments, with their potential adverse consequences (Recommendation I–78–1). Inconsistencies in regulations governing domestic shipments have been noted among modes and among regulations applicable in different countries for international shipments.[15] Harmonization of these regulations, without sacrificing safety while goods are moving within the United States territory, will require careful safety analyses and skillful negotiations in the future.

Of concern to the Safety Board has been the continuing refusal of the Materials Transportation Bureau and Office of Hazardous Materials to recognize air transportation regulations which have been adopted by over 50 countries, as

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[15] NTSB Report AAR–74–16 "Pan American World Airways, Inc. Boeing 707–321C, N458PA, Boston, Massachusetts, November 3, 1973."

published in the International Air Transport Association (IATA) tariffs. Rejection of these regulations,[16] modeled after U.S. regulations during the early stages of their development, has resulted in an increasing shift toward the United Nations scheme of regulations, and increasing divergence between U.S. domestic and IATA regulations.* Compliance with dual regulations in international air transportation has potentially adverse safety effects due to potential noncompliance with U.S. regulations, and the confusion about which regulations should be followed for a specific multi-modal international movement.

Another MTB procedural problem can be found in connection with the closing of Safety Board recommendations. Until about June 1977, the Safety Board would close out its recommendations in good faith when the MTB published a Notice of Proposed Rulemaking (NPRM) that appeared to fulfill the intent of the recommendation. Because of experiences such as the rulemaking delay with Recommendation H–71–46, Docket HM 115, the Safety Board has changed this policy. Recommendations are no longer closed until a notice of final amendment and effective date is published in the Federal Register.

Another aspect of this problem is that when MTB delays rulemaking after the closing date for comments to an NPRM, it is not required to notify the public or anyone else of its action or plans. The resultant uncertainty about what regulatory action is likely to be imposed impedes Safety Board consideration of potential recommendations, and can frustrate industry safety investment decisions. The publication of the agency's regulatory plan may alleviate some of this uncertainty if the agency does not alter its plan and schedules during rulemaking.

Question 5. What are the legislative or administrative changes that you believe might improve the Federal Government's (primarily DOT's) activities concerning the transportation of hazardous materials? Is there a need for a federally-run hazardous materials information system to provide emergency advice concerning accidents involving the transportation of hazardous materials.

At this time we see no need for substantive changes to P.L. 93–633. We believe Senate Commerce Committee recognized the needs in the hazardous materials transportation safety field when it converted the administration's 1973 bill, S. 2064, into a new bill, S. 4057, with far broader provisions and authority for the Secretary of Transportation. However, DOT's actions since passage of P.L. 93–633 (containing most of the Senate Bill 4057 language) create the strong impression that MTB's perspective is still limited to the provisions of the Administration's original 1973 bill. While new procedural and enforcement regulations have flourished (49 CFR 102 and 107) administration of substantive provisions added to the bill by the Senate, such as 104, 106, 107, 108 and 111 of the HMTA have either been resisted, delayed or implemented in a way that seems inconsistent with the spirit of the legislation as we understand it.

With respect to a federally-run hazardous materials emergency information system, the Safety Board has reported on its analysis of such needs in its April 4–6, 1978, report.[17] The Safety Board's view is that the Federal role is to provide leadership for the development of a hazardous materials emergency response network composed of regional, state or local hazardous materials emergency centers with communications networks. This would make needed expertise available to help local public safety officials diagnose the nature of an emergency, identify appropriate actions to take, and achieve the safest outcome. With one call to such centers, both guidance and additional resouces could be made available to the local safety official in charge of the emergency. It is envisioned that the DOT would provide the leadership for development of such a network and assure the availability of Federal support and resources to local public safety officials who are and must continue to be in charge of these emergencies because of the time frame in which action is required.

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[16] MTB Response to NTSB Recommendation I–78–1.
*Forthcoming ICAO regulations may further exacerbate this problem.
[17] NTSB Report SEE–78–2.

APPENDIX A

STATUS OF NTSB HAZARDOUS MATERIALS SAFETY RECOMMENDATIONS AS OF JULY 20, 1978

	Total	Open	Under review
I. All recommendations, including hazardous materials recommendations:			
Aviation	1,031	258	25
Railroad	410	151	37
Highway	468	179	38
Pipeline	420	214	51
Marine	366	169	46
Intermodal	34	24	70
Total	2,729	995	36
II. Hazardous materials related recommendations only:			
Aviation	13	1	8
Railroad	45	12	27
Highway	39	11	30
Pipeline	118	76	64
Marine	49	30	61
Intermodal (HM)	17	14	82
Total	281	144	51

PRIVATE TRUCK COUNCIL OF AMERICA, INC.,
Washington, D.C., November 22, 1978.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service,
Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: We are submitting this statement in response to a request we received from Senate Cannon concerning the Department of Transportation's activities in the area of hazardous materials regulations. We apologize for the delay in sending these comments to you but we hope you understand that it does take a considerable amount of time to receive the necessary input from our membership which is located throughout the country. Further we were unable to begin this process as promptly as we would have liked because of our over-riding concern about another proposal by the Department of Transportation, namely the Hours-of-Service requirements for truck drivers.

Nevertheless we hope these comments will still be in time to assist you in your overall analysis. We commend you for undertaking such a job and sincerely hope that your conclusions will lead to improvement in this facet of the DOT's regulatory process.

Our analysis is as follows:

1. Adequacy of operations of MTB: there appears to be little evidence that MTB is really coordinating with other modes in the DOT and this appears to be primarily due to inadequate staff capacity.

2. DOT's implementation of its responsibilities in transportational hazardous materials:

The civil forfeiture procedures are undesirable and a violation of due process; poor procedures were followed in connection with HM–110, nearly a year and a half's time transpired between the time the notice of proposed rule-making docket closed and the actual rule was issued; this is too long a time to keep the industry waiting;—the competency of staff in various technical fields is open to question; a lack of it was demonstrated in the cargo tank roll over study; in areas of packaging, however, staff does appear to be reasonably competent; but they are not competent in the so-called "exotic" fields; there is a general feeling that the field inspectors are more competent than headquaters staff;—as far as educational activities are concerned, the DOT's hazardous materials seminars are probably adequate, althought we even learn that activity may be too limited when compared to the need;—the DOT does a poor job of educating the Congressmen who determine MTB's policy—it appears that DOT does very little in this regard;

Concerning the compliance activities and penalty actions, the field staff should be strengthened and present rules enforced rather than constantly adopting new rules.

The recent practice of issuing six months regulatory agenda's by the DOT does help in systematic identification of problem areas; however, the daily flood of hazardous materials activities in the Federal Register continues and it is confusing, causing great difficulty in picking out major activity areas over minor activity areas; the MTB's resources are not properly allocated to the problem areas; it appears that in recodifying hazardous materials regulations for the 1974 Hazardous Materials Act, the MTB is concentrating on too many minor and relatively unimportant areas rather than high risk areas.

3. Generally the MTB does not respond on such matters as interpretations in a timely fashion; requests for exemptions, however, do appear to be met in a timely fashion;

4. a. Any and all criticism of present MTB operating procedures as indicated in this filing, impede in some measure the transportation of hazardous materials;

b. The various states are also guilty of regulations which directly interfere with the transportation of hazardous materials, for example, some states impose a 50 mile per hour speed limit on transporters of hazardous materials.

5. A basic administrative change which would improve MTB's activities is the provision for more field inspectors to enforce existing rules; there is however, no need for a federally run hazardous materials information system to provide emergency advise concerning accidents. DOT should recognize presently existing Chemtrec as best suited to do this.

In conclusion, we would again point out, we do not intend in any way for this to be an entirely comprehensive analysis of the present hazardous materials regulations and procedures of the DOT. We presume that you have heard from those trade associations more directly involved in this subject. The Private Truck Council does, however, have its members, many companies who transport hazardous materials and as such, we must at least try to keep this as high a priority as is possible within our other overall objectives. So, within that context we respectfully submit this filing.

Sincerely,

JOHN C. WHITE,
Executive Vice President.

DEPARTMENT OF PUBLIC SAFETY AND CORRECTIONAL SERVICES,
OFFICE OF THE FIRE MARSHAL,
Baltimore, Md., October 9, 1978.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division, Congressional Research Service, Library of Congress, Washintgon, D.C.

DEAR MR. ROTHBERG: This will acknowledge receipt of your letter of August 31, 1978. I regret the delay in answering; however, we have had recent contact with Columbia LNG, which had a bearing on my response.

In answer to the questions you have propounded, I will use the numbering system utilized in your letter, in order to avoid repeating each question:

(1) We have not had a sufficient amount of experience with the Materials Transportation Bureau to be able to assess its effectiveness in carrying out assigned duties. I feel that the Acting Director is an extremely competent individual.

(2a) DOT's regulatory procedures are, I believe, being carried out in a satisfactory manner. I have noticed through the years reduced influence on the part of manufacturers and shippers, and increased influence on the part of Public Safety officials in the rule making procedure.

(2b) It has been my observation that DOT has retained competent staff personnel in regulatory procedures.

(2c) As noted in (2a), there seems to be increasing response to public comments on regulatory problems.

(2d) I am not in a position to evaluate educational activities within industry. However, this is a controversial subject in that the expenditure of public funds to bring about such education on a large scale may be questionable.

(2e) DOT has continually increased educational activities involving public officials. It would seem that this is a proper public expendture. This agency, for example, has executed a cooperative agreement with the Motor Carrier Safety section of the Federal Highway Administration, to jointly handle matters of mutual interest.

(2f) Although compliance activities including penalty actions, appear to be satisfactory, I believe there is a reluctance on the part of some United States attorney's to prosecute safety cases because they do not appreciate the importance of the activity.

I believe that the problem areas concerning hazardous materials transportation are being systematically identified by DOT, and that priorities are properly identified. It would also seem that DOT has adequate technical competency.

(3) We have found that the Office of Hazardous Materials Operations responds in a timely fashion to our requests and uses regulatory functions in a satisfactory manner.

(4) I am not aware of any regulations or regulatory procedures that interfere with the transport of hazardous materials.

