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REPORT TO THE CONGRESS

Need For Improved Inspection
And Enforcement In Regulating
Transportation Of
Hazardous Materials B-164497

Department of Transportation

*BY THE COMPTROLLER GENERAL
OF THE UNITED STATES*

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MAY 1, 1973



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D C 20548

B-164497

To the President of the Senate and the
Speaker of the House of Representatives

This is our report on the need for improved inspection and enforcement by the Department of Transportation in regulating the transportation of hazardous materials.

Our review was made pursuant to the Budget and Accounting Act, 1921 (31 U.S.C 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67)

Copies of this report are being sent to the Director, Office of Management and Budget, and to the Secretary of Transportation.

A handwritten signature in cursive script, reading "James B. Axtell".

Comptroller General
of the United States

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ABBREVIATIONS

FAA Federal Aviation Administration
FHWA Federal Highway Administration
FRA Federal Railroad Administration
GAO General Accounting Office

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

NEED FOR IMPROVED INSPECTION
AND ENFORCEMENT IN REGULATING
TRANSPORTATION OF HAZARDOUS MA-
TERIALS

Department of Transportation
B-164497

D I G E S T

WHY THE REVIEW WAS MADE

Because of the increasing volume of hazardous materials transported in interstate and foreign commerce and the need for taking adequate safeguards, GAO reviewed the inspection and enforcement program conducted by agencies of the Department of Transportation. Hazardous materials are those that are inherently dangerous, such as explosive, flammable, or toxic materials

Background

Four units of the Department--the Federal Railroad Administration (FRA), the Federal Highway Administration (FHWA), the Federal Aviation Administration (FAA), and the Coast Guard (referred to in this report as the administrations)--are responsible for regulating the safe transportation of hazardous materials in interstate and foreign commerce by railroads and motor carriers and for regulating shipments transported by civil air carriers and shipments by vessels on U S navigable waters

In 1967 about 1 billion tons of hazardous materials were shipped in commerce, a 36-percent increase is estimated by 1980. Many shipments are transported through or near the Nation's cities and towns and present a potential source of accidents causing death and destruction.

In calendar year 1971, carriers reported 2,292 incidents of hazardous materials accidentally released dur-

ing transportation that killed 70 people and injured 434 others. The Department concluded, however, that the carriers were reporting only a small portion of the incidents

FINDINGS AND CONCLUSIONS

The Department needs to improve its inspection and enforcement program to insure compliance with regulations for safely transporting hazardous materials. The Department's Program was handicapped by (1) a lack of basic data on hazardous material movements, (2) a small and unsystematic inspection effort, and (3) inadequate enforcement actions.

The Department has not systematically accumulated data on hazardous materials carriers, shippers, or container manufacturers, or data to identify the type, frequency, and magnitude of shipments. Inspectors, for the most part, relied on personal knowledge to direct their efforts. GAO believes such data could be used to assess the risks to life and property and to more effectively direct efforts of the small inspection staffs

Because of the broad safety responsibilities in their respective areas of transportation and the relatively small inspection staffs, the administrations, except for the Coast Guard, have assigned to their inspection staffs the responsibility to perform hazardous materials inspections as well as to determine

compliance with general safety requirements

Except for the Coast Guard's vessel and waterfront inspections, the number of inspections seemed insignificant compared with the large volume of traffic. Shippers and container manufacturers were inspected rarely (See pp. 11 to 14)

Inspection reports indicated that carriers were frequently violating hazardous materials regulations and that shippers and container manufacturers also were not complying with the regulations. During a 21-month period ended March 31, 1972

--FRA inspections of 10 large railroads disclosed 674 violations.

--FHWA inspections of 74 motor carriers disclosed 1,258 violations by 58 carriers

--Coast Guard inspections in three districts disclosed 1,819 vessels in violation. Inspection reports for 334 of these vessels showed 817 violations

A 1971 report by the Department, the Atomic Energy Commission, and the Department of Health, Education, and Welfare on a study of air shipments of radioactive materials disclosed that 175 of about 300 packages inspected at airports or carrier facilities violated the regulations. (See p 17)

Many violations found during inspections of carriers' operations indicated that the shipper did not comply with the regulations. (See p 18.)

The law prescribes criminal penalties for violating the regulations and such cases must be referred to the Department of Justice for prosecution in U.S. district courts. FRA,

FHWA, and Coast Guard have initiated few criminal cases compared with the number of violations. This is due to the difficulties of sustaining a prosecution, the belief that certain violations were minor, or a lack of time by inspectors for adequately developing cases for prosecution. Cases generally required considerable time to process, were frequently closed without penalty, and many fines assessed by the courts were minimal (See pp 20, 22, and 24.)

FRA, FHWA, and the Coast Guard did not provide for a systematic follow-up on violations, although available inspection records showed that certain carriers repeatedly violated the regulations even after they had been fined or warned. (See pp. 21, 23, and 24.)

Only the Coast Guard and FAA have authority to impose civil fines in addition to seeking criminal penalties. The Coast Guard, however, initiated few civil cases, and fines assessed were minimal. There was no data available for GAO to evaluate the effectiveness of FAA's enforcement.

Because a Federal agency can directly assess civil penalties without the delays of processing criminal cases through the judicial system, GAO believes extending the civil penalty authority to cover violations of FHWA and FRA regulations would promote effective enforcement.

RECOMMENDATIONS OR SUGGESTIONS

The Secretary of Transportation should

--Establish a management information system to develop and maintain data on hazardous materials movements.

--Reassess the adequacy of the

Department's effort compared with the volume and danger of the materials.

- Develop a plan for a more effective inspection and enforcement program
- Present the plan to the Congress for it to evaluate and consider needed resources.

AGENCY ACTIONS AND UNRESOLVED ISSUES

The Department said that it found much of value in GAO's recommendations and that it plans to initiate several actions similar to those that GAO suggested. (See p. 29.)

The Department agreed with GAO's observation that it is difficult to sustain criminal prosecutions. The Department therefore is considering legislation which would permit assessment of civil penalties as well as criminal penalties on violators of the hazardous materials regulations. (See p. 30)

The Department pointed out that too much emphasis should not be placed on the number of violations discovered without establishing their relative seriousness.

The Department added that it also has other methods to insure compliance with its regulations.

