STATE AND FEDERAL REGULATION OF HAZARDOUS MATERIALS TRANSPORTATION: A REVIEW OF CURRENT PROGRAMS AND RECOMMENDATIONS FOR STATE GOVERNMENTS

by

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LEAH BURNETT JUNG. State and Federal Regulation of Hazardous Materials Transportation: A Review of Current Programs and Recommendations for State Governments. (Under the Direction of Dr. Richard N.L. Andrews)

This report describes national problems associated with highway shipments of hazardous materials and hazardous wastes, evaluates the federal role in regulating these shipments, and identifies regulatory and enforcement methods which may be used by state officials to improve the safety of shipments moving through their state. Limitations in the federal regulations and enforcement practices are outlined, and current state regulations and enforcement activities are reviewed. Legal restraints on state regulatory programs are then examined, particularly in regards to the U.S. Department of Transportation's preemptive powers. A description of feasible options for regulating hazardous chemical shipments follows. These options include the permitting and registration of hazardous materials and hazardous waste transporters, the use of computerized data management systems for managing transporter information, and the coordination of regulatory and enforcement activities with intrastate and interstate agencies. Other recommended actions are the establishment of driver training and certification programs, the designation of hazardous chemical routes, and the assessment of stiff penalties to violators of the transportation regulations.

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INTRODUCTION

Hazardous materials transportation is a widely publicized topic which draws much public attention and fear. Because of their catastrophic nature, hazardous chemical accidents receive a great deal of media coverage. The prevention of such accidents, however, does not receive a comparable amount of attention from state or federal regulatory agencies. This study was designed to define the problems encountered in regulating hazardous chemical shipments, to evaluate regulatory and enforcement programs currently used by state governments, and to identify the most feasible management options which are available to states within legal and economic restraints. Only highway shipments of hazardous chemicals are considered in this report.

Information on transportation regulatory problems was compiled for this study from numerous state and federal government documents, as well as from the author's own experience in working with state and federal highway transportation officers. Information on individual state regulatory and enforcement programs was obtained by sending a request for information to hazardous waste and hazardous materials transportation agencies across the United States. Approximately 145 agencies were contacted, with 115 responses received between March and August of 1986. Information was supplied by forty-nine states and the District of Columbia. Many unsolicited responses were additionally received due to agency referral of the inquiry letter. A number of informative replies by city governments resulted from such referrals.

Legal restraints on state and city highway transportation programs were identified by inspecting all of the administrative rulings that have been issued by the U.S. Department of Transportation (DOT). These rulings consider the acceptability of various state and local transportation regulations, according to their consistency with the DOT's national transportation policies.

This report begins by identifying some of the problems caused by hazardous chemical shipments, with a description of some of the contributing factors. The role played by the U.S. Department of Transportation and the U.S. Environmental Protection Agency (EPA) in managing hazardous chemical shipments is explained in Chapter Three; Chapter Four outlines deficiencies in the DOT regulations.

Information on state and local regulatory programs appears in Chapter Five, with a description of regulatory requirements listed by topic within individual subchapters. A compilation of these regulatory requirements, by state, is also provided in Appendix B. Enforcement methods employed by state and local governments are organized similiarly in Chapter Six, with Appendix D containing a listing of enforcement activities by state. Chapter Seven, "Federal Preemption of State and Local Regulations," describes the legal limitations to state regulatory and enforcement programs. A listing of DOT's preemptive rulings is shown in Appendix E; flow charts which reflect the criteria used by DOT in making its preemptive determinations are displayed in appendices F and G. Chapter Eight summarizes the regulatory and enforcement methods employed by state and local governments, and identifies whether the activities are or are not acceptable to the DOT.

Recommendations for regulating hazardous chemical shipments, based on a synthesis of the information presented in this report, are described in Chapter Nine. The report concludes with a summary of considerations which should be used in designing state hazardous chemical transportation programs.

PROBLEM IDENTIFICATION

Hazardous materials are ubiquitous in the United States. They are used in nearly every industry and every home. Hazardous materials range from such common items as cleaning compounds, paint, kerosene, batteries, and firecrackers to publicly feared items such as PCBs, methyl isocyanate (MIC), toxic waste, and spent nuclear fuel. A hazardous material is defined by the Transportation Safety Act of 1974 as "a substance or material which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety or property when transported in commerce." These chemicals are identified in several ways. Over 2400 hazardous materials are listed in the "Hazardous Materials Tables," located in Part 172.101 of the Code of Federal Regulations (CFR). Definitions for nine hazard classes are also contained within the CFR, and any material which meets the criteria specified for a particular class (even if it is not listed in the Hazardous Material Tables) is subject to regulation when transported in interstate commerce. Examples of these hazard classes are explosives, compressed gases, flammable liquids, corrosives, poisons, oxidizers, and radioactive materials.

Hazardous wastes and hazardous substances are also considered hazardous materials. Hazardous wastes are discarded chemicals which pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, or disposed of. [1] Hazardous substances are specific chemicals identified in various environmental acts as presenting substantial danger to public health or the environment when they are released into the environment. [2] Both hazardous wastes and hazardous substances are thus regulated as hazardous materials because they may cause harm to people or the environment when spilled during transportation accidents.