(5) While it may be desirable to have a federally run Hazardous Materials Information System to provide emergency advice concerning accidents, the value of such a system would be dependent on the ability of the system to issue more information then is available from CHEMTREC. I believe that Chemtrec is doing a good job, and am not aware of what other information might be available through a federally run system.

A legislative change which would, I believe, enhance DOT's ability to carry out assigned functions would be legislation to permit contracts with State agencies for carrying out certain DOT inspectional responsibilities. At any given moment, a maximum two or three Motor Carrier Safety Inspectors are available in this State, for example. A contractual arrangement with the states could permit additional personnel to be available to carry out these arduous duties. Even if on a collateral arrangement, this agency, for example, could assign personnel to such duties on a periodic basis. We have, for example, two trained Fire Investigators in the Western two counties of the State (Allegany and Garrett). If these Investigators could spend 5 or 10% of their time on Motor Carrier Safety duties, the expenditure would be much more compensating to the Federal government, in that the DOT inspectors must travel from a distant point to that area of the State, and must devote a considerable amount of their work day to travel time. I believe that this example could be multiplied many times throughout the conutry.

As you are aware, this agency and a number of other State Fire Marshal's Offices have a contractual arrangement through the Department of Health, Education and Welfare, in which we conduct all surveys on health facilities for compliance with Medicaid and Medicare's fire safety requirements. At the time the DOT program started, the State may not have had much competency in this field; however, I believe the situation has changed for the better in recent years, and that every state has local agents who would be able to replace DOT in an adequate manner.

Please let me know if their is additional information you desire on this matter.

Sincerely yours,

J. C. ROBERTSON,
State Fire Marshal.

UNION CARBIDE CORP.,
New York, N.Y., September 11, 1978.

Mr. PAUL F. ROTHBERG,
Science Policy Research Division, Congressional Research Service, Library of Congress, Washington, D.C.

DEAR MR. ROTHBERG: This will respond to the letter dated August 7, 1978 which Senator Cannon directed to Union Carbide Corporation in conjunction with your study of the Department of Transportation's regulatory activities relative to the safety aspects of the transportation of hazardous materials. Our response to

the questions is in the same order as presented in Senator Cannon's letter, as follows:

1. Assess the adequacy of MTB's coordinating function

This question relates to the adequacy of operation of the Materials Transportation Bureau (MTB) and its coordination of the functions and activities of other modal administrations within DOT. Union Carbide, of course, has only limited insight into the internal operations of the modal administrations and their day-to-day relationships with MTB. Nevertheless, we recognize that MTB, among other functions, serves as a coordinating agency among the modal administrations and, based on our external observations, we believe there has been substantial improvement in MTB's coordinative activities during the past few years, and particularly since regulatory authority was statutorily consolidated in the Office of the Secretary and delegated by him primarily to MTB.

There continue to exist, however, certain differences in procedures particularly with respect to compliance and enforcement, which do not appear to be necessitated by operational differences or legal requirements. Although such differences have not proved to be excessively burdensome as yet, we anticipate that critical problems could arise in the future, and would suggest that MTB consider the possibility of improved coordination in connection with such matters.

2. The implementation of DOT's responsibilities

(*a*) *Regulatory Procedures.*—We appreciate that certain changes in DOT's regulatory procedures have recently been implemented in accordance with the requirements of Executive Order 12044, but believe it is now too early to assess the likely impact of that Order.

There are, however, certain deficiencies in current MTB regulatory procedures that are neither addressed nor corrected by MTB rules implementing E.O. 12044. Such deficiencies are briefly discussed blow:

(i) MTB rulemaking procedures do not facilitate the full development of all available information on the subject of the rulemaking because there is no efficient and convenient mechanism affording all parties an opportunity to review and comment on the input of other parties. We recognize that persons who respond individually, or small firms or organizations, may not be adequately equipped to serve copies of their statements upon all parties, review all comments, and prepare "rebuttal" statements. We believe, however, that the regulator should have the benefit of the most complete possible information, and that some method could and should be devised to allow and encourage comment on the statements of other parties by those parties with the interest and ability to so participate. To the extent that such opportunity is denied or frustrated, the regulatory process is ineffective in generating adequate and realistic substantive regulations.

(ii) Under MTB procedures, petitions for administrative review are directed to essentially the same individual or group which initially rendered the decision from which appeal is taken. For reasons substantially similar to those discussed at (i), above, we believe that some alternative or additional appellate procedure would significantly improve the regulatory process.

(iii) On some occasions, we have found that the time allowed for response to proposed rulemaking has been inadequate for thorough analysis and responsive comment in timely fashion. At times this inadequacy has been caused by excessive broadening of the scope of proposed rulemaking, encompassing multiple subjects in a single proceeding. We recognize that in some, infrequent, situations, the public interest may require immediate regulatory action, necessitating severe limitation of the time allowed for public comment. In most cases, however, we believe that the public interest is best served when adequate opportunity is afforded for full exploration of the implications of proposed changes in substantive regulations and when the time allowed for response gives reasonable consideration to the complexity, significance and volume of such changes. Frequently, a "prescribed" minimum time is allowed to become the maximum, without regard to such factors. An example of such a prescribed minimum period appears in E.O. 12044.

(iv) Recently, the Federal Aviation Administration (FAA) proposed to publish early notice of petitions for rulemaking (see the enclosed news release, FAA 78–69). We believe the FAA proposal is excellent and could profitably be adopted by MTB as an additional means of effective communication between it and the public.

(v) We are seriously concerned with the potential for mischief which inheres in the process by which international agreements concerning hazardous materials transporting regulations are determined and the impact of such agreements on domestic regulation. It appears that international procedures compel U.S. representatives to take positions on proposed rules without benefit of the systematic opportunity for public comment which normally prevails in domestic rulemaking. Once adopted, however, international regulations tend to exert pressures for adoption of similar domestic rules in order to avoid conflict with the international regime and consequent confusion and expense. It should be said that, in recent years, MTB has taken extraordinary steps to make public adequate information regarding international regulatory developments and to provide suitable channels for public comment thereon. Nevertheless, we believe that more thorough consideration should be given to the identification of additional means to minimize the impact of international regulations developed without full benefit of the domestic regulatory process.

(vi) As a general observation, we believe the regulatory system has suffered from an excessive concern for procedural formality with respect to *ex parte* contacts with industrial technical experts in advance of formal publication of proposed rulemaking. We believe that such concern, while perhaps theoretically sound, is unwarranted by experience and, in fact, has damaged the credibility of the regulatory system by sometimes generating proposals so technically inadequate or empirically unsound as to be unworthy of serious consideration and wasteful of public energies in the preparation of responsive statements. We believe, therefore, that it is important for the Congress, DOT and MTB itself to somehow restore a climate in which MTB will not be constrained to avoid responsible contact with the expertise available in industrial trade organizations, technical committees and societies, and others, within or without the formal procedural structure, while at the same time not impairing the integrity of the regulatory process or public confidence therein.

The foregoing discussion of procedural deficiencies which we perceive is not, by any means, intended to convey a negative impression of the overall adequacy and fairness of MTB procedures and personnel since, in general, we believe that current procedures facilitate reasonably effective implementation of DOT's hazardous materials responsibilities, and that MTB personnel are exemplary public servants.

(*b*) *Staff Competence.*—Generally, we believe that DOT personnel should and do have the technical competence to understand and critically evaluate the presentations made by professionals in specific fields of technical expertise, but that it is unrealistic to expect any regulatory agency to duplicate the multiple varieties of technical competence found in industry. We feel, therefore, that it is proper and practical for government to rely on the expertise of industry, recognizing, of course, that critical evaluation on the part of DOT is mandatory.

One area of concern has been the apparent inability of MTB to retain a full staff of qualified technical people. In recent years, some of the most capable technical personnel appear to have left MTB for other positions in government and industry.

(*c*) *Response to Public Comment.*—An individual shipper has no way of accurately knowing how much or how frequently regulatory agencies utilize public input to the rulemaking process. There have been some indications that, occasionally, public input is not adequately considered. Generally, however, it appears that a reasonable effort is made to respond to public comments. As might well happen, every respondent sometimes feels that his comments did not elicit adequate or favorable response, but from the perspective of the broad range of MTB responsibilities, it does not appear that MTB has been seriously deficient in this regard.

(*d*) *Educational Activities.*—MTB's efforts in connection with educational activities involving regulated industry have been extraordinary. We are not aware of any other federal agency which has undertaken to provide such extensive education regarding its regulations, both directly and through active and continued cooperation with a wide variety of industry groups.

(*e*) *Education of Public Safety Officials.*—Educational activities involving public safety officials appears to be inadequate. We believe there is a significant

lack in the education and training of local police, fire, and other emergency personnel with regard to the handling of hazardous materials emergencies. In addition, we feel that improvement is needed in the coordination of local, state and federal officials involved in such activities.

(*f*) *Compliance Activities.*—In general, compliance efforts should place more emphasis on violations of packaging and similar regulations intended to prevent accidents, rather than the apparent current emphasis on "paper work" regulations which, while important, cannot of themselves be considered preventive in nature.

Frequently, compliance results are brought to the attention of a shipper after an inordinate interval of time. Alleged violations ought to be immediately brought to a shipper's attention so that, if necessary, adequate education and correction may be accomplished while the problem is current.

In general, existing procedures for the imposition of civil penalties do not appear to give adequate recognition to the number of exposures to which a given shipper bay be subject. In view of the extremely detailed and highly complex nature of hazardous materials regulations, it is unrealistic to expect that each and every shipment of hazardous materials will be in complete and absolute compliance in each and every detail. Observed violations, therefore, should be considered in the context of a given shipper's total performance under the regulations relative to the aggregate number of its shipments, the seriousness of such violations, the existence or absence of a genuine concern for, and implementation of, policies and procedures for compliance, and similar factors. Although experience to date is somewhat limited, the current dispersion among at least 5 separate agencies of enforcement responsibilities relative to shipper activities would appear to militate against such "coordinated" consideration of shippers' violations. (Carriers of the several modes, however, are generally subject to enforcement by only a single agency which, incongruously, also has "promotional" responsibilities for such modes.)