GAO believes that, because of the need to take all possible precautions, vigorous enforcement is needed, particularly against repeat violators (See p 30)

MATTERS FOR CONSIDERATION BY THE CONGRESS

This assessment of the need for better inspection and enforcement in regulating transportation of hazardous materials should help the Congress evaluate the Department's plans and budget requests for carrying out a more effective safety program and any legislation that the Department submits to strengthen its enforcement activities

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CHAPTER 1

INTRODUCTION

The Department of Transportation is responsible for regulating the transportation of hazardous materials, i.e., commodities that are inherently dangerous, such as explosive, flammable, radioactive, corrosive, or toxic materials. The Department's authority applies to interstate and foreign commerce shipments by motor carriers and railroads and shipments transported by vessels on U.S. navigable waters and by civil air carriers. The Department assumed this responsibility from several Federal agencies on April 1, 1967, pursuant to the Department of Transportation Act (Public Law 89-670)

Hazardous materials are transported in large volume and endanger life and property if they are improperly containerized, handled, stored, or released while being transported. Department regulations specifically list over 1,000 commodities as hazardous, and officials estimate that thousands of other hazardous materials not specifically listed in the regulations may enter commerce. Some examples of hazardous materials are listed below

<u>Commodity</u>	<u>Hazard</u>
Propane	Extremely flammable, gives off vapors that may explode when ignited
Chlorine	Highly toxic compressed gas that may cause skin burns, irritation to mucous membranes, or fatal injury.
Phosgene	Extremely toxic gas which, if inhaled, may cause severe irritation of the lungs or fatal injury.
Anhydrous ammonia	Causes varying degrees of irritation to eyes, skin, or mucous membranes, may severely injure the respiratory membranes with possible fatal results.
Dynamite	Highly explosive.

The materials have many uses which require that they be transported throughout the Nation. For example, propane is widely used for heating homes and operating gas appliances. Chlorine is used for purifying water, bleaching textiles, and manufacturing carbon tetrachloride.

The responsibility for regulating the transportation of hazardous materials is decentralized within the Department to the various constituent agencies--Federal Railroad Administration (FRA), Federal Highway Administration (FHWA), Federal Aviation Administration, and the Coast Guard, hereinafter referred to as the administrations--having safety responsibilities for the different modes of transportation as shown below

<u>Responsible agency</u>	<u>Mode of transportation</u>
Federal Highway Administration	Interstate motor carriers
Federal Railroad Administration	Railroads
Coast Guard	Vessels on United States navigable waters
Federal Aviation Administration	Civil air carriers

In 1967, the Department formed the Hazardous Materials Regulations Board with representatives from each administration to coordinate rulemaking. The Office of Hazardous Materials was also established in 1967 within the Office of the Secretary of Transportation to help the Board promote uniform regulations and to provide technical assistance.

The administrations regulate the transportation of hazardous materials under the following statutes: Transportation of Explosives Act (18 U.S.C. 831) for land shipments, Federal Aviation Act of 1958 (49 U.S.C. 1421) for air shipments, and the Dangerous Cargo Act (46 U.S.C. 170) for water shipments generally using small package-type containers, such as barrels, drums, or cylinders. Under these statutes, the administrations have issued regulations, applicable to carriers and shippers, that define the materials and certain requirements for container specifications, testing, packaging, and labeling, and also the handling, storing, and placement of the materials so defined.

BEST DOCUMENT AVAILABLE

Under the Tanker Act (46 U.S.C. 391a), the Coast Guard regulates bulk shipments of flammable or combustible liquid materials transported by vessels. These shipments are primarily transported by tank ships and barges which are subject to a number of Coast Guard regulations, including vessel approval, operation, and storage of cargo. Under the Magnuson Act (50 U.S.C. 191), which provides for port security, the Coast Guard regulates waterfront facilities which may handle hazardous materials.

The general purpose of the regulations is to promote safety in transporting hazardous materials by reducing the potential for their accidental release. The effectiveness of one type of regulation is dependent upon another. For example, container requirements provide some degree of insurance that the container will withstand the impact of transportation, labeling and other disclosure requirements alert persons handling the container that hazardous materials are present

Some examples of the consequences of accidental release of hazardous materials follow.

- On February 18, 1969, a freight train accident at Crete, Nebraska, caused 29,200 gallons of liquid anhydrous ammonia to be released from a pressurized tank car. Six Crete residents were killed and 53 were injured from exposure to the ammonia gas cloud that formed as the liquid vaporized.
- On June 21, 1970, nine tank cars containing about 30,000 gallons each of liquified petroleum gas burned or exploded during a train accident at Crescent City, Illinois, which injured 66 persons, destroyed 16 business establishments and damaged 7 others, and destroyed 25 homes and damaged a number of others.
- On August 8, 1971, an automobile and a tractor-trailer loaded with 20 cylinders of methyl bromide (a poisonous liquid insecticide that when inhaled can cause serious poisoning or death) collided near Gretna, Florida. Nine of the cylinders left the trailer, landed near the automobile, and began to leak. Four occupants of the automobile were killed from prolonged exposure to the methyl bromide.

--On December 31, 1971, a liquid radioactive materials shipment en route from Tuxedo, New York, to Houston, Texas, leaked while being transported aboard a commercial passenger aircraft. The consignee in Houston discovered the leak. By the time the air carrier was notified, the contaminated aircraft had passed through airports in 10 cities and 917 passengers had traveled aboard the aircraft. However, a check of passengers and employees indicated that none had been subjected to an immediate health hazard by the radioactivity.

--On January 7, 1972, a tank barge removing gasoline residue from its cargo tanks while proceeding down the Ohio River struck a railroad bridge and exploded near Parkersburg, West Virginia, killing 2 persons, injuring 2 others, and causing about \$1 million damage to the bridge and about \$1 million damage to homes and businesses.

On October 27, 1970, the Department issued uniform regulations for carriers to report any unintentional release of hazardous material during transportation. The following table is a breakdown of the reports received during 1971.

<u>Mode of transportation</u>	<u>Number of carriers reporting</u>	<u>Number of incidents reported</u>
Motor carriers	287	1,891
Railroads	28	346
Water carriers	47	50
Air carriers	<u>3</u>	<u>5</u>
	<u>365</u>	<u>2,292</u>

The carriers reported that the 2,292 incidents killed 70 persons, injured 434 others and caused \$7.1 million property damage. However, only about 50 percent of the reports stated the amount of property damage involved. The Department concluded in its 1971 annual report on the transportation of hazardous materials that the carriers were reporting only a small portion of the incidents actually occurring

CHAPTER 2

NEED TO DEVELOP A MORE EFFECTIVE

HAZARDOUS MATERIALS INSPECTION PROGRAM

The administrations need to establish more effective inspection programs to systematically monitor the industry's compliance with regulations. Because of broad safety responsibilities in their respective areas of transportation and relatively small inspection staffs, the administrations--with the exception of the Coast Guard which uses special inspection teams--have assigned to their inspectors the responsibility to perform hazardous materials inspections as well as to determine compliance with general safety requirements in the industry. Because of the large workload imposed on inspectors, few hazardous materials inspections were performed compared with the large volume of such materials being transported. Regulations were frequently violated and noncompliance may be widespread. The small number of inspections, therefore, may not adequately deal with the apparent dangers involved in transporting hazardous materials.