Over 180 million loads of hazardous materials are transported yearly in the United States. Approximately one-half of these shipments are carried by truck; an estimated 250,000 shipments travel over U.S. highways per day.[3] The U.S. Department of Transportation estimates that at any given time, between five and fifteen percent of all trucks on the road are carrying hazardous materials. Four hundred and thirteen thousand tank trucks alone have been identified to be transporting hazardous materials (bulk liquids) on a reguler basis.[4]

An annual average of 11,462 accidents involving shipments (all modes of carriage) of hazardous materials were reported to the U.S. DOT during the period 1973-1983. Although this number is high, the actual rate of reported highway incidents is only 1.25 per 10,000 chemical shipments.[5] Even with a low accident rate, then, the high volume of hazardous chemical shipments translates into a large number of accidents.[6] Further, hazardous materials incidents may be catastrophic in their effect, causing millions of dollars in property losses, contamination of municipal drinking water supplies, degradation of sensitive environmental areas, or human injury or death. The DOT itself states that "The potential for death, injury and property loss is present in any [hazardous materials] incident - no matter how small it may be."[7]

Costs associated with hazardous materials transportation accidents have been reported to average $10,000 per event.[8] Annual average damages for hazardous materials incidents which were reported to DOT between 1973 and 1983 equalled $13 million (all transportation modes), but this figure is considered low by a factor of as much as 10^5 due to the fact that not all accident costs are reported.[9] Additionally, DOT's hazardous materials incident statistics do not include chemical releases by intrastate carriers, nor spills of paint, batteries, or certain types of consumer goods. The Department's national analyses of hazardous materials incidents are thus believed to result in a low estimate of accident occurrence and annual property damage.

The number of transportation accidents involving a particular hazardous material generally corresponds to the number of shipments made per year. For example, petroleum based products, the most frequently transported hazardous materials in the United States, account for more accidents, injuries, and damage than any other commodity.[10] Over seventy-eight percent of

highway spills in Oregon for the period of 1976 - 1984 involved gasoline, diesel fuel or fuel oil. Flammable liquids and combustible liquids, the hazard classes for petroleum products, accounted for 66.7 percent of Oregon spills in 1984. [11] In Illinois, flammable liquids were found to be involved in fifty percent of the highway accidents reported to the U.S. DOT; these liquids corresponded to approximately fifty percent of the hazardous materials shipped within the state. [12] Furthermore, Illinois discovered that bulk shipments accounted for the most injuries and accidents involving the public. This finding is not surprising, considering that 413,000 tank trucks are estimated to be travelling U.S. highways daily. [4] Additionally, many of these trucks operate in close contact with the public when they travel city streets to deliver chemical shipments (for instance, gasoline) to local businesses.

The number of highway incidents may also be influenced by the type of motor carrier which transports hazardous chemicals. According to Frank Holscher, Chairman of Thurston Motor Lines in Charlotte, North Carolina, and former president of the North Carolina Motor Carrier Association, the majority of trucking accidents are caused by unsafe vehicles operated by independent, for-hire truckers who cannot afford proper vehicle maintenance. [13] Bill Hawkins, U.S. DOT in Raleigh, North Carolina, agrees. He reported in a March 1986 conversation with the author that it is companies who operate on narrow profit margins which pose the greatest safety problems in hazardous materials highway transportation. The tighter the company's profit margin, he explained, the less likely it is for the company to comply with driving or vehicle safety requirements. This can result in serious consequences: trucking companies with records of serious federal safety violations have recently been found to have three times as many accidents per mile travelled as companies with good compliance records. [14]

The broader class of interstate, for-hire carriers has also been implicated in a majority of highway accidents. A 1980 Department of Transportation table of hazardous materials incidents reveals that for-hire carriers have been involved in over thirty times more hazardous materials accidents than private highway carriers. [15] A recent computer analysis of national truck accident reports revealed that three out of four highway truck accidents involved interstate carriers from

outside of the state where the accident occurred. [14] State based studies, however, have produced differing statistics. In Oregon, accident rates per million miles of highway driven were found to be nearly identical for intrastate and interstate for-hire carriers. [16] In Illinois, private intrastate carriers were involved in three-fourths of the hazardous materials accidents recorded in the State even though they accounted for only one-third of the mileage driven. [17] These state reports thus conflict not only with each other but also with the national DOT statistics. One explanation for the different findings is that the type and number of incidents reported to each state may vary (for instance, some states may have more access to federal incident data on interstate carriers who are from outside of their state). Also, as mentioned earlier, intrastate carrier incidents are not reported to the U.S. DOT. This means that the majority of nationally recorded accidents are automatically attributed to interstate carriers. Statistical reports of hazardous materials transportation accidents should thus be evaluated cautiously.

THE FEDERAL ROLE

The Department of Transportation (DOT)

The U.S. Department of Transportation is the federal regulator of hazardous materials transportation in the United States. DOT's authority is primarily vested in the Hazardous Materials Transportation Act (HMTA) of 1975. The Act authorizes the Secretary of Transportation to issue regulations governing the safe transportation of hazardous materials in interstate commerce and in intrastate commerce as it affects interstate shipments. The HMTA also authorizes the Secretary to regulate hazardous materials shippers and carriers (trucking companies, airlines, etc.) and the manufacture and repair of packages and containers which will be used for transporting hazardous materials. The Secretary delegates these powers to the Department of Transportation.

One of DOT's five administrations, the Research and Special Programs Administration (RSPA), acts as the directional and coordinating group for the Department and houses the Office of Hazardous Materials Transportation (OHMT). OHMT is responsible for hazardous materials transportation safety and issues the hazardous materials safety regulations. The Office came into existence on November 1, 1985 as a result of reorganization within the DOT. Prior to this date, OHMT's functions were performed by the Materials Transportation Bureau (MTB).