(*g*) *"Systematic Identification" of Problem Areas.*—The phrase "systematic identification" is not well defined. Problem areas have certainly been identified by DOT, albeit empirically rather than "systematically", through such mechanisms as the exemption program, petitions for rulemaking, accident reports, and frequent contact with industry and various local, state and federal officials. The identification of such problem areas appears to have been adequate, especially when consideration is given to the fact that *total* systematic identification (on a theoretical basis) would undoubtedly require a substantial expansion of the DOT staff, with uncertain resulting benefit.

(*h*) *Priorities.*—The enabling legislation affords little guidance with respect to those areas which should receive priority attention from DOT. Thus, individual incidents appear to result in "post hoc" assignment of priorities by public representatives and the media, with a consequent understandable disposition by the regulators to dissipate energy disproportionately to the relative magnitude of particular problem areas. A Congressional assessment of intended priorities and a more precise legislative mandate, accompanied by the assignment of resources sufficient for the accomplishment of such mandate, would appear to be necessary preconditions to an effective system of regulatory priorities.

3. Functioning of the Office of Hazardous Materials Operations

As recognized in your inquiry, the current organizational structure of MTB is so new that this question might properly be rephrased to ask "Does the MTB (with the exception of activities relating to pipeline safety) respond in a timely fashion to requests?" Assuming that this interpretation is valid, it is felt that considering existing staff limitations, the response of the MTB has consistently improved. Some additional improvement is needed, however, although we recognize that staff limitations, funding problems, the novelty of recently adopted changes in the statute and regulations, and the pressures generated by numerous Congressional inquiries might be contributing causes of untimely public response in some areas. In particular, more timely response is especially critical in the exemptions procedure since this is probably the area that most critically affects day-to-day industrial operating activities. It is unrealistic to expect that the importance of the exemption mechanism will significantly decline in the reasonably foreseeable future. Accordingly, the procedures necessitated by the recent adoption of the HMTA should be reviewed with an eye towards the possible im-

provement of such procedures, including the compulsory periodic applications for renewal of exemptions.

4. Interference with the transportation of hazardous materials

All regulations, of course, "interfere' 'in some degree with transportation in general and with the transportation of hazardous materials in particular. The problem noted above with respect to the timeliness of the exemptions procedure is a prime example.

Another area of interference with hazardous materials transportation involves those activities subject to regulation through international channels. Differences in hazardous materials regulations and the level of enforced compliance therewith sometimes permit foreign producers or distributors to compete more effectively than U.S. companies. Similarly, conflicts between state and local regulations, on the one hand, and federal regulations, on the other, tend to confuse shippers and carriers. just as do conflict between the rules of the various federal agencies, producing undesirable and uneconomic results. Unwarranted, and sometimes unlawful, restraints arbitrarily imposed by carriers or their employee organizations have frequently created serious impediments to the smooth flow of hazardous materials in commerce.

5. (i) Legislative changes

A clearer definition of jurisdiction as between federal regulatory agencies is certainly desirable in order to eliminate actual or potential conflicts and overlapping involvements. We have seen overlapping efforts to regulate hazardous materials transportation among DOT and various other federal agencies such as EPA, OSHA, NRC and others. In addition, it is felt that more direct federal preemption of state and local regulations, without the complex determinations now required, would be most desirable.

Finally, as noted above, federal regulation should give more precise direction to the regulators with respect to priority considerations.

(ii) Administrative changes

It is possible that administrative adjustments in some areas could substantially alleviate all or a portion of some of the problems previously discussed herein, including changes in rulemaking procedures and more time handling of exemptions applications. We believe that the administrative action which could produce the most immediate and significant results would be the recasting of existing regulations into a revised, more precise, better understandable format for use by all shippers and carriers and, in particular, smaller companies.

(iii) Emergency advice

Although we agree that improvement in emergency response systems is desirable, perhaps with federal advice and assistance, we do not believe at this time that the initiative for such improvements must come from federal efforts or that such improved systems must be federally operated.

Additional comments

We would like to take this opportunity to add some general comments, as suggested in the penultimate paragraph of your letter. In general, our view of the implementation by DOT of its responsibilities is favorable. If, however, current programs are to be continued or expanded, additional staff and funding appear to be needed, along with improvement in retention of qualified personnel and continuity in technical activity. Personnel should also be afforded an opportunity to gain more field experience with shipper and carrier activities in the operational realities of handling and transporting hazardous materials.

We appreciate the opportunity of participating in your study and hope that these comments may prove helpful. We would be pleased to meet with you at your convenience if you wish to do so.

Very truly yours,

L. L. DINTIMAN,
Director, Corporate Distribution.

Attachment.

WESTINGHOUSE D&ESC,
SEPTEMBER 14, 1978.

PAUL F. ROTHBERG,
Science Policy Research Division,
Congressional Research Service, Library of Congress,
Washington, D.C.

Subject: Hazardous materials regulations, congressional oversight.

Since we are primarily a manufacturing plant of electronic equipment and associated parts we do not interfere with MTB to the degree necessary to answer all your questions in a knowledgeable manner.

However, we do ship many classes of hazardous material throughout the world by all modes of transportation; therefore we use the DOT rules and regulations. The following is my comment:

The regulations are complex and written in a manner that makes them very difficult to clearly understand the intended meaning. However if they are misinterpreted it could result in a penalty. I therefore recommend that they should be written in language using the simplest words and phrases that will convey the intended meaning. Sentences should be short and concise as possible. Until they are rewritten so that they can be understood by the average layman to a greater degree than presently, it may be necessary to increase the educational activities.

W. C. YOUNG, *Hunt Valley, Md.*

APPENDIX 4

(Department of Transportation, Research and Special Programs Administration, Materials Transportation Bureau, Information Services Division (DMT-43), Washington, D.C.)

FACILITIES OFFERING HAZARDOUS MATERIALS TRANSPORTATION COURSES AND SEMINARS

Numerous inquiries have been received concerning the identity of facilities offering hazardous materials training. In response to these requests the following four lists have been prepared from existing information in the Bureau and from information received from various State educational offices:

List No. 1: Colleges and Universities offering degree and non-degree courses and seminars in packaging and transportation of hazardous materials.

List No. 2: Colleges and other Institutions offering hazardous material courses as part of a fire science or other emergency service training curriculum.

List No. 3: Corporations and other business organizations which offer courses, seminars and other training material dealing with packaging, marking, labeling, shipping and transport of hazardous materials.

List No. 4: Federal, State and local Government agencies offering courses and seminars on the packaging, handling and transportation of hazardous materials.

We realize that these lists do not include all such facilities and intend to update these lists as additional ones are identified. Please advise us of any changes, errors or omissions noted.

Although each of the facilities listed has been contacted to verify the offering of hazardous training, no attempt was made to list fees, course content, specific locations, schedules or frequency of offering. We have not attempted to monitor or evaluate the courses and seminars offered.

For details concerning the programs offered, please contact the facility directly.

[List No. 1]

COLLEGES AND UNIVERSITIES OFFERING DEGREE AND NON-DEGREE COURSES AND SEMINARS IN PACKAGING AND TRANSPORTATION OF HAZARDOUS MATERIALS

Alabama

University of Alabama, Dept. of Commerce & Business, Dr. Stanley J. Hille, Box J, University, Alabama 35486.

University of South Alabama, Dept. of Marketing and Transportation, Mr. Richard Mathisen, Mobile, Alabama 36688.

California

University of California—Berkeley, Institute of Transportation and Traffic Engineering, Mr. John Schremp, 109 McLaughlin Hall, Berkeley, California 94720.
Golden Gate University, Transportation Program, Mr. Korth, 536 Mission Street, San Francisco, California 94105.

Colorado

Metropolitan State College, School of Professional Studies, Mr. William B. Rourke, Jr., 1006 11th Street, Box 30, Denver, Colordao 80204.

Connecticut

Norwalk Community College, Department of General Business, Mr. Milton Goldstein, 333 Wilson Avenue, Norwalk, Connecticut 06854.

Florida

Florida International University, School of Business, Mr. J. A. F. Nicholes, SBOS–DM 346, Miami, Florida 33199.
Miami-Dade Commmunity College, South Campus, Aviation Department, Mr. Kane, 11011 S. W. 104th Street, Miami, Florida 33156.
Florida Junior College, Kent Campus, Transportation Department, Mr. Paul A. Halloran, Jacksonville, Florida 32205.
University of Miami, Ryder Program in Transport, Dr. Anthony Cantanese, 1541 Brescia, Miami, Florida 33144.

Iowa

Iowa State University, Dept. of Environmental Health and Safety, Industrial Education, Dr. Jack Beno, Building 208C, Ames, Iowa 50010.
Northern Iowa Area, Community College, Dept. of Trade & Industry, Mr. Ted Crawford, 500 College Avenue, Mason City, Iowa 50401.

Kansas

University of Kansas, Radiation Safety Office, Dr. Friesen, Lawrence, Kansas 66045.

Louisiana

Louisiana State University, Nuclear Science Center, Agricultural & Mechanical Ctr., Dr. Curry, Baton Rouge, Louisiana 70803.

Michigan

Michigan State University, School of Packaging, Dr. Hugh Lockhmt, East Lansing, Michigan.

New York

Franklin D. Roosevelt Institute of Maritime Studies, Mr. Ron Bohn, 15 State Street, New York, New York 10004.
Suffolk County Community College, Mr. Joseph E. Galvin, 533 College Road, Seldon, New York 11784.
Syracuse University, School of Marketing and Transportation, The Franklin Program, Dr. Theodore O. Wallin, 129 College Place, Syracuse, New York 12310.
University of Niagara, Institute of Transportation, Travel and Tourism, Dr. Samuel I. Porrath, Buffalo, New York 14109.

Ohio

Ohio State University, Continuing Education Dept., Mr. Bernard J. LaLonde, Columbus, Ohio 43210.
University of Cincinnati, Evening College, Mr. Kenneth Dickins, Cincinnati, Ohio 45221.

Utah

LDS Business College, Special Courses & Conference, Mr. Ross Derbridge, 411 East South Temple, Salt Lake City, Utah 84111.

Washington

Seattle Community College, Business & Commerce Division, Mr. Phil Running, 9600 College Way North, Seattle, Washington 98103.