The administrations have not developed basic management data on the extent of hazardous materials movements. In our opinion, the administrations could improve their inspection programs by systematically accumulating data to assess the risks involved according to the type, frequency, and magnitude of the shipments, to assess the degree of compliance, and to systematically direct their inspection activities to the highest risks. ✓

LACK OF ESSENTIAL
MANAGEMENT DATA

The administrations have not systematically accumulated data on the extent of hazardous materials movements, including data on the volume, origin, and destination of particular materials, nor have they maintained an inventory of package container manufacturers, shippers, and carriers.

Department officials estimated that thousands of container manufacturers, shippers, and carriers are involved in the distribution system. Inspectors from each administration did not have data on the full extent of hazardous

materials' movements within their geographic area of responsibility with which to systematically direct their efforts. Data available to them consisted primarily of information obtained through prior inspections of certain carriers.

A management consultant firm hired by the Department to study the problems of handling, transporting, and disposing of hazardous materials estimated that motor carriers, vessels, and railroads transported over a billion tons of hazardous materials in 1967 and projected a 36-percent increase by 1980, as follows

<u>Annual volume of shipment in tons</u>			
	<u>Estimated</u> <u>1967</u>	<u>Projected</u> <u>1979-80</u>	<u>Percent</u> <u>increase</u>
	(millions)		
Motor carriers	512	800	56
Water carriers	414	470	14
Railroads	<u>149</u>	<u>195</u>	<u>31</u>
	<u>1,075</u>	<u>1,465</u>	36

The consulting firm obtained its estimate from industry statistics and freight commodity statistics reported by carriers to the Interstate Commerce Commission and the Corps of Engineers. Much data on the movement of hazardous materials is available, with the exception of air shipments, but such data needs to be refined to fit the needs of the Department.

Data on hazardous materials transported by air was not systematically accumulated and maintained. The Civil Aeronautics Board does not require the reporting of freight commodity statistics similar to those required by the Interstate Commerce Commission. The number of air shipments, however, appears to be significant. The National Transportation Safety Board, in a special study of the air transport of radioactive materials, estimated that air carriers annually transport between 300,000 and 540,000 shipments of radioactive materials alone.

LOW LEVEL OF INSPECTION

The annual number of hazardous materials inspections, with the exception of the Coast Guard, seemed insignificant compared with the volume of traffic subject to regulation. Most of the inspectors were held primarily responsible for general carrier safety and their inspections were not specifically directed toward hazardous materials. They rarely inspected shippers and container manufacturers

Federal Aviation Administration

As of June 30, 1972, FAA had 834 operations inspectors dispersed throughout the United States and overseas responsible for enforcing aviation operation safety requirements, such as safe air routes and adequate pilot training programs. As part of their duties, these inspectors are responsible for surveillance over compliance with hazardous material regulations.

FAA does not have a program for the inspectors to systematically and routinely inspect air shipments of hazardous materials. FAA advised us that primary reliance is placed on air carriers' accepting only those hazardous materials shipments that meet requirements. FAA advised us, however, that a small number of routine inspections of hazardous materials shipments were made at airports and that inspections were conducted when complaints were received over such matters as packages leaking or not properly labeled. FAA did not maintain statistics on the number of its hazardous materials inspections.

Hazardous materials are sometimes shipped on passenger planes. The incident described on page 8 involving radioactive materials shipped by air, as well as a Federal study of such shipments described on page 17, showed that such materials have been improperly packaged. The dangers of in-flight incidents are apparent. Moreover, when leakage involves radioactive materials, it is most difficult to identify and find all persons who might have been exposed, unless the leakage is detected immediately.

Coast Guard

The Coast Guard, as part of its marine inspection program, inspects tank ships and barges that transport bulk

quantities of hazardous materials at U.S. shipyards to insure that they are built according to approved vessel plans. The Coast Guard then issues a certificate to show compliance. U.S.-owned vessels are subject to annual or biennial renewal of this certificate to show continued compliance with the Coast Guard requirements. Foreign tank ships transporting the more dangerous types of hazardous materials, such as liquefied natural gas, are also subject to the marine inspection program. The foreign vessels are checked for compliance with approved plans when they initially enter a U.S. port.

The Coast Guard, as part of its port security program, also conducts inspections of hazardous materials in transit. As of June 30, 1972, the Coast Guard had about 200 personnel located at ports throughout the United States assigned to dangerous cargo teams that patrolled waterfront areas to enforce hazardous materials regulations. In fiscal year 1971, these inspectors conducted about 88,000 inspections of waterfront facilities which handled hazardous materials, supervised the loading of about 4 million tons of explosives, and boarded about 49,000 U.S. or foreign vessels to inspect for compliance with requirements. Of the 49,000 boardings, about 13,900 were conducted in the three districts we reviewed, and we estimate that about 9,400 vessels boarded in these districts were carrying hazardous materials.

The Coast Guard has confined its inspection activities to the port areas. Officials advised us that it was not practical to inspect shippers and manufacturers of package-type containers because the available staff was needed in the port areas. They also advised us that materials entering the port areas may arrive by motor carrier or railroad and would be subject to inspection by the FHWA or FRA, respectively.

Federal Highway Administration

As of June 30, 1972, FHWA had nine full-time hazardous materials inspectors and 103 general safety inspectors dispersed throughout the country who were responsible for surveillance over the safe operation of an estimated 3.8 million trucks engaged in interstate commerce in calendar year 1971.

The safety inspectors also performed hazardous materials inspections in addition to inspections relating to their general motor carrier safety responsibilities. For example, inspections were performed at highway weigh stations to determine the condition of the truck and the fitness of the driver. Trucks stopped for inspection were usually those which appeared in poor physical condition. If these trucks carried hazardous materials, they were then checked for compliance with hazardous materials regulations.

As an indication of the large volume of hazardous materials moving by truck in interstate commerce, FHWA officials assigned to the region which includes New England, New York, and New Jersey told us that about 375,000 vehicles transporting hazardous materials are on the road each weekday in that region. Officials in the region which covers California, Nevada, and Arizona estimated that about 8,600 motor carriers are domiciled in the region and that between 10 and 20 percent of the vehicles on the road carry hazardous materials. An official of one large trucking firm in California estimated that his company handled 86,000 hazardous material shipments from October 1970 through March 1971. In comparison, FHWA reported that its total annual hazardous materials inspection activity nationwide amounted to 672 road checks of vehicles in calendar year 1970 and 882 safety surveys at carrier locations, 339 safety surveys at shipper locations, and 170 checks of container manufacturers in fiscal year 1971.