The remaining four DOT administrations enforce transportation regulations associated with their specific transportation modes; they are the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), the Federal Aviation Administration (FAA) and the U.S. Coast Guard (USCG). This paper will primarily be concerned with activities and regulations falling within the jurisdiction of the FHWA since trucks are known to transport more hazardous

materials than any other transportation mode. [10] Highway shipments have also been shown to be responsible for over 8 times as many hazardous materials accidents than all of the other modes put together. [18]

Federal regulations which pertain to highway shipments of hazardous materials are contained within Title 49 of the Code of Federal Regulations, Parts 100-399 (49 CFR, 100-399). Parts 171-199 of the CFR contain what are known as the "Hazardous Materials Regulations." These include requirements about packaging hazardous materials, marking and labelling the packages, truck placarding (display of a sign on a vehicle which indicates the hazard class and identification number of the material being transported), use of shipping papers which describe the hazardous material carried, loading and storage procedures for hazardous material packages, shipment routing, and the reporting of hazardous materials incidents. The regulations apply to any hazardous materials shipment made by interstate or foreign carriers and to shipments of hazardous waste and hazardous substances which are made by intrastate carriers.

Parts 350-399 of the CFR contain regulations known as the "Federal Motor Carrier Safety Regulations." Parts 350-396 of these requirements apply to any type of material (hazardous or nonhazardous) shipped by an interstate motor carrier whose vehicle's gross weight is over 10,000 pounds. Parts 350-396 contain requirements for a minimum level of motor carrier insurance, documentation of driver qualifications, routine inspection, repair and maintenance of vehicles, and the maximum number of hours which drivers are allowed to be on duty.

Part 397 of the Federal Motor Carrier Safety Regulations contains the "Hazardous Materials Driving and Parking Rules"; these regulations apply only to interstate shipments of hazardous materials which require placarding. Requirements address driver attendance of vehicles, vehicle parking, and shipment routing. Loopholes and deficiencies in the Federal Motor Carrier Safety Regulations and the Hazardous Materials Regulations are discussed in the next chapter.

Enforcement of the regulations contained within CFR Parts 100-399 is the responsibility of the Bureau of Motor Carrier Safety (BMCS), which is located within the Federal Highway

Administration. The Bureau maintains a staff of field inspectors distributed across the United States who regularly conduct roadside motor vehicle (truck) inspections, motor carrier terminal audits (record investigations at transportation company offices), and shipping company audits. The Bureau has received much criticism in recent years, however, for its shortage of transportation inspectors. During the period 1979-1983, for example, the FHWA dropped from 9 full time and 152 part time hazardous materials inspectors to 8 full time and 144 part time inspectors. This was the enforcement task force for regulating an estimated 104,000 shipping facilities, an unknown number of trucks and over 20,000 container manufacturers who were regulated in conjunction with the Federal Railroad Administration. [19] In 1985, the BMCS had only 130 field inspectors to regulate an estimated 210,000 companies which operated more than a million trucks. If selected randomly for an audit, it was calculated, a company would come under compliance screening by the Bureau only once in every 42 years. [20] Jim Burnett, Chairman of the National Transportation Safety Board, stated in a February 19, 1985 letter to Fred Millar, Environmental Policy Institute (Washington, D.C.), "Previous Safety Board reviews of Federal programs have found the Department of Transportation's staff to be insufficient in number, given the enforcement tasks with which it is charged." Kenneth Pierson, the BMCS director, concurs. When interviewed by Knight-Ridder newspaper reporters about the lack of enforcement personnel in the Bureau, he replied, "There have been many studies of the bureau . . . and all of them found that the resources were inadequate for the scope of the responsibility." [20]

The Environmental Protection Agency (EPA)

The Environmental Protection Agency is the primary federal regulator of hazardous wastes. Under the Resource Conservation and Recovery Act of 1976, EPA was provided with authority to enact regulations governing the generation, transportation, treatment, storage, and disposal of hazardous waste. The Agency's prime concern with hazardous waste transportation is

prevention of illegal waste disposal, although spill clean-up to prevent harm to the public or the environment is also one of EPA's responsibilities.

The EPA's regulations on the transportation of hazardous waste focus on a "cradle-to-grave" system which utilizes a document called a "manifest" to track the movement of hazardous waste from its point of generation (cradle) to its final destination (grave). Each manifest must contain a description of the waste which includes the U.S. DOT proper shipping name, the waste's hazard class, and the quantity of waste shipped. The name and address of the waste generator, the transporter, and the waste receiver, which is a treatment, storage, or disposal (TSD) facility, must also be included on the manifest. Both the generator and the TSD facility must be permitted by the EPA, while the transporter needs only to have notified EPA of his transportation activities and obtained an EPA registration number. The registration or permit number issued to each of the companies must be indicated on the manifest next to the company name. The name and permit number of an alternate treatment, storage, or disposal facility must also be present if the waste is to be shipped elsewhere in the event that the original TSD cannot accept the load.

At each point of waste transfer - that is, from the generator to the transporter and then to the TSD facility - the manifest must be signed by a company representative. This shows receipt of the waste and aids in tracking shipment movements at a later date. A copy of each manifest, with the eppropriate signatures, must be kept by the waste generator, transporter, and TSD facility for 3 years. These copies must be produced on demand for review by any agent of the EPA, allowing the EPA to verify that hazardous waste shipments are only sent to and received by facilities which are authorized to accept the waste. The manifest system thus creates in concept a thorough cradle-to-grave tracking system. However, it only works when shipments <u>are</u> manifested. Illegal transportation operations can easily circumvent the system, leaving little record of their activities. Also, due to manpower shortages and other priorities, shipments are tracked infrequently. Additionally, problems are only discovered by the EPA after shipments have been made. This is perhaps one of the greatest differences between the EPA and the DOT regulatory programs, for the DOT monitors shipments while they are in transit. If hazardous waste

shipments were also monitored while in transit, the EPA manifest system could be more completely enforced, and problem shipments could be stopped while in progress. This would help to reduce illegal dumping of hazardous waste.