Wisconsin

Northeast Wisconsin Technical Institute, Dept. of Marketing & Business, Mr. E. R. DeRoche, 2740 West Mason Street, Green Bay, Wisconsin 54303.

University of Wisconsin—Stout, Dept. of Packaging, Mr. Marvin Kufahl, Menomie, Wisconsin 54751.

[List No. 2]

COLLEGES AND OTHER INSTITUTIONS OFFERING HAZARDOUS MATERIAL COURSES AS PART OF A FIRE SCIENCE OR OTHER EMERGENCY SERVICE TRAINING CURRICULUM

Alabama

Alexander City State Jr. College, Fire Science Dept., Paul Blackwell, Cherokee Road P.O. Box 699, Alexander City, AL 35010.

George C. Wallace State Community College, Fire Science Dept., Michael Hough-land, P.O. Drawer 1049, Selma, AL 36701.

Alaska

Anchorage Community College, Fire Science Program, James Evans, 2455 Providence Dr., Anchorage, AK 99504.

Arizona

Arizona College of Technology, Fire Science Dept., William Buttery, Route 97, Winicelman, AZ 85292.

Cochise College, Douglas Campus, Fire Science Dept., Richard Seals, Douglas, AZ 85607.

Cochise College, Sierra Vista Campus, Fire Science Dept., Richard Seals, 901 Columbo, Sierra Vista, AZ 85635.

Eastern Arizona College, Fire Science Dept., Ralph Orr, Thatcher, AZ 85552.

Glendale Community College, Fire Science Dept., Renault Catalano, 600 West Oliver Ave., Glendale, AZ 85301.

Mohave Community College, Vincent Salmon, 1971 Iagerson Ave., Kingman, AZ 86401.

Phoenix College, Fire Science Dept., Robert F. Noll, 1202 West Thomas Road, Phoenix, AZ 85013.

Pima Community College, Fire Science Dept., Ignacio Garcia, 2202 West Anklam Road, Tuscon, AZ 85709.

Scottsdale Community College, Fire Science Dept., Ed Gates, 900 E. Chaparral Road, Scottsdale, AZ 85253.

California

Allan Hancock College, Fire Science Dept., Robert Pile, 800 South College Dr., Santa Maria, CA 93454.

American River College, Fire Science Dept., Louis Quint, 4700 College Oak Dr., Sacramento, CA 95841.

American River College, Placerville Campus, Fire Science Dept., Art Scott, 106 Placerville Dr., Placerville, CA 95667.

Antelope Valley College, Fire Science Dept., Frank C. Roberts, 3041 West Ave., K, Lancaster, CA 93534.

Bakersfield College, Fire Science Dept., Joseph Angelo, 2101 K St. Mall, Bakersfield, CA 93305.

Barstow College, Fire Science Dept., Jack Sherman, 2700 Barstow Road, Barstow, CA 92311.

Butte College, Fire Science Dept., Fred Allen, Route 1, Box 183A, Oroville, CA 95965.

Cabrillo College, Fire Science Dept., David Barbin, 6500 Soquel Dr., Aptos, CA 95003.

Cerro Coso Community College, Fire Science Dept., James Sirman, Ridgecrest, CA 93555.

Chabot College, Fire Science Dept., Glenn Bass, 25555 Hesperian Blvd., Hayward, CA 94545.

Chaffey College, Fire Science Dept., Eddie Smith, 5885 Haven Avenue, Alta Loma, CA 91701.

Columbia Junior College, Fire Science Dept., J. Amundsen, P.O. Box 1849, Columbia, CA 95310.

Cosumnes River College, Fire Science Dept., Cecie Fontanoza, 8401 Center Parkway, Sacramento ,CA 95283.

Cuesta College, Fire Science Dept., Edwin M. Pearce, P.O. Box J., San Luis Obispo, CA 93406.
College of the Desert, Fire Science Dept., Bill Kroonen, 43-5000 Monterey Ave., Palm Desert, CA 92260.
East Los Angeles College, Fire Science Dept., M. S. Pena, 1301 Brooklyn Ave., Monterey Park, CA 91754.
El Camino College, Fire Science Dept., Ed Muraski, 16007 Crenshaw Blvd., Via Torrance, CA 90506.
Fresno City College, Fire Science Dept., Roy Edwards, 1101 East University Ave., Fresno, CA 93741.
Glendale College, Fire Science Dept., Dave Leek, 1500 North Verdugo Road, Glendale, CA 91208.
Grossmont College, Fire Science Dept., Dave Lien, 8800 Grossmont College Dr., El Cajon, CA 92020.
Hartnell College, Fire Science Dept., Thomas C. Campbell, 156 Homestead Ave., Salinas, CA 93901.
Imperial Valley College, Fire Science Dept., W. D. Rudolph, P.O. Box 158, Imperial, CA 92251.
Indian Valley Colleges, Fire Science Dept., Howard Stillwell, 1800 Ignacio Blvd., Novato, CA 94947.
Lake Tahoe Community College, Fire Science Dept., Jim Leavitt, P.O. Box 14445, South Lake Tahoe, CA 95702.
Long Beach City College, Fire Science Dept., Denny Pace, 4901 East Carson Street, Long Beach, CA 90808.
Los Angeles City College, Fire Science Dept., Stanley Schall, 855 North Vermont Ave., Los Angeles, CA 90029.
Los Angeles Harbor College, Fire Science Dept., Van G. Waring, 1111 Figureroa Place, Wilmington, CA 90744.
Los Angeles Valley College, Fire Science Dept., George Yochum, 5800 Fulton Ave., Van Nuys, CA 91401.
Los Medanos College, Fire Science Dept., Carlton Williams, 2700 East Leland Road, Pittsburg, CA 94565.
College of Marin, Fire Science Dept., Joseph E. Berruezo, Kentfield, CA 94909.
Merced College, Fire Science Dept., Lee McCabe, 3600 M Street, Merced, CA 95340.
Merritt College, Fire Science Dept., K. L. Giles, 12500 Campus Dr., Oakland, CA 94619.
Miramar College, Fire Science Dept., R. H. Rossmaessler, 10440 Black Mountain Road, San Diego, CA 92126.
Modesto Junior College, Fire Science Dept., Eldon L. Helm, College Ave., Modesto, CA 95350.
Monterey Peninsula College, Fire Science Dept., Jim Cardwell, 980 Fremont Blvd., Monterey, CA 93940.
Mount San Antonio College, Fire Science Dept., John G. O'Sullivan, 1100 North Grand Ave., Walnut, CA 91789.
Mount San Jacinto College, Fire Science Dept., Benton Caldwell, 21-400 Highway 79, San Jacinto, CA 92383.
Nappa College, Fire Science Dept., Calvin Russell, 2277 Napa-Vallejo Highway, Napa, CA 94558.
Oxnard College, Fire Science Dept., John Dell, 534 South A St., Oxnard, CA 93030.
Palomar College, Fire Science Dept., R. A. Jackon, 1140 West Mission, San Marcos, CA 92069.
Pasadena City College, Fire Science Dept., Victor E. Stephens, 1570 East Colorado Blvd., Pasadena, CA 91106.
Porterville College, Fire Science Dept., Edward M. Buckles, 900 South Main St., Porterville, CA 93257.
College of Redwoods, Fire Science Dept., Don Peterson, Eureka, CA 95501.
Rio Hondo College, Fire Science Dept., Eugene Mahoney, 3600 Workman Mill Road, Whittier, CA 90608.
Riverside City College, Fire Science Dept., Bob Holstrom, 4800 Magnolia Ave., Riverside, CA 92506.
San Bernardino Valley College, Fire Science Dept., Ed Temby, 701 South Mt. Vernon Ave., San Bernardino, CA 92403.
City College of San Francisco, Fire Science Dept., Martin Kilgariff, 50 Phelan Ave., San Francisco, CA 94112.

San Joaquin Delta Community College, Fire Science Dept., Joe Daley, 5151 Pacific Ave., Stockton, CA 95207.
San Jose City College, Fire Science Dept., Robert G. Egan, 2100 Moorpark Avenue, San Jose, CA 95128.
College of San Mateo, Fire Science Dept., Bob Dawson, 1700 West Hillsdale Blvd., San Mateo, CA 94402.
Santa Ana College, Fire Science Dept., Bill Ogden, Seventeenth At Bristol, Santa Ana, CA 92706.
Santa Barbara City College, Fire Science Dept., Melvin Elkins, 721 Cliff Dr., Santa Barbara, CA 93109.
Santa Monica College, Fire Science Dept., Paul Stein, 1815 Pearl St., Santa Monica, CA 90405.
Santa Rosa Junior College, Fire Science Dept., John Healy, 1501 Mendocino Ave., Santa Rosa, CA 94501.
College of the Sequoias, Fire Science Dept., Leroy A. Berg, 915 South Mooney Blvd., Visalia, CA 93277.
Shasta College, Fire Science Dept., John White, 1065 North Old Oregon Trail, Redding, CA 96001.
Sierra College, Fire Science Dept., Frank Strong, 5000 Rocklin Road, Rocklin, CA 95677.
College of the Siskiyous, Fire Science Dept., Bill Rowe, 800 College Avenue, Weed, CA 96094.
Solano Community College, Fire Science Dept., Chuck Kimball, P. O. Box 246, Suisun City, CA 94585.
Victor Valley College, Fire Science Dept., Charles A. Peterson, P. O. Drawer 00, Victorville, CA 92392.
West Hills College, Fire Science Dept., James Butterworth, 300 Cherry Lane, Coalinga, CA 93210.
West Los Angeles College, Fire Science Dept., Marilyn Brock, 4800 Freshman Dr., Culver City, CA 90230.
Yuba College, Fire Science Dept., Don Vedo, 2088 North Beale Road, Marysville, CA 95901.

Colorado

Aims Community College, Fire Science Dept., Bill Adamson, Box 69, Greely, CO 80631.
Community College of Denver Redrocks, Fire Science Dept., Bruce Birza, 12600 W. 6th Ave., Golden, CO 80401.
El Paso Community College, Fire Science Dept., 2200 Bott Ave., Colorado Springs, CO 80904.