Federal Railroad Administration

As of June 30, 1972, FRA had 148 inspectors dispersed throughout the country who were responsible for inspecting the safety of 334,000 miles of track, hundreds of railroad yards, 1.8 million items of rolling stock, and about 165,000 railroad employees. Three of the inspectors were designated as full-time hazardous materials inspectors. Sixty-two of the inspectors designated as safety appliance inspectors also performed hazardous materials inspections in addition to their other safety inspection responsibilities. For example, if a safety appliance inspector visited a railroad yard to check brakes or other safety appliances on rail cars and saw rail cars containing hazardous materials, he would check also for compliance with the hazardous materials regulations.

FRA reported that during fiscal year 1971, it conducted 784 hazardous materials inspections. FRA estimated that 70 percent of the inspections were carrier checks, 20 percent were shipper checks, and 10 percent were container manufacturer checks.

FREQUENT VIOLATIONS OF REGULATIONS

The inspection reports indicated that regulations were frequently violated and that noncompliance with the regulations may be widespread. We reviewed inspection activity during a 21-month period ended March 31, 1972, by (1) FRA inspectors for 10 large railroads, (2) FHWA inspectors for 236 interstate motor carriers, and (3) Coast Guard personnel assigned to dangerous cargo teams for vessels boarded in the New York, New York, Portsmouth, Virginia, and San Francisco, California, districts

FAA does not have a program for the systematic, routine surveillance over air shipments of hazardous materials. However, an interagency study of air shipments of radioactive materials disclosed that about 60 percent of 300 inspected packages violated FAA regulations.

Many violations found during inspections of carrier operations also indicated that the shippers did not comply with the regulations. In addition, a special Office of Hazardous Materials study of selected container manufacturers operations showed that the manufacturers were not complying with container specification and testing requirements.

Railroads

During the 21-month period, FRA made 213 inspections of the operations of 10 railroads involving the transportation of hazardous materials. Of these inspections, 164 disclosed 674 violations of the hazardous materials regulations, as summarized below.

<u>Regulation violated</u>	<u>Number of violations</u>
Required material description on waybills and switching orders	261
Handling and placement of railcars	153
Placarding of railcars	110
Required material description and certification on shipping papers	70
Periodic shipper safety tests and railroad inspection of tank cars	66
Requirements for safe loading and unloading	8
Certification of tank car specification requirements	<u>6</u>
	<u>674</u>

Motor carriers

Based on their personal knowledge, FHWA inspectors listed 236 carriers domiciled in the New York, Baltimore, Maryland, and San Francisco FHWA regions that transported hazardous materials in interstate commerce. FHWA's inspection records showed that 162 of the carriers did not receive hazardous materials inspections during the 21-month period. The remaining 74 carriers received 202 hazardous materials inspections which showed 1,258 violations by 58 carriers, as shown below.

<u>Regulation violated</u>	<u>Number of violations</u>
Required material description and certification on shipping papers	659
Only approved containers can be used	180
Placarding of motor vehicles	117
Cylinder and cargo tank reinspection and retest requirements	116
Labeling of packages	97
Approval number on special shipments	50
Miscellaneous requirements	<u>39</u>
	<u>1,258</u>

Vessels

During the 21-month period, Coast Guard dangerous cargo teams in the three districts included in our review routinely boarded 22,785 vessels and found 1,819 of the vessels violated hazardous materials requirements, representing about 12 percent of the vessels boarded that were transporting hazardous materials.

We reviewed reports on 334 of the 1,819 vessels and noted a total of 817 violations, as follows.

<u>Regulation violated</u>	<u>Number of violations</u>
Required material description on dangerous cargo manifests	288
Various stowage requirements	225
General cargo safety and handling requirements	63
Certificate showing hull and equipment checked	60
Use of fire protection device	60
Display of warning signs during cargo transfer	53
Required material description and certification on shipping papers	36
Personnel requirements for cargo transfer	12
Miscellaneous requirements	<u>20</u>
	<u>817</u>

Air carriers

To ascertain whether air shipments of radioactive materials were meeting hazardous materials regulations, representatives of the Department, the Atomic Energy Commission, and the Department of Health, Education, and Welfare visited selected transportation terminals (airports and carrier facilities) in Knoxville, Tennessee, Washington, D C , Boston, Massachusetts, New York City, New York, Newark, New Jersey, and Chicago, Illinois. The report issued by the agencies in July 1971 showed that about 300 packages of radioactive materials were inspected--of which about 95 percent were radiopharmaceuticals being transported by air carriers--and that 175 of the packages violated FAA regulations, as follows.

<u>Nature of violation</u>	<u>Number of packages in violation</u>
Incorrect or no label on package	85
Radiation level exceeded amount stated on package	72
Radiation level exceeded amount authorized per package	10
Using nonapproved or improperly marked container	<u>8</u>
	<u>175</u>

Shippers

The administrations directed little inspection activity specifically toward shippers of hazardous materials, but many of the inspection reports on carriers' operations and the interagency study of air shipments indicated that the shippers did not comply with the regulations in preparing the materials for shipment. The shipper is required to properly choose the container, label the shipment, and prepare the shipping papers.

The number of violations noted in these inspection reports which appeared to be related to the shippers' duties are summarized below.

<u>Administration</u>	<u>Total violations reviewed by GAO</u>	<u>Number of violations which relate to shipping requirements</u>
FHWA	1,258	986
FAA	175	175
FRA	674	108
Coast Guard	<u>817</u>	<u>36</u>
	<u>2,924</u>	<u>1,305</u>

An FHWA official told us that many major hazardous materials shippers were also private carriers and, therefore, FHWA would check compliance with the regulations for preparing materials for shipment when it inspected the private carrier's activities. The official agreed, however, that additional inspections of private carriers and of other shippers were necessary.

Container manufacturers

A special study by the Office of Hazardous Materials showed that many container manufacturers did not comply with requirements for manufacturing containers

Between October 1970 and November 1971, the Office of Hazardous Materials inspected 19 cylinder plants and 4 tank truck plants. The inspection reports showed that 18 of the 19 cylinder plants and 3 of the 4 tank truck plants violated requirements approved by the administrations for manufacturing

containers used to transport hazardous materials. The types of violations found were technical, and included failure to perform container testing requirements, such as hydrostatic, burst, or impact tests, and failure to adhere to approved specifications, such as material and wall thickness of container. The testing and specification requirements are to insure that containers will withstand conditions normally experienced in transportation

CHAPTER 3

NEED FOR IMPROVED

ENFORCEMENT OF REGULATIONS

The authorizing statutes prescribe criminal penalties for violations of hazardous materials regulations and such criminal cases must be referred to the Department of Justice for prosecution in the U S. district courts. Compared with the number of violations disclosed in inspectors' reports, the administrations have initiated few criminal cases because of the difficulties of sustaining a prosecution, a belief that certain violations were minor, or a lack of time by inspectors for adequate development of cases for prosecution.