In response to this need, the EPA and the DOT entered a cooperative agreement in 1980 in which the DOT agreed to regulate hazardous waste shipments. The DOT thus now checks hazardous waste shipments for compliance with both the EPA manifest requirements and the Federal Motor Carrier Safety Regulations. However, DOT personnel do not usually have knowledge of or information on companies which are authorized by the EPA to handle or dispose of hazardous waste. As a result, shipments accompanied by manifests with incorrect information, such as false registration and permit numbers or nonexistent disposal sites, often pass the DOT inspections. Efficient monitoring of hazardous waste shipments thus has still not been achieved.

LIMITATIONS OF THE U.S. DOT REGULATIONS

Although the Department of Transportation's regulations apply to many aspects of commercial interstate highway transportation, they generally do not extend to intrastate carrier operations. The Motor Carrier Safety Regulations contained in Parts 350-399 of the Code of Federal Regulations, Title 49, do not apply at all to intrastate motor carriers. Under the Hazardous Materials Transportation Act, the Department of Transportation has the authority to regulate the intrastate transportation of hazardous materials as it affects interstate transportation, but the Department has so far chosen not to do so except on a case-by-case basis.[21] At the present time, the only federal regulation of intrastate carriers is in regards to the transportation of hazardous wastes and hazardous substances; these shipments are subject only to the rules contained within the Hazardous Materials Regulations (49 CFR, Parts 171-199). Many states have not developed any additional state regulations for intrastate carriers, nor have they extended the applicability of the interstate carrier rules to intrastate operations. This neglect of intrastate carrier regulation means that thousands of intrastate shipments of hazardous materials go unregulated every year.

Several groups of hazardous materials are also unregulated under the current DOT system. Many chemicals (such as flammable and combustible liquids, corrosives, oxidizers, organic peroxides, etc.) are not regulated when carried in quantities of less than 1000 pounds because DOT does not require these shipments to be placarded. Placarding is used frequently by DOT as a starting point for hazardous materials regulation such that shipments which do not require placarding are frequently not subject to other regulations. For example, the Hazardous Materials Driving and Parking Rules contained in 49 CFR, Part 397, apply only to hazardous materials shipments which require placarding. Because an 800 pound shipment of a spontaneously

combustible, flammable solid would not require a placard, it would thus not have to be attended by a driver or follow routes which minimize public exposure to the material. If such a cargo underwent a reaction when involved in an accident or while left unattended on the side of a city street, no placard would be present to warn emergency responders of the hazards of the material. Although shipping papers could provide some hazard information, they may be inaccessible or, as is commonly the case, they may be missing or contain incorrect information. [22, 23] Without knowing the characteristics of the cargo, responders may apply chemicals to the substance which would react with the shipment, causing a worsening of the situation.

"ORMs" or "Other Regulated Materials" also escape much of DOT's regulation. The "ORM-"E" hazard class includes hazardous wastes and hazardous substances which do not meet the definition of any other DOT hazard class (flammable liquid, corrosive, poison B, etc.). In addition to not requiring placards and being exempted from regulations which only pertain to placarded shipments, these materials have few requirements for packaging, except that bulk transport vehicles must "be free from leaks." [24] One outcome of the limited packaging requirements is that many hazardous wastes and hazardous substances are transported in DOT-uncertified vehicles, frequently uncovered dump trucks and hauler-constructed vehicles. [25] The design of these vehicles is not always compatible with the hazardous materials hauled in them. This sometimes results in vehicle degradation, generation of heat or gases, leakage, or spills. Because ORM-E shipments are exempt from numerous regulations and do not require placards, vehicle marking, or the use of certified vehicles, they may easily be transported surreptitiously, and are occasionally dumped illegally on country roads and fields, into ponds, and at municipal landfills. They may also cause unanticipated human health hazards when highway accidents occur.

Another group of materials which are not well regulated by the DOT is new chemical products. DOT simply does not have the manpower to analyze new products for hazard classification when they are first placed on the market. In 1985, DOT had only one chemist to analyze the hazards of the estimated 30,000 - 50,000 chemicals which were being transported in the U.S. subject to the Hazardous Materials Regulations. [26, 27] According to the U.S. Office of Technology

Assessment, many of the over 70,000 chemical products currently on the market have not even been reviewed by the DOT for regulatory inclusion. [3]

Of the chemicals regulated by DOT, many are assigned to hazard classes which do not reflect the most serious hazard or all of the hazards of the chemical. One serious deficiency in DOT's hazard classification system is the lack of a "toxic" hazard class. Toxic substances such as methyl isocyanate (MIC) have, as a result, been inadequately classified for years. For instance, MIC is classified by the DOT as a "Flammable Liquid" even though it also meets the definition of a "Poison B" and a "Corrosive." During the Bhopal, India incident in 1984, the extremely toxic effects of MIC were demonstrated. This crisis focused pressure on the DOT to improve its faulty classification system, which had been greatly criticized since 1969. [28] In 1985, after urgings from the National Transportation Safety Board, the DOT published some special regulations for liquids which are toxic when inhaled, but no "toxic" hazard class was created. [29]

Another deficiency in DOT's classification system affects chemicals which meet the definition of several hazard classes. These materials must be classified according to a precedence list of hazard classes contained in 49 CFR, Part 173.2 (see Appendix A). According to this list, a Flammable Liquid which is also a Poison A would be classed and placarded as a Poison A. However, a Flammable Liquid which is also a Poison B would be classed and placarded as a Flammable Liquid. In the event of a hazardous material incident involving either of these types of substances, emergency responders would be working with only partial information and could be faced with unanticipated dangers.