Connecticut

State Tech. Colleges of Connecticut, Fire Science Dept., Lawrence M. Ford, 401 Flatbush Ave., Hartford, CT 06106.
University of New Haven, Fire Science Dept., Peter Desio, 300 Orange Avenue, West Haven, CT 06516.

Delaware

Delaware Tech & Community College, Fire Science Department, Mr. Buchanan, Box 1260, Stanton Campus, Newark, DE 19711.
Delaware Tech & Community College, Kent, Fire Science Department, Lowell Barrett, 1823 N. DuPont Highway, Dover, DE 19901.

District of Columbia

University of District of Columbia, Fire Science Department, Mr. Ortiz, 4200 Connecticut Avenue, NW, Washington, DC 20008.

Florida

Broward Community College, Fire Science Department, Mr. Charles Redmond, 3501 S.W. Davies Road, Ft. Lauderdale, FL 33314.
Miami-Dade Community College, Fire Science Department, Mr. James J. Guthrie, 11380 N.W. 27th Avenue, Miami, FL 33167.
Edison Community College, Fire Science Department, Mr. R. V. Concilio, College Parkway, Ft. Myers, FL 33901.
Florida Jr. College, Fire Science Department, Mr. Nat Cole, 11991 Beach Blvd., Jacksonville, FL 32216.

Gulf Coast Community College, Fire Science Department, Mr. Lester Morley, 5230 West Highway 98, Panama City, FL 32401.
Indian River Community College, Fire Science Department, Mr. Henry T. Christen, 3209 Virginia Avenue, Ft. Pierce, FL 33450.
Jacksonville Fire Academy, Fire Science Department, Mr. Max Hendrix, 2345 Roselle Street, Jacksonville, FL 32204.
Palm Beach Jr. College, Fire Science Department, Mr. Donald C. Witmer, 4200 Lyngress Avenue, Lake Worth, FL 33460.
Seminole Community College, Fire Science Department, Mr. James King, Sanford, FL 32771.
St. Petersburg Jr. College, Fire Science Department, Mr. E. Z. Jackson, 2465 Drew Street, Clearwater, FL 33515.
Valencia Community College, Fire Science Department, Rudolph During, P. O. Box 3028, Orlando, FL 32802.

Georgia

Clayton Junior College, Fire Science Department, Mr. Roy Dobyns, Morrow, GA 30260.
Georgia Fire Academy, Fire Science Department, Mr. William Lynch, 534 Clay Street, Marietta, GA 30060.
Southern Technical Institute, Fire Science Department, Mr. J. R. Lee, 534 Clay Street, Marietta, GA 30060.

Hawaii

Hawaii Community College, General Education & Public Service Division, Fire Science Department, Mr. Rex Yamasaki, 1175 Manono Street, Hilo, Hawaii 96720.

Idaho

Boise State University, Fire Service Training, Mr. Tom Tyree, 1910 College Blvd., Boise, ID 83725.

Illinois

Black Hawk College, Fire Science Department, Mr. Simon Roberts, 6600 34th Avenue, Moline, IL 61265.
Carl Sandburg Community Col., Mr. William D. Masters, P.O. Box 1407, Galesburg, IL 61401.
College of Du Page, Mr. John Seffner, 22nd Street at Lambert Road, Glen Ellyn, IL 60137.
State Community College of East St. Louis, Fire Science Department, Mr. Willard Maytubley, 417 Missouri Avenue, East St. Louis, IL 62201.
Elgin Community College, Fire Science Department, 1700 Spartan Drive, Elgin, IL 60120.
Illinois Central College, Fire Science Department, Mr. Daryl Hartwig, P.O. Box 2400, Peoria, IL 61635.
Illinois Institute of Technology, Fire Science Department, Mr. Boyd Hartley, 3300 South Federal, Chicago, IL 60616.
Joliet Junior College, Fire Science Department, Mr. Lawrence Walsh, 1216 Houbolt Avenue, Joliet, IL 60436.
Kishwaukee College, Fire Science Department, Mr. Ernest Harfst, Malta Road, Malta, IL 60150.
College of Lake County, Firce Science Department, Mr. John Shelton, 19351 W. Washington St., Grayslake, IL 60030.
Lewis & Clark Com. Col., Fire Science Department, Mr. R. H. Patterson, Godfrey, IL 62035.
Lincoln Land Com. Col., Fire Science Department, Mr. O. R. Vanderwater, Shepherd Road, Springfield, IL 62700.
Moraine Valley Com. Col., Fire Science Department, Mr. Art Stoike, 10900 South 88th Avenue, Palos Hills, IL 60465.
Oakton Community College, Fire Science Department, Mr. F. Salzberg, 7900 N. Nagle Avenue, Morton Grove, IL 60053.
Parkland College, Fire Science Department, Mr. Fred Johnson, 2400 W. Bradley Avenue, Champaign, IL 61820.
Prairie State College, Fire Science Department, Mr. Eddie O'Connor, 200 E. 197th Street, Chicago Heights, IL 20411.
Rock Valley College, Fire Science Department, Mr. Carl Cascio, 3301 North Mulford Road, Rockford, IL 61101.

Sauk Valley College, Fire Science Department, Mr. A. R. Crowe, Rural Route #1, Dixon, IL 61021.
Triton College, Fire Science Department, Mr. Leo E. Flynn, 2000 Fifth Avenue, River Grove, IL 60171.
William R. Harper College, Fire Science Department, Mr. Charles Henrici, Algonquin & Roselle Roads, Palatine, IL 60067.
Police Training Institute, University of Illinois Continuing Education, Mr. Clifford Van Meter, Armory Bldg., Room 359, Champaign, IL 61820.
City of Naperville Fire Prevention Bureau, Captain William Kuhrt, 133 W. Jefferson, Naperville, IL 60540.
Fire Service Institute, University of Illinois, Mr. Gerald Monigold, 301 South Wright Street, Champaign, IL 61820

Indiana

Indiana Vocational Technical Col., Fire Science Department, Mr. Robert Ruff, 1534 West Sample Street, South Bend, IN 46619.

Iowa

Des Moines Area Com. College, Fire Science Department, Mr. Burges Shriver, 2006 Ankeny Blvd., Ankeny, IA 50021.
Iowa State University, Fire Science Department, Mr. Keith Royer, Ames, IA 50010.
Kirkwood Community College, Fire Science Department, Mr. Donald Fuller, 6301 Kirkwood Blvd., SW Cedar Rapids, IA 52406.

Kansas

Wichita State University, Fire Science Department, 1845 Fairmount, Wichita, KS 67208.

Kentucky

Eastern Kentucky University, Fire Science Department, Mr. F. Dale Cozad, Richmond, KY
Jefferson Community Col., Fire Science Department, Mr. Martin Brown, P. O. Box 1036, Louisville, KY 40201.
Western Kentucky Univ., Fire Science Department, Mr. Charles J. Wright, Bowling Green, KY 42101.

Louisiana

Louisiana State University, Division of Continuing Education, Mr. Dan Delanger, Pleasant Hall, Baton Rouge, LA 70803.

Maine

Southern Main VO/TECH Institute, Mr. Josiah Staples, Fort Road South Portland, ME 04106.
Kennebee Valley Vocational Technical Institute, Fire Science Department, Ms. Barbara Lanman, Gilman Street, Waterville, ME 40901.

Maryland

Catonsville Community College, Fire Science Department, Mr. David Frank, 800 South Rolling Road, Catonsville, MD 21228.
Charles County Com. Col., Fire Science Department, Mr. Steve Maxwell, P.O. Box 910, Mitchell Rd., La Plata, MD 20646.
Montgomery College, Fire Science Department, Mr. Richard Ulrich, Rockville, MD 20850.
Prince Georges Com. Col. Fire Science Department, Mr. Edwin Beller, 301 Largo Road, Largo, MD 20870.
University of Maryland, Fire & Rescue Institute, Mr. Jim Stevens, College Park, MD 20742.
University of Maryland, Fire Protection Engineering, College of Engineering, Dr. John L. Bryant, College Park, MD 20742.
University of Maryland, Maryland Fire & Rescue Institute, Western Maryland Regional Office, Mr. Joseph W. McDaniel, Jr., P.O. Box 3303, LaVale, MD 21502.

Massachusetts

Berkshire Community College, Fire Science Department, Mr. Gene Kamp, West Street, Pittsfield, MA 01201.
Bristol Community College, Fire Science Department, Mr. Robert Sherman, 77 Ellsbree Street, Fall River, MA 02720.

Bunker Hill Community Col., Fire Science Department, Mr. Joseph G. Von Handorff, Austin Street, Middleton, MA 01949.
Cape Code Community College, Fire Science Department, Mr. Robert Tucker, West Barnstable, MA 02669.
Massasoit Community College, Fire Science Tech Dept., Prof. Phillip E. Blye, Brockton, MA 02402.
Middlesex Community Col., Fire Science Department, Mr. Lawrence Rice, 21 Springs Road, Bedford, MA 01730.
Mount Wachusett Com. Col., Fire Science Department, Mr. Herman Gelbwasser, Green Street, Gardner, MA 01440.
North Shore Community Col., Fire Science Department, Mr. Francis M. Ryan, 3 Essex Street, Beverly, MA 01915.
Quinsigamond Com. Col., Fire Science Department, 670 W. Boylston Street, Worcester, MA 01606.
Springfield Technical Com. Col., Fire Science Department, Mr. Albert W. Valentine, 1 Armory Square, Springfield, MA 01105.

Michigan

Henry Ford Community College, Fire Science Department, Mr. Thadeus C. Matley, 5101 Evergreen Road, Dearborn, MI 48128.
Kellog Community College, Fire Science Department, Mr. Allen Vosburg, 450 North Avenue, Battle Creek, MI 49016.
Lake Michigan College, Fire Protection Tech., Lieutenant Devine, Benton Harbor, MI 49022.
Lansing Community College, Fire Science Department, Mr. Robert Ogilvy, 419 North Capitol Avenue, Lansing, MI 48914.
Macomb County Com. Col., Fire Science Department, Mr. Art Kingsbury, Center Campus, P.O. Box 309, Warren, MI 48093.
Madonna College,, Fire Science Department, Mr. James Lynchey, 36600 Schoolcraft, Livonia, MI 48150.
C. S. Mott Community College, Fire Protection, Mr. Fred Lamb, Flint, MI 48503.
St. Clair County Com. Col., Fire Science Department, Mr. Krug, Port Huron, MI 48060.
Washtenaw Community Col., Fire Protection Technology, Mr. (Dean Hackney, Ann Arbor, MI 48107.