✓ Criminal cases generally required considerable time to process and were frequently closed without penalty, many fines that the courts did assess were minimal. The administrations did not systematically follow up on violations, although available inspection records showed that certain carriers repeatedly violated the regulations even after they had been fined or warned.

Only the Coast Guard and FAA are authorized to assess civil penalties in addition to seeking criminal penalties. The Coast Guard initiated few civil cases and assessed minimal fines. There was insufficient data to evaluate FAA's enforcement actions.

FEDERAL RAILROAD ADMINISTRATION

FRA regulates rail shipments of hazardous materials under the Transportation of Explosives Act, which provides criminal sanctions for violating the act. The maximum sanctions are a \$10,000 fine and/or 10 years imprisonment if death or injury results or, in the absence of death or injury, a \$1,000 fine and/or 1 year imprisonment.

We found that FRA rarely referred violations of the hazardous materials regulations to the Department of Justice for prosecution. Our examination of FRA inspection reports for 10 large railroads during the 21-month period ended March 31, 1972, showed 674 violations. FRA initiated

criminal proceedings against two of these railroads for the improper placement of a rail car. During the same general period, FRA sought a total of 14 criminal prosecutions for 20 violations of the hazardous materials regulations by 12 railroads and one shipper.

At June 30, 1972, two of the 14 cases were closed with fines of \$250 and \$500, respectively, after being in process an average of 275 days, six cases were either closed by FRA or dismissed by the U S Attorney for lack of evidence after being in process an average of 284 days, and the remaining six cases, which had been in process an average of 377 days, were still pending.

FRA officials advised us that to obtain a conviction for violation of the hazardous materials regulations, it must be established beyond a reasonable doubt that the violations were committed knowingly. FRA officials and inspectors also advised us that many of the violations concerned shipping papers and placards, these violations were considered to be of a minor administrative nature and were usually brought only to the railroad's attention. The shipping paper and placard requirements are intended to alert carrier personnel that special handling and storage is needed and to help prevent accidents. We believe that compliance with these requirements is important and that administrative determinations to classify these as minor do not promote compliance.

Safety inspectors informed us that additional violators would be recommended for prosecution if more time were available for hazardous materials surveillance and development of cases. They stated also that it was discouraging to develop a case which would later be dismissed or result only in a minimal fine.

It appears that FRA's enforcement actions were not sufficient to promote future compliance. Inspection reports on the subsequent compliance record of the two railroads that had been fined cited repeat violations. Also, four of the railroads whose cases had been dismissed continued to violate the regulations.

The following is a case history of one of these railroads that illustrates the enforcement actions' ineffectiveness.

FRA's records showed that, prior to fiscal year 1971, several cases were brought against the railroad for violating car handling or placement requirements, with the following results

<u>Date of violation</u>	<u>Date case closed</u>	<u>Fine assessed</u>
June 1966	September 1968	\$ 500
August 1967	October 1969	1,000
September 1967	May 1971	None
June 1969	Pending as of June 30, 1972	-

Between October 1969 when the railroad was last fined and March 31, 1972, FRA conducted 54 inspections of certain aspects of the railroad's operations and found violations of one or more of the regulations in 41 of the inspections. Seven inspections showed car placement violations.

FRA initiated a criminal case against the railroad for a car placement violation found during one of the 41 inspections on April 14, 1971, but the case was dismissed on January 28, 1972, because of insufficient evidence. On March 16, 1972, an FRA inspector again found the railroad violating car placement regulations and a warning was issued against the railroad.

FEDERAL HIGHWAY ADMINISTRATION

The Transportation of Explosives Act which authorizes criminal penalties for violations also applies to the transportation of hazardous materials by interstate motor carriers. FHWA experienced enforcement problems similar to those of FRA.

FHWA records showed that few attempts were made to prosecute criminal cases compared with the number of hazardous materials violations disclosed by inspections. In those cases where FHWA sought criminal penalties, we found that

- a large number of the cases were closed without fines,
- small fines were assessed by the courts for cases successfully prosecuted, and
- the cases required considerable time to process

For example, we examined FHWA inspection reports for 74 carriers during the 21-month period ended March 31, 1972, and found that 58 carriers had committed 1,258 violations of the hazardous materials regulations. FHWA initiated criminal proceedings against six of these carriers for 13 violations which involved placarding and shipping paper requirements. During the same general period, FHWA sought a total of 94 criminal prosecutions for 205 violations of the hazardous materials regulations by 75 carriers and 10 shippers.

As of June 30, 1972, 39 of the 94 cases were still pending, 23 cases had been closed without fines by either FHWA, the U S Attorney, or the court for such reasons as insufficient evidence or the age of the cases, and 32 cases had been closed with fines ranging from \$50 to \$1,000, with an average of \$340 a case. The length of time that the cases were in process ranged from an average of 170 days for the cases closed without fines to an average of 277 days for cases still in process.

FHWA did not conduct systematic followup inspections of the subsequent operations of motor carriers found violating the regulations. FHWA inspectors stated that they lacked the time. As of August 10, 1972, FHWA headquarters records showed that carrier reinspections were performed for 16 of the 50 carriers involved in the 55 closed cases. Inspections disclosed that six carriers who had not been fined further violated the regulations and 8 of 10 carriers who had been fined further violated the regulations.

COAST GUARD

The Coast Guard regulates shipments by tank ships and barges under the Tanker Act--which provides criminal sanctions for violations--and shipments by cargo ships under the Dangerous Cargo Act--which provides criminal and civil penalties for violations

The Coast Guard generally has not used the available criminal sanctions for violations of the hazardous materials regulations. For example, in the New York, Portsmouth, and San Francisco districts, Coast Guard dangerous cargo teams found during the 21-month period ended March 31, 1972, that 1,819 vessels violated the hazardous materials regulations. The vessels included 1,323 tank ships or barges subject to the Tanker Act and 496 cargo ships subject to the Dangerous Cargo Act. No criminal fines resulted from the violations

District officials stated that criminal penalties were not sought because of the difficulty in sustaining a prosecution and because the sanctions were considered too harsh for violations where death or injury did not result. In our opinion, the Coast Guard's practice of not seeking criminal sanctions does not promote compliance. The following history of violations found by the Coast Guard during the 21-month period for one barge operating in the New York district illustrates this.