A similiar lack of information exists when a vehicle transports materials of two different hazard classes. According to DOT regulations, these vehicles may be placarded simply as "Dangerous." Here again, incomplete information (and little protection) is provided to emergency responders.

When hazardous materials incidents occur, the DOT regulations provide no guidance on environmental protection. As a result, hazardous materials spills are frequently washed onto fields or into creeks or streams by emergency responders. Although the DOT requires motor

carrier insurance policies to cover environmental damage and restoration, restorative actions are not usually undertaken unless a representative of a state environmental agency or the U.S. EPA is present to direct the restorative activities. Substances which pose substantial harm to the environment when spilled were not even regulated by the DOT until the EPA expressed its concern about regulation of these "hazardous substances." Under a joint agreement between the two agencies, "Reportable Quantities" of these materials (the amount of each substance which EPA considers to be harmful when spilled) were made subject to the DOT regulations. DOT's true interests, however, are still "only with safety on the highways, airways, waterways or railways, and do not currently address themselves to environmental protection." [30]

Another problem with the DOT regulations is their complexity. Because the regulations are so confusing, it is frequently claimed that it is too impractical and too difficult for transportation companies and drivers to comply with them. The regulations are full of gaps, cross references, unfamiliar terminology, exceptions, exemptions, and special applications. Not only do these complications confuse the trucking industry, but state safety inspectors are often hesitant about enforcing some of the regulations because they are not comfortable with their understanding or knowledge of the rules. [31] Violations are rarely taken to court or to formal hearings because state enforcement officers are uncomfortable about explaining the complicated rules. State inspection officer training is usually crammed into a brief period of time and is not sufficient for understanding all of the DOT rules at such an in-depth level. The complicated nature of the regulations thus contributes to decreased enforcement and also to noncompliance.

Another area of limited treatment in the federal highway rules is that of training hazardous materials drivers. State and federal accident investigations have found that human error is at fault in the majority of hazardous materials trucking accidents. For example, a 1984 Oregon study reported that driver actions accounted for 66.7 percent of Oregon accidents which resulted in hazardous materials spills. [32] A national study conducted by the Congressional Research Service of the Library of Congress had similiar findings: human error was held responsible for two-thirds of the national transportation accidents involving hazardous

substances.[33] Because some of the more frequent driver errors identified by the Service could have been avoided by proper driver training, DOT's inadequate hazardous materials driver training requirements were sharply criticized. Describing DOT's regulations as "vague . . . at best," the Service recognized that "DOT's regulations do not require a certification or testing program designed to ensure that these workers have a basic understanding of and sensitivity toward the hazardous properties of and risks associated with the chemicals with which they are dealing."[33] The Service's criticism of driver training is supported by state analyses of driver qualifications and driving violations. One state found that 16.5 percent of all truck drivers stopped for vehicle safety inspections were not qualified to drive their vehicles. Eleven point two percent of the total safety violations in the state were regarding driver qualifications and driver hours of service.[34]

The most frequently recorded violations of the federal Hazardous Materials Regulations could be greatly corrected by adequate training of hazardous materials drivers. State inspectors report that the most common hazardous materials violations are missing or inaccurate placards and shipping papers.[22, 23, 35] A state poll conducted by the Office of Technology Assessment has estimated that one-fourth to one-half of all hazardous materials vehicles have improper placards.[22] Since shipping papers and placards provide crucial information to emergency responders during hazardous materials incidents, inaccuracy in these items can create dangerous situations for emergency responders and the public. Accurate cargo descriptions are needed for responders to initiate proper mitigative actions. Thus, if drivers were trained to verify the accuracy of shipping papers and placards when shipment pick-ups are made, emergency responders would be better able to respond to emergency situations properly.

Driver instruction could also eliminate other commonly occurring, dangerous errors. Inadequately tightened valves and fittings, and improperly loaded cargo tanks are some of the most frequent errors which result in hazardous materials incidents.[33] Although the DOT provides guidelines on vehicle loading, inspection and maintenance, many drivers are either not trained in these procedures or do not follow the DOT rules.

One reason for this lack of adherence to federal rules is that DOT's enforcement methods are notoriously weak. The Department's primary enforcement action is to take vehicles found noncompliant with certain critical safety criteria (such as non-working brakes, lights or turn signals, fabric showing on tires, and vehicle operators driving longer than allowed) "out of service" until the problem is fixed. When this happens, a vehicle must remain on the side of the road until someone can restore it to working condition -- or until DOT inspectors leave the area. These "out of service" delays can be costly to industry but the chance of being caught is so small that many companies don't seem to care. Nearly one-third of all trucks stopped by BMCS safety inspectors in 1983 had safety defects which resulted in their being ordered out of service. [14] State inspectors who replicate the federal program within individual states have found similiar rates of safety problems. In Oregon, 27.6 percent of vehicles stopped for inspection were placed out of service [34] while in Connecticut, 54 percent of inspected trucks were taken out of service.[36]