Minnesota

Metropolitan Community College, Mr. William Quirk, 1419 Harmon Place, Minneapolis, MN 55403.
University of Minnesota, Fire Science Department, Mr. Roger Young, 3000 University Ave., SE, Minneapolis, MN 55415.
St. Clair County Com. Col., Fire Science Department, Mr. C. F. Knight, 323 Erie Street, Port Huron, MN 48060.

Mississippi

Hinds Junior College, Fire Science Department, Mr. Norman Preston, Raymond, MS 39154.
Jackson State University, Dept. of Industrial Tech, Mr. J. T. Smith, 1235 Lynch, Jackson, MS 39203.

Missouri

Central Missouri State Univ., Fire Science Department, Mr. Robert Semonisck, Warrensburg, MO 64093.
Columbia College, Extended Studies Division, Director of Fire Science, Columbia, MO 65201.
Drury College, Fire Science Program, Ms. Rosa Lee White, 900 N. Benton, Springfield, MO 65802.
East Central Junior College, Fire Science Program, Mr. Ed Conway, Union, MO 63084.
Jefferson College, Fire Science Department, Mr. Raymond Walsh, Hillsboro, MO 63050.
Penn Valley Com. Col., Fire Science Department, Mr. Richard Lehman, 3201 Southwest Trafficway, Kansas City, MO 64111.
St. Louis Community College at Florrisant Valley, Fire Science Department, Mr. Herbert V. McMahon, 3400 Pershall Road, St. Louis, MO 63135.
St. Louis Community College at Forest Park, Fire Science Department, Mr. D. B. Miller, 5600 Oakland Avenue, St. Louis, MO 63110.

University of Missouri, Fire Training, Mr. Bill Westhoff, Jr., 1001 Ashland Gravel Rd., Columbia, MO 65201.

Montana

Montana Board of Public Education, Fireman Training Program, 33 S. Last Chance Gulch, Helena, MT 59601.

Nebraska

Southeast Community College, Fire Science Department, Mr. Don H. Venter, 1309 N. 17th Street, Lincoln, NE 68508.

University of Nebraska-Omaha, Fire Science Department, Mr. H. A. Dahlquist, P.O. Box 688, Omaha, NE 68132.

Nevada

Clark County Community College, Fire Science Department, Mr. Dave Hoggard, 3200 E. Cheyenne Avenue, North Las Vegas, NV 89030.

Northern Nevada Com. Col., Fire Science Department, Mr. William J. Berg, 921 Elm Street, Elko, NV 89801.

New Hampshire

New Hampshire VOC-TEC College, Fire Protection Program, Mr. Thomas Dawson, Prescott Hill—Route 106, Laconia, NH 03246.

Lily Pond Fire School, Lakes Region Mutual Fire Aid Association, Mr. Edward Warfield, 64 Court Street, Laconia, NH 03246.

New Jersey

Atlantic Community College, Fire Science Department, Mr. E. J. Fottrell, Mays Landing, NJ 08330.

Bergen Community College, Fire Science Department, Mr. Horace Chandler, 400 Paramus Road, Paramus, NJ 07652.

Camden County College, Fire Science Department, Mr. John Tenbrook, P.O. Box 200, Blackwood, NJ 08012.

Essex County College, Fire Science Department, Mr. Charles Lowollo, 31 Clinton Street, Newark, NJ 07102.

Jersey City State College, Fire Science Department, 2039 Kennedy Blvd., Jersey City, NJ 07305.

Mercer County College, Fire Science Department, Mr. Al Porter, 1200 Old Trenton Road, Trenton, NJ 08690.

Passaic County Com. Col., Fire Science Department, Mr. Mark H. Schaffer, 170 Paterson Street, Paterson, NJ 07505.

Somerset County College, Fire Science Department, Ms. Carol Murtaugh, P.O. Box 3300, Somerville, NJ 08876.

New Mexico

University of Albuquerque, Fire Science Department, Dr. Stevenson, Saint Joseph Place, Albuquerque, NM 87106.

New York

Broome Community College, Continuing Education, Fire Protection Program, Mr. Ogden Clark, P.O. Box 1017, Binghamton, NY 13902.

Central Texas College Overseas Europe, Fire Protection Technology, Hanau, APO New York, NY 09165.

John Jay College of Criminal Justice, Fire Science Department, Captain Richard Abbott, 445 W. 49th Street, New York, NY 10019.

Monroe Community College, Fire Science Department, Mr. John T. Maher, 1000 E. Henrietta Rd., Rochester, NY 14600.

Onondaga Community Col., Fire Science Department, Mr. Larry Linch, 700 East Water Street, Syracuse, NY 13215.

Rockland Community Col., Fire Science Department, Mr. Thomas Goldrick, 145 College Road, Suffern, NY 10901.

Schenectady County Com. Col., Fire Science Department, Dr. Irma R. Chestnut, Washington Avenue, Schenectady, NY 12305.

Suffolk County Vocational, Education and Extension Bd., Fire Training Center, P.O. Box 128, Yaphank, NY 11980.

Westchester Com. Col., Fire Science Department, Mr. Charles Crowley, 75 Grassland Road, Valhalla, NY 10595.

North Carolina

Central Piedmont Com. Col., Fire Science Department, Mr. George W. Wright, Elizabeth Ave. at N. King's Dr., Charlotte, NC 28204.

Durham Technical Institute, Fire Science Department, Mr. Joseph Wade, 1637 Lawson Street, Durham, NC 27703.

Forsyth Technical Inst., Fire Science Department, Mr. Larry Weaver, 2100 Silas Creek Parkway, Winston-Salem, NC 27103.

Guilford Technical Institute, Fire Science Department, Mr. Harold J. Fegan, P.O. Box 309, Jamestown, NC 27282.

Richmond Technical Institute, Fire Science Department, Mr. Richard McIntyre, P.O. Box 1189, Hamlet, NC 28354.

Rowan Technical Institute, Fire Science Department, Mr. Larry Gibson, P.O. Box 1595, Salisburg, NC 28144.

James Sprunt Technical Inst., Fire Science Department, Mr. Emmel Coggins, P.O. Box 398, Kenansville, NC 28349.

Tech. Inst. of Alamance, Fire Science Department, Mr. Jerry Harris, 411 Camp Road, Burlington, NC 27215.

Western Piedmont Com. Col., Fire Science Dept., Mr. Jerry Rowland, 1001 Burkemont Avenue, Morgantown, NC 28655.

North Dakota

North Dakota Fireman's Assoc., Mr. D. E. (Monk) Gilman, Beach, ND 28621.

Ohio

University of Akron, Fire Science Department, Mr. Harrington, 302 E. Buchtel Avenue, Akron, OH 44325.

University of Cincinnati, Fire Protection, Mr. D. F. Pinger, 100 E. Central Parkway, Cincinnati, OH 45210.

Columbus Technical Inst., Fire Science Department, Mr. Glenn Clark, 550 E. Spring Street, Columbus, OH 43215.

Cayahoga Community College, Fire Science Department, Mr. Fred C. Sutton, 2900 Community College Ave., Cleveland, OH 44115.

Hocking Technical College, Fire Science Department, Mr. William Hennestofle, Route 1, Nelsonville, OH 45764.

Lorain County Com. Col., Fire Science Department, Mr. Walter McGreedy, 1005 N. Abbe Road, Elgrin, OH 44035.

Ohio State Fireman's Training Academ-, Ms. Tina Hazlett, 8895 E. Main Street, Reynoldsburg, OH 43068.

Owens Technical College, Fire Science Department, Mr. William Russell, 30335 Oregon Road, Perryburg, OH 43551.

Stark Technical College, Fire Science Department, Mr. Joseph L. Hafer, 6200 Frank Avenue, NW, Canton, OH 44720.

Oklahoma

Oklahoma State Tech. Inst., Fire Science Department, Mr. Bob Mowles, 900 N. Portland, Oklahoma City, OK 73107.

Oklahoma State University, Fire Science Department, Mr. Dale F. Janes, Stillwater, OK 74074.

Tulsa Junior College, Fire Science Department, Mr. McElyea, 909 S. Boston, Tulsa, OK 74119.

Western Oklahoma State College, Fire Science Department, Mr. Cecil Chesser, 2801 N. Main, Altus, OK 73521.

Oregon

Chemeketa Community College, Fire Science Department, Mr. Cecil Dill, P.O. Box 14007, Salem, OR 97309.

Clackamas Community College, Fire Science Department, Mr. Durwood Thomas, 19600 South Molalla Avenue, Oregon City, OR 97045.

Portland Community College, Fire Science Department, Mr. John Koroloff, 120005 West 49th Avenue, Portland. OR 97219.

Rogue Community College, Fire Science Department, Mr. Mark Burns, 3345 Redwood Highway, Grants Pass, OR 97526.

Pennsylvania

Butler County Fire Chiefs Association, Butler County Fire School, Mr. John Stokes, 124 W. North Street, Butler, PA 16001.

Delaware County Com. College, Fire Academy, Mr. Walter Omlor, Media, PA 19063.
Northampton County Area Community College, Fire Science Department, Ms. Regina Tauke, 3835 Green Pond Road, Bethlehem, PA 18017.
Pennsylvania State Univ., Fire Science Department, Mr. Charles R. Meck, 209 Keller Bldg., University Park, PA 16802.
Com. Col of Philadelphia, Fire Science Department, Mr. Paul Ruhne, 1600 Spring Garden St., Philadelphia, PA 19130.

Rhode Island

Providence College, Fire Science Department, Mr. Roger L. Pearson, River & Eaton Streets, Providence, RI 02918.
Rhode Island Jr. College, Fire Science Department, Mr. John Marmaras, 400 East Avenue, Warwick, RI 02886.