<u>Violation</u>	<u>Dates of violation</u>	<u>Number of violations</u>
Flame screens (i e., fire protection device to be used in conjunction with venting for flammable vapor) damaged or missing	1-18-71, 3-5-71, 3-10-71, 5-4-71, 8-19-71, 10-7-71, 10-13-71, 11-10-71, 11-24-71, 11-29-71, 12-1-71, 12-8-71, 1-20-72	49
Warning flags or lights not properly displayed, or incorrect wording on warning signs	3-5-71, 3-16-71, 10-7-71, 11-10-71	4

<u>Violation</u>	<u>Dates of violation</u>	<u>Number of violations</u>
Drip pan (i.e , container to accumulate spillage in transfer of liquid hazardous materials) missing	10-13-71, 12-1-71, 12-8-71, 12-14-71	4
No supervision of cargo transfer	3-5-71, 5-4-71, 10-7-71	3

The Tanker Act was amended by the Ports and Waterways Safety Act of 1972 (Public Law 92-340), which provided for civil and criminal sanctions. The civil penalty authority, if used effectively, should aid the Coast Guard in enforcing hazardous materials regulations applicable to tank ships and barges.

We found, however, that the Coast Guard has only rarely used the civil penalties that are authorized under the Dangerous Cargo Act and that it assessed minimal fines. For example, the Coast Guard initiated only 30 civil cases involving 30 cargo ships, although it had found that 496 cargo ships in the three districts violated regulations during the 21-month period. As of June 1972, 1 of the 30 cases was closed without fine, 4 were still pending, and 25 resulted in minimal fines. These 25 cases involved 121 violations for which maximum total penalties of \$242,000 could have been assessed, but the penalties actually assessed totaled \$6,150, and ranged from \$50 to \$1,000, with an average of \$246 a case.

The ineffective use of the civil penalty authority is shown in the following history of violations by one shipping line found by Coast Guard personnel in the Portsmouth district. During the 3 years prior to December 1970, the shipping line had been found to violate the regulations in eight cases, five of which resulted in fines averaging \$225 and three of which were closed without penalties. The shipping line's record of violation in the Portsmouth district for the following year and fines assessed by the Coast Guard were as follows.

<u>Date of violation</u>	<u>Regulation violated</u>	<u>Number of violations</u>	<u>Maximum statutory penalty</u>	<u>Disposition of violations</u>
12-16-70	Dangerous cargo manifest	4	\$ 8,000	Closed without penalty
1-16-71	Dangerous cargo manifest	3	6,000	Fined \$200
3-17-71	Dangerous cargo manifest	1	2,000	Fined \$100
8- 2-71	Dangerous cargo manifest	1	2,000	Closed without penalty
8-31-71	Advance notice of arrival	1	2,000	Closed without penalty
8-31-71	Advance notice of arrival	1	2,000	Closed without penalty
9-20-71	Dangerous cargo manifest, stowage	5	10,000	Fined \$50
11-10-71	Advance notice of arrival	1	2,000	Closed without penalty
11-10-71	Stowage	1	2,000	Closed without penalty

We found that each Coast Guard district used only the results of its own hazardous material inspection activity to determine the need for penalty action, although other districts may have found violations by the same carrier. For example, we noted the aforementioned shipping line was found to be violating regulations in four other Coast Guard districts, but no fines were imposed.

<u>Coast Guard District</u>	<u>Date of violation</u>	<u>Regulation violated</u>	<u>Number of violations</u>
San Francisco, Calif	3- 5-71	Dangerous cargo manifest	1
Miami, Fla	6- 7-71	Required authorization to load or discharge explosives	1
Long Beach, Calif.	4- 1-71	Dangerous cargo manifests	2
Honolulu, Hawaii	3-11-72	Stowage	1

In our opinion, it would be desirable to supply each district with data on vessel compliance in other districts to deal with violators effectively and uniformly. A Coast Guard headquarters official advised us that a system was needed to supply Coast Guard-wide inspection data to the districts, but that resources had not been available for developing and maintaining such a system

FEDERAL AVIATION ADMINISTRATION

The Federal Aviation Act of 1958 authorizes FAA to regulate the transportation of hazardous materials by air and authorizes civil and criminal sanctions for violations

The records of enforcement actions available in FAA's New York and Los Angeles regions showed that, during the 21-month period ended March 31, 1972, 16 civil cases were initiated against either shippers, freight forwarders, or carriers for 70 violations of hazardous materials regulations primarily as a result of incidents reported to FAA. Records were not available for similar reported incidents which may have involved violations but did not result in penalty proceedings. As of June 1972, penalties totaling \$10,050 had been assessed in seven of the cases ranging from \$250 to \$3,000. Four cases had been closed without fine, five cases were still pending.

Because FAA does not maintain a readily identifiable record of its hazardous materials inspections, we had no basis for evaluating the effectiveness of FAA's enforcement actions when violations were found

CHAPTER 4CONCLUSIONS, RECOMMENDATIONS, AND AGENCY COMMENTSCONCLUSIONS

Hazardous materials shipments present an increasing danger to public safety. Each year hundreds of new materials are developed, thousands of shipments are made daily, and annual volume is estimated to reach 1.5 billion tons by 1980

We believe that the Department needs to work toward a more effective inspection and enforcement program to insure compliance with regulations for safely transporting hazardous materials. The Department's program was handicapped by (1) a lack of basic data on hazardous materials movements, (2) a small and unsystematic inspection effort, and (3) inadequate enforcement actions

The Department has not systematically accumulated data on carriers, shippers, or container manufacturers, or data identifying the type, frequency, and magnitude of the hazardous materials shipments. In our opinion, management needs such data to assess the risks to the public and to make effective use of the limited number of inspectors. It appears that much data on hazardous materials movements is available from Federal agencies and private organizations, but that such data would have to be refined to fit the Department's needs

Because of broad safety responsibilities and relatively small inspection staffs, the administrations, except for the Coast Guard, have assigned to their inspection staffs the responsibility to perform hazardous materials inspections as well as to determine compliance with general safety requirements in the transportation industry. The number of hazardous materials inspections, except for the Coast Guard's vessel and facility inspections, seemed insignificant compared with the apparently large volume of traffic. Shippers and container manufacturers were inspected rarely. Inspection data available indicated that carriers were frequently violating regulations and that shippers and container manufacturers were also not complying with the regulations.

Stronger enforcement actions are needed to improve compliance. Few cases were initiated against violators because of the difficulties of sustaining a prosecution under the criminal statutes, the administrations' view that certain violations were minor, or a lack of time by inspectors for adequate development of cases for prosecution. In addition, cases that were initiated generally required considerable time to process and were frequently closed without penalty, fines that the courts did assess were minimal. Available inspection records show that certain carriers repeatedly violated the regulations after they had been fined or warned.