When vehicles and/or drivers are found to be noncompliant with less critical safety criteria, Department investigators complete a "Driver Equipment Compliance Check" form which indicates which safety criteria were violated. The form is given to the driver, who is responsible for taking it back to the carrier's office. The form must be signed by the carrier's agent, certifying that all repairs and/or corrections have been made, then it must be returned to the DOT within fifteen days. Unfortunately, if the form is not returned, no fines, further investigation, or corrective action occurs. Theoretically, the carrier's failure to correct the safety problems would eventually appear in its federal "Carrier Profile" record and could contribute to the selection of the carrier for a federal safety audit at some point in the distant future. But the carrier's record would have to show more accidents and safety violations than other carriers in its class before the safety audit would occur. [37, 38, 39]

The DOT does have the authority to issue fines for hazardous materials violations, but this enforcement method is not frequently used. As the U.S. General Accounting Office states, "Bureau policy is to encourage voluntary compliance with the federal regulations, rather than initiate

formal enforcement measures that could result in fines." [40] Additionally, the fine assessment process is formal, complicated, and time consuming. First, a company investigation must be conducted by a DOT investigator and violations of the hazardous materials regulations must be documented. Then, a "Notice of Probable Violation" must be sent to the violator. The notice explains the alleged violations and advises the company of its right to discuss the matter with the agency or to have a formal hearing. Most companies choose to settle out of court, resulting in negotiated settlements. If a case does proceed to court and the Department seeks civil penalties, the DOT must prove that the violations were committed knowingly. Willful activity must be proved in order to seek criminal penalties. Under the Hazardous Materials Transportation Act, up to $10,000 per violation per day may be assessed for civil penalties. Up to $25,000 per violation per day plus a maximum of 6 years in jail may be assessed for criminal penalties. However, in determining fines through either negotiations or court proceedings, the DOT must consider the company's ability to pay the fine, and the effect that the fine may have on the company's ability to do business. This requirement has resulted in an average fine of only $19 per violation. [20]

As a result of ineffective DOT enforcement, noncompliance with the federal highway transportation regulations runs high in the U.S. For example, virtually all trucks inspected in Connecticut have been found to have some type of safety problem. [36] It was also common to find at least one violation per truck in Massachusetts prior to their development of a state enforcement program. [41] Even with the enforcement program in use, over one-half of the hazardous materials trucks which are stopped for inspection are found to be in violation of Massachusetts' hazardous materials laws. [42] One reason for these high rates of noncompliance is that it is cheaper for most carriers to be fined than to correct vehicle or operating deficiencies. Since the penalties for noncompliance are so low, many companies figure infrequent fines and inconveniences into the cost of doing business. [43, 44] Safety conscious companies, however, are penalized for complying with the regulations because compliance increases their operating costs. These increased costs hurt the motor carriers when they are forced to compete for business with noncompliant companies who can operate at lower costs.

One of the reasons for DOT's weak enforcement policy is the Department's pro-industry attitude. This is perhaps best demonstrated by an incident which occurred in 1979. At this time, reports appeared which revealed that almost half of the trucks inspected by the BMCS were being placed out of service. In response, the Bureau began confining most of their roadside vehicle checks to two main periods per year and announced one of the periods to the public in advance. Federal investigators were also ordered to stop targeting suspicious looking vehicles and to select trucks for inspection randomly. The reason for the random selection command was explained by the BMCS Director, Kenneth Pierson. He stated that the targeted truck selection "was doing a disservice to the industry" and was creating "in the minds of the public an unwarranted fear about trucks." Pierson further stated "I don't see anything wrong in terms of giving a fair shake to the industry."[38] Friendly attitudes like this pervade the Highway Administration. One explanation is that many of the FHWA employees have worked for the trucking industry prior to joining the U.S. DOT.

Another example of DOT's go-easy policy on industry concerns requirements for passing the "Written Examination for Drivers." Questions on the exam, which all interstate commercial motor vehicle drivers must take, are based on the Federal Motor Carrier Safety Regulations (which the drivers are supposed to know and follow). According to CFR, Part 391.35 (b), "The objective of the written examination is to instruct prospective drivers in the rules and regulations established by the Federal Highway Administration pertaining to commercial vehicle safety. It is an instructional tool only, and a person's qualifications to drive a motor vehicle under the rules in this part are not affected by his performance on the examination" (emphasis added). Additionally, (Part 391.35 (c)) "Prior to, and during the examination, the person who takes it shall be permitted to examine and consult a copy of the Federal Motor Carrier Safety regulations . . . in addition to any other material explaining the provisions of those regulations that the motor carrier may provide." There is also no time limit on the exam.

The genesis of this pro-industry posture in the DOT regulations is visible if one looks into the history of the development of the DOT regulations. According to a report prepared for DOT in

1982, the "primary concern of the early hazardous materials regulations was to protect transportation workers and related equipment." "Historically, the property-protective effort has been to preserve others' packages on the vehicle. This is consistent with the fact that common carriers, as insurers of their cargo, wrote the initial regulations" (emphasis added). [43] The primary purpose of the early federal hazardous materials transportation regulations was thus to prevent loss or damage of vehicles and shipments, not to protect human health or the environment or to assist emergency response personnel in responding to hazardous materials incidents.

STATE REGULATORY PROGRAMS

As concern about the dangers of hazardous materials transportation has increased, and awareness of federal regulatory deficiencies has heightened, many state and city governments have begun to enact their own regulations for the transportation of hazardous chemicals. In order to assess the number and nature of these regulations, this author sent inquiry letters to transportation agencies and environmental agencies in each U.S. state and the District of Columbia, according to agency names and addresses obtained from The National Directory of State Agencies (Information Resources Press, Arlington, Virginia, 1985) and State Administrative Officials Classified By Function (Council of State Governments, Lexington, Kentucky, 1985). Each letter requested information on the agency's regulation of hazardous materials and hazardous waste transportation, specifically in regards to transporter permits, licenses, driver training, and shipment routing. Information on enforcement methods was also requested.