South Carolina

Midlands Technical College, Fire Science Department, P.O. Drawer Q, Columbia, S.C. 29250.
South Carolina Fire Academy, Mr. Paul W. Risher, Jr., Illinois Avenue, W. Columbia, SC 29169.

South Dakota

Fire Service Training, Mr. Jim Slippin, 222 West Pleasant Dr., Pierre, SD 57501.

Tennessee

Chattanooga State Technical Community College, Fire Science Department, Mr. Leslie Owen, 4501 Amnicola Highway, Chattanooga, TN 37406.
Roane State Community College, Fire Science Department, Mr. William C. Marshals, Harriman, TN 37748.
Shelby State Com. Col., Fire Science Department, Mr. Clem Weinrich, P.O. Box 22026, Memphis, TN 28122.
University of Tennessee, Fire Science Department, Mr. Mike Solecki, Charlotte Avenue, Nashville, TN 37219.
Walter State Community Col., Fire Science Department, Mr. Ronald Lemke, Morristown, TN 37814.

Texas

Del Mar College, Fire Science Department, Mr. E. E. Walters, Baldwin at Ayers, Corpus Christi, TX 48404.
El Paso Community College, Fire Science Department, Mr. Gerald B. Money, 6601 Dyer Street, El Paso, TX 79904.
Galveston College, Fire Science Department, Mr. James Frazier, 4015 Avenue "Q" Galveston, TX 77550.
Midland College, Fire Science Department, Mr. Mil Goodwin, 3600 N. Garfield, Midland, TX 79701.
Odessa College, Fire Science Department, Mr. O. Nordmarken, P.O. Box 3752, Odessa, TX 79760.
San Antonio College, Fire Science Department, Mr. Mike Pickett, 1300 San Pedro, San Antonio, TX 78284.
South Plains College, Fire Science Department, Mr. B. P. Robinson, 2404 Avenue Q, Lubbock, TX 79405.
Temple Junior College, Fire Science Department, Mr. S. W. Churchill, 2600 South Robinson Rd., Texarkana, TX 75501.
Texas A & M Univ. System, Engineering Extension Svc., Fire Protection Trng. Div., Mr. David White, F. E. Drawer K, College Station, TX 77843.
Tyler Junior College, Fire Science Department, Mr. R. T. Minter, Henderson Highway, Tyler, TX 75701.
Taxarkana Community College, Social Science Division, Mr. Bob Bell, 2500 N. Robinson Rd., Texarkana, TX 75501.

Utah

Utah Technical College—Provo, Fire Science Department, Mr. G. D. Evans, 1395 North 150 East, Provo, UT 84601.

Vermont

Southeastern Vermont Emergency School, Fire Science Department, Mr. Mark B. Rivers, Director, P.O. Box 44, Brattleboro, VT 05301.
Vermont Fire Fighters Assoc., Mr. Walter Read, East Dorset, VT 05253.

Virginia

George Mason University, Dr. John M. Smith, Gen. Studies, 4400 University Drive, Fairfax, VA 22030.
J. Sargent Reynolds Com. Col., Fire Science Department, Mr. George Kitchen, P.O. Box 12048, Richmond, VA 23241.
Northern Virginia Com. Col., Fire Science Department, Mr. Robert L. Smith, 8333 Little River Turnpike, Annandale, VA 22003.
Tidewater Community College, Fire Science Department, Mr. A. B. Corley, 1700 College Crescent, Virginia Beach, VA 23456.

Washington

L. H. Bates Voc. Tech. Inst., Fire Science Department, Mr. J. F. Wilbert, 1101 So. Yakima, Tacoma, WA 98405.
Columbia Basin College, Fire Science Department, 2600 N. 20th Avenue, Pasco, WA 99301.
Commission for Vocational Education, Fire Service Training, Mr. Edward Prendergast, Airdustrial Park, Bldg 17, LS–10, Olympia, WA 98504.
Edmonds Community College, Fire Science Department, Mr. Gary Isham, Lynnwood WA 98036.
Whatcom Community Col., Fire Science Department, Ms. Barbara Merriman, 5217 Northwest Road, Bellingham, WA 98225.
Yakima Valley College, Fire Science Department, P.O. Box 1647, Yakima, WA 98907.

West Virginia

Community College of Marshall U., Fire Science Technology Program, Mr. Larry Artrip, Huntington, WV 25701.
Fairmont State College—Community College, Fire Science Program, Mr. Jack Clayton, Fairmont, WV 26554.
Parkersburg Community Col., Fire Science Program, Mr. Pat Alford, Parkersburg, WV 26101.
Shepherd College, Fire Science & Safety Tech., Dr. Howard Carper, Shepherdstown, WV 25443.
West Virginia Northern Com. Col., Fire Science Program, Mr. Richard Sambuco, Wheeling, WV 26003.
West Virginia State College, Fire Protection Technology, Mr. Gwinn, Institute, WV 25112.

Wisconsin

Fox Valley Technical Inst., Fire Science Department, Mr. Charles Bavry, P.O. Box 2277, Appleton, WI 54911.
Gateway Tech. Institute, Fire Science Department, Dr. Nevala, 3520 30th Avenue, Kenosha, WI 53141.
Milwaukee Area Tech. Col., Fire Science Department, Mr. Robert L. Wolf, 1015 North 6th Street, Milwaukee, WI 53203.
Moraine Park Tech. Inst., Fire Science Training, Mr. Bob Bruce, 235 N. National, Fond du Lac, WI 54935.
Northeast Wisc. Tech. Inst., Fire Service Department, Mr. William T. Schmidt, 2740 West Mason Street, Green Bay, WI 54303.
Southwest Wisc. VO-Tech. Institute, Fire Service Department, Mr. Don Covert, Bronson Blvd., Fennimore, WI 53809.

Wyoming

University of Wyoming, Fire Science Department, Dr. E. G. Meyer, Laramie, WY 82071.

CORPORATIONS AND OTHER BUSINESS ORGANIZATIONS WHICH OFFER COURSES, SEMINARS AND OTHER TRAINING MATERIAL DEALING WITH PACKAGING, MARKING, LABELING, SHIPPING AND TRANSPORT OF HAZARDOUS MATERIALS

Braniff International Airlines, Hazardous Materials Training, Mr. Gerald M. French, Mgr., P.O. Box 61046, Dallas/Ft. Worth Regional Airport, TX 75261.

E. I. DuPont de Nemours and Co., Inc., Applied Technology Division, Mr. Donald Brown, Wilmington, DE 19898.
Hazardous Materials Advisory Committee, Ms. Judy Reynolds, 1100 17th St., NW, Suite 908, Washington, D.C. 20036.
J. J. Keller, Mr. Joe Nemecek, 145 W. Wisconsin Ave. Neenah, WI 54956.
National Fire Protection Association, Educational Technology Unit, 470 Atlantic Avenue, Boston, MA 02210.
Radiation Service Organization, Mr. George Vargo, P.O. Box 419, Laurel, MD 20810.
UNZ and Company, Mr. Ted Gallagher, 190 Baldwin Avenue, Jersey City, NJ 07307.
Center for Professional Advancement, Ms. Mary Sobin, P.O. Box H, East Brunswick, NJ 08816.
Federal Express, Mr. Wendell Knight, P.O. Box 30167, Memphis TN 38130.
Hazardous Materials Publishing Co., Mr. Frank A. Keegan, 320 W. Main Street, Kutztown, PA 91530.
Manufacturing Chemist's Association, Mr. John Zercher, 1825 Connecticut Ave., Washington, DC 20009.
National Hazards Control Institute, Ms. Cynthia Marsh, Regist., P.O. Box 133, Stanton, NJ 08885.
Southern Pacific Trans. Co., Mr. R. E. Hart, 1 Market Plaza, San Francisco, CA 94105.
Phillips Petroleum Co., Mr. L. L. Opdyke, 151 PBA, Bartlesville, OK 74004.
CONRAIL, Mr. B. L. Swieringa, 1528 Walnut Street, 14th Floor, Philadelphia, PA 19102.
Flying Tigers Airline, 7401 World Way West, Los Angeles, CA 90009.
J. T. Baker Chemical Co., Ms. Carol Morris, Office of Safety Trng., Philipsburg, NJ 08854.
Medical Services Inc., Mr. Larry McGlockun, 2100 West 11th Ave., P.O. Box 2446, Eugene, OR 97402.
Operations Council, American Trucking Assoc., 1616 P Street, NW, Washington, DC 20036.
Training Services, Inc., Mr. Leonard J. Smith, 130 Orient Way, Rutherford, NJ 07070.

FEDERAL, STATE AND LOCAL GOVERNMENT AGENCIES OFFERING COURSES AND SEMINARS ON THE PACKAGING, HANDLING AND TRANSPORTATION OF HAZARDOUS MATERIALS

Ammunition School, DARCOM Ammunition Center, ATTN: SARAC–ASA, Savannah, IL 61074.
Joint Military Packaging Center, Ms. Elsie M. Clark, Aberdeen Proving Grounds, MD 21005.
Sheppard Air Force Base, STC/TTGB, Mr. Speights, Training Manager, Sheppard AFB, TX 76311.
Department of Transportation, Transportation Safety Institute, Mr. Arthur C. Bensmiller, Oklahoma City, OK 73125.
Naval School Transportation Management, Commanding Officer, ATTN: Ms. Jean Jackson, Oakland, CA 94625.

[NOTE: Generally the schools listed above accept Federal and State employees and persons working for organizations that have contracts to furnish goods or services to the Government. For specific details, contact the school(s) of interest to you.]

California Specialized Training Institute, Mr. Chuck Moorman, Deputy Chief, Management Programs, Camp San Luis Obispo, CA 93406.
State of North Carolina, Department of Insurance, Mr. Dawson Nethercutt, Fire and Rescue Services Division, P.O. Box 26387, Raleigh, NC 27611.
Maryland Dept. of Transportation, State Aviation Administration, P.O. Box 8755, Baltimore-Washington International Airport, MD 21240.
Port Authority of New York & New Jersey, World Trade Institute, Ms. Eunice C. Coleman, 1 World Trade Center—55W, New York, NY 10048.
State of Washington, State Criminal Justice Training Commission (PW–11), Mr. Garry E. Wegner, Olympia, WA 98504.