We believe that extending the civil penalty authority to cover violations of FHWA and FRA regulations would help promote more timely and effective enforcement of regulations. The Federal agency can assess the civil penalties directly without the delays and other problems in processing criminal penalties through the judicial system.

RECOMMENDATIONS TO THE SECRETARY OF TRANSPORTATION

We recommend that the Secretary

- Establish a management information system to develop and maintain data on hazardous materials movements
- Reassess the adequacy of the Department's hazardous materials effort compared with the volume and danger of the materials.
- Develop a plan for a more effective hazardous materials inspection and enforcement program
- Present the plan to the Congress for it to evaluate and consider needed resources

AGENCY COMMENTS

The Department said that it found much of value in our recommendations and plans to initiate the following actions (See app 1.)

- It employed GSA to determine its management information system needs to regulate hazardous materials and planned to carry out GSA's recommendations as rapidly as resources permit. (One of GSA's recommendations concerned the development of statistical data on hazardous material movements)
- It is planning to evaluate its hazardous materials program to obtain a better measure of the adequacy of the program relative to the volume of material transported and to determine the relative cost effectiveness of various program approaches.
- It will prepare a comprehensive plan which would include enforcement and inspection activities
- It will submit the plan to the Congress

The Department agreed with our observations concerning the difficulty in sustaining criminal prosecutions and said that it is considering legislation which would provide for civil penalties for violations of the hazardous materials regulations

Also, the Department said that, because container manufacturers cannot be penalized under the Transportation of Explosives Act, it is considering requesting amendatory legislation which would permit control of the manufacture of containers for hazardous materials

The Department commented that too much emphasis should not be placed on the number of the violations discovered without establishing their relative seriousness. The Department also stated that, in addition to prosecution, it has other methods and sanctions available to insure compliance. The Department believes that such measures as educating shippers and carriers regarding regulations, improving safety inspectors training, and developing better containers should also be considered as means for improving hazardous material safety

We believe that vigorous enforcement is needed, particularly against repeated violators, because of the need to take all possible precautions in the transportation of hazardous materials

CHAPTER 5

SCOPE OF REVIEW

We conducted our review at the headquarters of the Office of Hazardous Materials, FRA, FHWA, Coast Guard, and FAA, in Washington, D.C., and at each administration's regional or district offices in the Northeast and Western United States.

We reviewed pertinent legislation and the Office of Hazardous Materials and each administration's policies, procedures, and practices for regulating hazardous materials, and each administration's enforcement of regulations. We examined selected reports, records, and files at headquarters and at regional or district offices. We also interviewed officials of the Office of Hazardous Materials and of each administration responsible for enforcing hazardous materials regulations



OFFICE OF THE SECRETARY OF TRANSPORTATION
WASHINGTON, D C 20590

ASSISTANT SECRETARY
FOR ADMINISTRATION

March 27, 1973

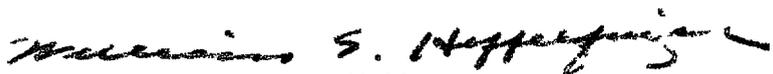
Mr Richard W Kelley
Associate Director, RED Division
United States General Accounting Office
400 Seventh Street, SW
Washington, D C 20590

Dear Mr Kelley

This is in response to your letter of February 16, 1973, requesting the Department of Transportation's comments on the General Accounting Office draft report entitled "Need for Improved Inspection and Enforcement Activities in Regulating the Transportation of Hazardous Materials " I have enclosed two copies of the Department's reply.

The Department recognizes that the scope of the GAO review specifically covered the inspection and enforcement activities in the regulation of the transportation of hazardous materials. However, it is the Department's opinion that such things as education of shippers and carriers regarding regulations, better training of safety inspectors, and R&D for better containment should also be considered as additional means for improving hazardous materials safety.

Sincerely,


William S Heffelfinger

2 Enclosures

DEPARTMENT OF TRANSPORTATION REPLY

TO

GAO DRAFT REPORT TO THE CONGRESS OF THE UNITED STATES

ON

NEED FOR IMPROVED INSPECTION AND
ENFORCEMENT ACTIVITIES IN
REGULATING THE TRANSPORTATION OF
HAZARDOUS MATERIALS

SUMMARY OF GAO FINDINGS AND RECOMMENDATIONS

The report concerns the inspection, surveillance, and enforcement of compliance programs of the four modal Administrations of the Department of Transportation as they pertain to the regulation of hazardous materials shipments in interstate commerce. A review was performed at the headquarters of the Office of Hazardous Materials, Federal Aviation Administration, Federal Highway Administration, Federal Railroad Administration, U. S. Coast Guard, and at each Administration's regional or district offices located in the Northeast, [See GAO note] and Western United States.

Pertinent legislation and policies, procedures, and practices for the regulation of hazardous materials and the enforcement of regulations by the Administrations were reviewed. Selected reports, records, and files located at both headquarters and field offices were examined. Interviews were conducted with officials, and with inspectors responsible for enforcement of the Hazardous Materials Regulations.

GAO believes that the Department needs to work toward a more effective inspection and enforcement program to ensure compliance with regulations for the safe transportation of hazardous materials. The weaknesses in the Department's program can be attributed to (1) a lack of basic data on hazardous materials movements, (2) the small and unsystematic inspection effort, and (3) the need for stronger enforcement actions.

The report makes the following recommendations:

GAO note Material has been deleted because of changes to the final report.

The Secretary of Transportation should -- establish a management information system to develop and maintain data on hazardous materials movements; reassess the adequacy of the Department's hazardous materials effort compared to the volume and danger of the materials, develop a plan for a more effective hazardous materials inspection and enforcement program, and present the plan to the Congress for its evaluation and consideration of needed resources.

DEPARTMENT OF TRANSPORTATION POSITION

The Department of Transportation welcomes an outside view of its hazardous materials transportation program, and finds much of value in the GAO's recommendations. However, it does not agree entirely with the interpretations and conclusions that have been developed by the study group. There are some basic flaws in the translation of the facts gathered into an assessment of the program. These discrepancies in the way GAO and the concerned Administrations view the same situations are pointed out in the following paragraphs

Control Over Container Manufacturers

[See GAO note, p. 34.]

Container manufacturers are not covered under the law. By regulations in Title 49, CFR, 170-189, shippers are required to use containers meeting the requirements of Parts 178-179 or by special permit, and carriers are prohibited from transporting hazardous materials unless packaged in accord with the regulations. There is no direct way of imposing penalties on container manufacturers under the law.