Responses were obtained from most of the agencies which were contacted. Not all of the original agencies were involved in actual regulation of hazardous materials or hazardous wastes; others only enforced federal regulations which they had adopted from the U.S. Environmental Protection Agency or the U.S. Department of Transportation. Many state officials referred copies of the original inquiry letter on to other agencies or provided this author with names and addresses of additional agencies which should be contacted. A total of approximately 135 inquiry letters were mailed to state agencies, and 10 agencies were called. Follow-up phone calls were also made to approximately 25 of the state agencies which did not respond to the initial letter. Information was received from approximately 115 of the 145 agencies contacted; responses were obtained from 49 states and the District of Columbia. Additionally, numerous unsolicited responses were received as a result of agency referrals.

Three other sources of state agency information were the publications Hazardous Materials Transportation, A Legislator's Guide, by the National Conference of State Legislatures (1983), Transporting Hazardous Waste, by the American Trucking Associations, Inc. (1984), and Transportation of Hazardous Materials: State and Local Activities, by the U.S. Office of Technology Assessment (1986). The first two of these publications contain lists of agencies which regulate hazardous materials or hazardous waste, respectively, in each state. The third publication contains useful, descriptive information on selected states' regulatory and enforcement programs.

Information on state regulations which was obtained from these publications and from state agency replies is contained in Appendix B, "State Regulations for the Transportation of Hazardous Materials and Hazardous Waste." One hundred and sixteen state agency entries (treating the District of Columbia as a state) compose the major body of information in this appendix. An additional16 state agency entries provide reported but undocumented information on state regulations. Indicated by parentheses around the state agency name, these entries consist of information which was received second-hand and which was not confirmed by information received from other sources or from the agency itself. Seven other entries contain information obtained on specific states, but the actual agency responsible for the regulations could not be identified. These entries are indicated by the term "Unidentified Agency" under the state name. Appendix B also contains regulations enacted by 12 U.S. cities. This information was received from a variety of sources, including state agencies, transportation journals or newsletters, and city officials who replied to referral letters from state governments.

The depth and scope of the regulatory programs on which information was obtained was found to vary greatly between states and regulatory agencies. Much of the variation appears to be tied to the number and degree of problems that each state or city has experienced in regards to hazardous materials or hazardous waste incidents. For example, in the Northeastern United States, where frequent hazardous materials shipments may pose a threat to residents in densely

populated areas, detailed regulations and strict, comprehensive transportation enforcement programs have been developed. In the Midwestern states, however, a paucity of hazardous materials transportation regulations often occurs because the limited numbers of hazardous chemical shipments travelling through the states have caused few or insignificant problems.

The adaptability of government regulation to the degree of problems encountered is demonstrated by recent events which occurred in Denver, Colorado. On August 1, 1984, a truck carrying six Navy torpedoes, each containing 655 pounds of explosives, overturned on a Denver exit ramp in the interchange between Interstate I-70 and I-25. Both interstates were closed for 8 hours and nearby residents had to be evacuated. Fortunately, no one was injured. [45] In response to this incident, however, the Denver City Council enacted an ordinance in mid-1985 which restricts the movement of hazardous materials to specific routes designated by the city, bans the movement of radioactive materials and certain hazardous materials (i.e., explosives) on the elevated portion of I-70, and restricts the hours of movement of other hazardous chemicals. The ordinance also requires permits for transporters making hazardous materials shipments through the city, and provides a provision for permit denial if emergency response does not exist for any of the materials shipped by a transporter. Additionally, state fines for violations of the motor carrier safety regulations, which are enforced by the Colorado State Patrol and the Colorado Port of Entry, were increased from $5 and $10 to $50 and $75 not long after the incident occurred. [46]

Although the extent of regulatory control exercised by city governments and state agencies varies between states, certain aspects of hazardous chemical transportation are regulated by similiar agencies. Hazardous materials are usually regulated by state transportation or highway departments, while hazardous wastes are primarily regulated by state environmental or health departments. Seventy state agencies which regulate hazardous materials transportation are shown in Appendix B; 21 are Departments of Transportation or Motor Vehicles, 21 are Departments of Public Safety, Highway Patrols, or State Police, and 19 are Public Service or Public Utilities Commissions. [47] Fifty-three state agencies are shown to regulate hazardous waste

transportation, of which 32 are environmental agencies, 10 are health departments, and 7 are combined environmental/ health departments. [47] This predominant regulation of hazardous materials transportation by transportation agencies and the regulation of hazardous waste transportation by state environmental or health agencies follows the pattern of federal regulatory authority vested in the U.S. DOT and the U.S. EPA. The similiarity of structure is to be expected because state regulations are usually adopted from or based on the federal DOT or EPA regulations.

Seven highway related agencies are indicated in Appendix B as regulating both hazardous materials and hazardous wastes. In addition to regulating these chemicals under the DOT rules, these 7 agencies have developed special regulations for hazardous waste which extend beyond the DOT requirements. The special hazardous waste provisions have probably been implemented because of the agencies' awareness of the existing loopholes in the DOT's hazardous waste regulations. [48] Some agencies, however, have adopted the DOT regulations without adding special requirements for hazardous wastes. These agencies are shown in Appendix B as having authority only over hazardous materials transportation. The regulatory authority of each agency is indicated in column 3 of Appendix B, and is summarized by agency type in Table 1.