APPENDIX 5

NATIONAL TRANSPORTATION SAFETY BOARD,
Washington, D.C., December 8, 1978.

Mr. WILLIAM C. JENNINGS,
Consultant, Regulatory Procedures, 918 Adams Street, Franklin, Tenn.

DEAR WILL: Thanks for your letter dated November 8, 1978, about your hazardous materials study. The information and comments you requested are enclosed. They are presented in the order in which you raised your points in your letter.

I invite your attention to a few additional personal observations. First, our four hazardous materials staff members have access to and regularly work with many other members of the National Transportation Safety Board's staff, as well as many knowledgeable persons outside the agency. Thus, the Safety Board's capabilities in this field should not be viewed narrowly as being the effort of only four persons.

Secondly, the capabilities of the entire DOT and others, rather than just MTB's capabilities, can be brought to bear on important hazardous materials safety issues. While you referred only to MTB actions in your letter, my public remarks should be viewed in the larger context. The failure of MTB to marshal all these capabilities to resolve some of its problems is probably one of the clearest examples of ineffective management and leadership failure by your successors.

Lastly, your letter carries a strong implication that the MTB's current regulatory plan and projects are all worthwhile, and the NTSB should tell MTB where on its project list each NTSB recommendation should be placed. The Safety Board does not have the responsibility for setting regulatory priorities; that is MTB's responsibility. The Safety Board does look at the results of MTB's efforts in accidents and other incidents or activities and, on the basis of its analyses, identifies opportunities for reducing risks. The Safety Board cannot and should not duplicate the MTB's regulatory efforts, including the establishment of regulatory priorities. The Safety Board should and does develop independent appraisals of MTB's performance. The use to which these appraisals are put will vary with the interests of the users. I believe the benefits of publicity arguing the differing points of view between the Safety Board and MTB on safety questions, including regulatory and other program priorities, are much more important to transportation safety in the long run than the efficiences which might flow from limited staff discussions and agreements reached in bilateral exchanges.

We appreciate the opportunity to convey this information to you.

Sincerely yours,

JAMES B. KING,
Chairman.

Enclosures.

A. HAZARDOUS MATERIALS DIVISION STAFF (4 EMPLOYEES)

1. Registered Professional Safety Engineer, with industry and transportation design operating and management background, and consulting experience.
2. HM Specialist with aerospace engineering surveillance, military explosives technology and HM evaluation and research experience. Physicist
3. HM Specialist with HM transportation operating, marketing and management experience.
4. Secretary with no previous HM experience.

B. COMMENTS ABOUT QUESTIONS

1. The Safety Board is aware of and concerned about the availability and use of resources in MTB. The Department has not claimed lack of resources as a reason for not acting on Board recommendations. Furthermore, when HM recommendations have been addressed to the Secretary to permit flexibility in assigning workloads within DOT, the response has been assigned to MTB, suggesting that resource limitations were not viewed as a problem internally. The Safety Board's concern about MTB's resource allocations is one of several major factors governing its attacks on the exemption process, and is a major reason behind the Safety Board's push for safety analysis guidelines. The discusion on page 26 mut be taken in the context of the emergency response activities, for which no budget or manpower is specifically appropriated or designated to our knowledge.

2. The Safety Board has, upon request, always been willing to share any staff studies with any responsible Federal Agency or employee, and has done so when asked. For example, the Board staff has worked closely with FRA and Coast Guard staff and exchanged information or viewpoints freely and candidly.

3. The Board has identified and described its safety priorities in this field. The "game plan" was set forth in its 1971 special study "Risk Concepts in Dangerous Goods Transportation Regulations." The foremost criterion for the Board's priorities for rulemaking is the rulemaking's impact on transportation safety risks, as reflected in the response of Chairman King which you cited. We have been unable to identify the criteria for MTB's priorities.

4. Public Law 93–633 does not prescribe when the Safety Board should make its recommendations. The very real public demand for action by someone after serious accidents should not be constrained by MTB's current priorities. Therefore, the Safety Board always has and will continue to issue some hazardous materials recommendations following accidents, to minimize human injury from such accidents.

The Board is publishing some HM recommendations separately from accident reports in a series of special reports on the safe transportation of hazardous materials, as indicated in Section 303(a)(5) of Public Law 93–633.

5. With regard to the response to the MTB Regulatory Plan and other testimony before the Senate Committee, if one analyzes the DOT response against the findings of the DOT task force, the Safety Board's reply to Senator Cannon's recent request, the hearings and legislative history about Public Law 93–633, ERDA's safety efforts, and the facts and circumstances of hazardous materials accidents reported by the Safety Board, one can see the inadequacy of the MTB's priorities and plan. The greatest difference appears to lie in the criteria by which MTB's actions are judged by the respective organizations.

With respect to the five areas of disagreement, supplemental comments were furnished to Mr. Rothberg in response to Senator Cannon's request. A copy of the Safety Board's comments is enclosed. The comments speak to the inadequacies of the MTB's positions in greater detail than the original testimony.

On the matter of priorities, the Safety Board described a general approach for setting priorities which has not been adopted by MTB. Until the method for identifying priorities can be agreed upon, differences in the priorities will continue to exist. This is a fundamental and unresolved difference between the two agencies.

Appendix 6

Selected Legislation Introduced during the 95th Congress Related to Hazardous Materials Transportation

H.R. 110—January 4, 1977—Mr. Rooney—Interstate and Foreign Commerce

Summary.—(Abstract as introduced): Directs the Secretary of Transportation to prohibit individuals engaged in commerce from receiving for shipment or to ship within the United States compressed gas cylinders not inspected in the United States.

Chronology of actions.—None.

H.R. 8388—July 18, 1977—Mr. Patten—Referred to more than one committee

Summary.—(Abstract as introduced): Amends the Transportation Safety Act of 1974 to require rail or motor carriers transporting hazardous materials to notify the chief executive of any State through which such materials are to be transported at least 24 hours before such shipment.

Chronology of actions.—None.

H.R. 9385—September 29, 1977—Mr. Weiss—Referred to more than one committee (Cross reference bills exist)

Summary.—(Abstract as introduced): Amends the Hazardous Materials Transportation Act of 1975 to prohibit the Secretary of Transportation from permitting the transportation of radioactive materials in areas containing a population density greater than 12,000 persons per square mile, except when such materials are to be used for medical diagnosis or treatment purposes in such area or during a national emergency.

Chronology of actions.—None.

H.R. 9924—November 2, 1977—Mr. Weiss, et al.—Referred to more than one committee (Cross reference bills exist)

Summary.—(Abstract as introduced) : Amends the Hazardous Materials Transportation Act of 1975 to prohibit the Secretary of Transportation from permitting the transportation of radioactive materials in areas containing a population density greater than 12,000 persons per square mile, except when such Materials are to be used for medical diagnosis or treatment purposes in such areas or during a national emergency.

Chronology of actions.—None.

H.R. 10194—December 1, 1977—Mr. Mikva—Referred to more than one committee

Summary.—(Abstract as introduced) : Amends the Hazardous Materials Transportation Act to direct the Secretary of Transportation to issue regulations prohibiting the transportation of radioactive materials to or from any non-military airport except where such materials are to be used during a national emergency or for emergency medical diagnosis or treatment. Directs the Secretary to prohibit the transportation of such materials to or from military airports which are located within a standard metropolitan statistical district of more than 300,000 people.

Chronology of actions.—None.

H.R. 10225—December 6, 1977—Mr. Mikva—Referred to more than one committee

Summary.—(Abstract as introduced) : Amends the Hazardous Materials Transportation Act to direct the Secretary of Transportation to issue resolutions prohibiting the transportation of radioactive materials to or from any non-military airport except where such materials are to be used during a national emergency or for use in, or incident to, research, or medical diagnosis or treatment. Directs the Secretary to prohibit the transportation of such materials to or from military airports which are located within a standard metropolitan statistical district of more than 300,000 people.

Chronology of actions.—None.

H.R. 11871—April 4, 1978—Mr. Rooney—Referred to more than one committee

Summary.—(Abstract as introduced) : Amends the Hazardous Materials Transportation Act to authorize appropriations to carry out the provisions of such Act for fiscal year 1979.

Chronology of actions

September 19, 1978 hfac 082 Measure laid on table in House, S. 1896 passed in lieu.
September 19, 1978 hfac 080 Measure passed House, amended.
September 19, 1978 hfac 050 Measure considered in House.
September 19, 1978 hfac 043 Measure called up under motion to suspend rules and pass in House.
May 15, 1978 hcac 080 Reported to House from the Committee on Interstate and Foreign Commerce with amendment, H. Rept. 95–1170 (Pt. I).

H.R. 11872—April 4, 1978—Mr. Rooney (by req.)—Referred to more than one committee

Summary.—(Abstract as introduced) : Amends the Hazardous Materials Transportation Act to authorize appropriations in such amounts as may be necessary to carry out the provisions of such Act for fiscal years 1979 and 1980.

Chronology of actions.—None.,

S. 1896—July 19, 1977—Mr. Ford (by req.), et al.—Commerce, Science, and Transportation

Public Law 95–403 (September 30, 1978)

Summary.—(Abstract as introduced) : Amends the Hazardous Materials Transportation Act to authorize appropriations in such amounts as may be necessary to carry out the provisions of such Act for fiscal year 1979.

Chronology of actions

September 30, 1978 fact 050 Public Law 95–403.
September 21, 1978 fact 006 Measure presented to President.
September 21, 1978 fact 004 Measure enrolled in Senate.
September 20, 1978 fact 002 Measure enrolled in House.
September 19, 1978 hfac 074 Measure passed House, in lieu of H.R. 11871.
September 19, 1978 hfac 050 Measure considered in House.
September 19, 1978 hfac 042 Measure called up by unanimous consent in House.
May 18, 1978 sfac 152 Measure passed Senate, amended.
May 18, 1978 sfac 080 Measure considered in Senate.
May 18, 1978 sfac 033 Call of calendar in Senate.
May 12, 1978 scac 080 Reported to Senate from the Committee on Commerce, Science, and Transportation with amendment, S. Rept. 95–814.

○