An amendment to Title 18 USC is under consideration to bring container manufacturers under the law and thus provide direct control over that part of their operations which affects hazardous materials containers.

Proper Perspective on Violations

Too much emphasis is placed on the number of violations without any attempt to ascertain their particular importance. In any regulatory enforcement program where a firm is found

APPENDIX I

to be failing to prepare a required document, or where it is prepared incorrectly over a long period of time, it is not difficult to pyramid that failure into hundreds of thousands of violations which theoretically could be single counts in an enforcement case. The practical reality is that by correcting that single error or omission, remedial action has been instituted, and no court will find the firm guilty of such multiple violations under our plea bargaining form of adjudication. Therefore, to compare (as is done on page 34) the numbers of violations discovered to numbers of violations prosecuted as a measure of stewardship is patently misleading.

Evaluation of Compliance Program

The report uses the number of violations discovered and the number of violations prosecuted as the sole measure of the operating Administration's interest and effectiveness in regulating hazardous materials. This is misleading since it fails to take into account the value of on-the-spot corrections, administrative handling to obtain remedial action, and letters of warning to "set up" violators for subsequent prosecution. The exclusive use of convictions as a yardstick also fails to recognize the effect of extensive training sessions provided to the carrier and snipper industries by DOT elements in order to obtain voluntary compliance with the rules.

Each Administration has a compliance program that is made up of various elements. It is a far more complex and effective approach than merely finding violations and prosecuting the violators. One item in all hazardous materials compliance programs is education. This is a continuing effort to obtain voluntary compliance through knowledge and understanding on the part of those subject to the regulations. The objective is pursued by talks, symposiums, meetings, handouts, letters, newsletters, schools, mailings of rule changes, and face to face explanation at the facilities visited.

A second approach might be loosely classified as direct action or on-the-spot correction whenever violations are discovered. Although these immediate corrections are extremely helpful in promoting safety, they often destroy the ability to obtain a later prosecution. In the opinion of the Department, the gain in actual safety far outweighs the loss of opportunity for prosecution after the fact.

Breadth of Compliance Alternatives

In addition to the education for voluntary compliance and the on-the-spot corrections mentioned above, there are other methods of obtaining compliance. These methods differ from mode to mode, but they are all working toward better compliance. Letters of violation are sent to an offending company's management, at a level where results can be obtained to change the operating procedures or policy. Sanctions of various kinds such as cancellation of special permits, suspension or revocation of required documents or licenses, removal of operating certificates, and withholding of clearance papers are frequently used to enforce compliance. Adverse publicity may cause an increase in insurance rates in addition to tarnishing a company's public image and generating embarrassment.

Information System

The Office of Hazardous Materials let a contract to GSA in May 1972 to ascertain the required scope and content of a hazardous materials management information system. Their recommendations were received in August of 1972, and will be followed as rapidly as resources permit.

Reassess the Department's Hazardous Materials Effort

The Department is designing an evaluation of its hazardous materials functions to obtain a better measure of both the adequacy of the functions relative to the volume of materials transported, and to determine the relative cost effectiveness of various program approaches.

Plan for More Effective Hazardous Materials Inspection and Enforcement Program

In addition to constant improvement in the interim, a well defined, comprehensive plan would be developed as part of the second phase of the proposed study referred to above. This plan would not be confined to only narrowly defined enforcement and inspection activities, but would also include all other types of hazardous materials functions.

Present Plan to Congress

The logical and expected conclusion to the above proposed study would be the presentation of the plan to Congress, and the placing into effect of a program to accomplish the things found necessary and advantageous during the study.

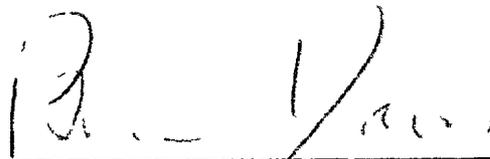
APPENDIX I

Civil Penalty Authority

GAO correctly identifies the difficulty that the Department has in prosecuting hazardous materials violations under the provisions of the Criminal Code. The Department is considering legislation providing for civil penalties as well as criminal penalties for violations of the Hazardous Materials Regulations.

Conclusion

The Department recognizes that the scope of the GAO review specifically covered the inspection and enforcement activities in the regulation of the transportation of hazardous materials. However, it is the Department's opinion that such things as education of shippers and carriers regarding regulations, better training of safety inspectors, and R&D for better containment should also be considered as additional means for improving hazardous materials safety.



Benjamin O. Davis, Jr.
Assistant Secretary for Environment,
Safety, and Consumer Affairs

PRINCIPAL OFFICIALS
OF THE DEPARTMENT OF TRANSPORTATION
RESPONSIBLE FOR ADMINISTERING ACTIVITIES
DISCUSSED IN THIS REPORT

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
SECRETARY OF TRANSPORTATION.		
Claude S. Brinegar	Feb. 1973	Present
John A. Volpe	Jan. 1969	Feb. 1973
Alan S. Boyd	Jan. 1967	Jan. 1969
ASSISTANT SECRETARY FOR SAFETY AND CONSUMER AFFAIRS (note a)		
Gen. Benjamin O Davis, Jr.	July 1971	Present
Adm. Willard J Smith	Aug. 1970	July 1971
DIRECTOR, OFFICE OF HAZARDOUS MATERIALS (note a)		
William J. Burns	Feb. 1971	Present
William C. Jennings	Dec. 1968	Feb. 1971
William K. Byrd (acting)	Apr. 1967	Dec. 1968
ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION		
Alexander P. Butterfield	Mar. 1973	Present
John H. Shaffer	Mar. 1969	Mar. 1973
David D. Thomas (acting)	Aug. 1968	Mar. 1969
Gen. William F. McKee	July 1965	July 1968
ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION		
Ralph R. Bartelsmeyer (acting)	July 1972	Present
Francis C. Turner	Feb. 1969	June 1972
Lowell K. Bridwell	Apr. 1967	Jan. 1969
ADMINISTRATOR, FEDERAL RAILROAD ADMINISTRATION		
John W. Ingram	Oct. 1971	Present
Carl V. Lyon (acting)	July 1970	Sept. 1971
Reginald N. Whitman	Feb. 1969	June 1970
A. Scheffer Lang	May 1967	Jan. 1969

APPENDIX II

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
COMMANDANT, U.S COAST GUARD		
Adm. Chester R. Bender	June 1970	Present
Adm. Willard J. Smith	June 1966	June 1970

^aThe Office of Hazardous Materials was transferred on August 7, 1970, to the newly established Office of Assistant Secretary of Transportation for Safety and Consumer Affairs. Prior to that date, it was under the Office of the Assistant Secretary of Transportation for Systems Development and Technology.

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