The type of hazardous materials regulations employed by state agencies often follows similiar jurisdictional divisions in different states. Departments of Public Safety, State Police, and Highway Patrols usually focus on hazardous materials equipment and vehicle operating regulations which they can enforce while travelling major highways or conducting roadside vehicle checks. These agencies also are often responsible for monitoring the progress of certain hazardous materials shipments when they travel through the state. Departments of Motor Vehicles also focus on equipment and vehicle operating regulations, but these regulations are normally enforced at manned vehicle weigh stations.

State Department of Transportation regulations may encompass any type of hazardous materials transportation requirements, including transporter registration, permitting, financial responsibility, shipment routing, or vehicle operation and equipment standards. Public Service or Public Utilities Commissions typically issue state "operating authority" to transporters. This

operating authority is a formal permission for motor carriers to operate in the state. Transporter registration, licensing, and assurance of financial liability are often conditions of receiving this authority. In some cases, the Public Commissions indicated in Appendix B were reported to regulate hazardous materials transporters, but it is unknown if the Commission's regulations extend beyond general motor carrier operating authority, registration, and financial responsibility requirements.

TABLE 1. REGULATORY AUTHORITY OF STATE AGENCIES SURVEYED

Regulatory Authority	Type of Agency		No. of Agencies
Hazardous Materials Transportation	Departments of Transportation or Motor Vehicles		21
	Departments of Public Safety, Highway Patrols, or State Police		21
	Public Service Commissions or Public Utilities Commissions		19
	Other		9
		Total	70
Hazardous Waste Transportation	Environmental		32
	Health		10
	Combined Environmental/ Health		7
	Other		4
		Total	53
Hazardous Materials and Hazardous Waste Transportation	Transportation Commissions		3
	Highway Patrols, State Police		2
	Public Utility Commissions		2
		Total	7

State environmental and health agency regulations for hazardous waste transportation are usually similiar or identical to the U.S. EPA's regulations. Nearly all the states require transporters to use the EPA manifest system for shipments of hazardous waste. Regulations pertaining to the use of the manifests, such as the proper signatures and distribution of copies to the waste generator, transporter(s), and TSD facility are usually adopted from the EPA

regulations. Few changes in the EPA rules are made by the states, and these changes are primarily for extended maintenance of manifest copies or for submittal of manifest copies to state environmental agencies. Additionally, in states which have received authorization from the EPA to run the federal hazardous waste program (indicated by the word "EPA" after the state agency's "HW" authority listing in Appendix B), transporters are liable first to the state environmental agency, not to the U.S. EPA. In Appendix B, only state regulations which are more stringent than the federal regulations are listed.

Some state agencies regulate a combination of hazardous materials and hazardous wastes; many states have developed special requirements for selected groups of hazardous chemicals. Michigan's State Fire Safety Board, for example, maintains special restrictions on shipments of flammable and combustible liquids. Agencies such as the Florida Department of Environmental Regulation, Georgia Public Service Commission, Maine Board of Environmental Protection, and South Carolina Department of Health and Environmental Control have designed specific regulations for controlling shipments of polychlorinated biphenyls (PCBs) and/or waste oil. A few states have originated their own name for groups of chemicals which they regulate. This is exemplified by the term "Controlled Hazardous Substance" (CHS) which is used by the Waste Management Administration of the Maryland Department of Health and Mental Hygiene.

Other states limit the applicability of their hazardous materials regulations to specific groups of shipments or transporters. Some state transportation departments restrict their regulations to placarded shipments of hazardous materials, while numerous environmental and health agencies apply special transportation requirements only to hazardous waste shipments which are originating or terminating within their state. Other agencies, such as the Alabama Public Service Commission, avoid regulating private carriers and concentrate instead on controlling the activities of for-hire carriers. These restrictions in regulatory authority often allow state agencies to focus their energy and resources on hazardous chemical shipments which are of foremost concern.

This diversity in agency jurisdiction over the transportation of hazardous chemicals naturally results in a multitude of varying governmental regulations. To facilitate comprehension of regulatory policies used by different state agencies, a summary of state regulations on individual topics is provided in the following subchapters. Each subchapter focuses on regulations which fall under one of the column headings in Appendix B.

Registration, Permits, and Licenses

The registration, permitting, and licensing of hazardous chemical transporters is becoming a common regulatory tool for state and local government use. These activities are perceived by states as a way to obtain information on chemical shipments which was not previously accessible to them. Registration, permitting, or licensing of a transporter can provide valuable information on the type of hazardous materials and hazardous wastes being transported through a state or a municipality, the routes being used, and the identity of carriers hauling such shipments. These first two types of information may provide badly needed guidance for the development of state or local emergency response capabilities. Information on carrier identities and transportation activities may be used to start carrier profiles, which are maintained to build a performance history on each transportation company. Records of transportation accidents, spills, and hazardous materials violations are placed in these files. Information on a carrier's hazardous waste transportation activities is of particular interest to many state environmental agencies. Many loads of toxic waste have been dumped illegally, with no retribution on the transporter, as a result of the government's past inability to monitor hazardous waste transporter activities. [49] Once these carriers are registered or permitted by a governmental agency, however, monitoring is easier and carrier files are more easily maintained. Information on transportation activities may readily be obtained by requiring registered hazardous waste carriers to submit annual or periodic transportation reports. Because of the information which it can provide, a licensing system for waste haulers is considered by the U.S. EPA to be a basic element needed for a hazardous waste control program. [50]

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The registration and/or permitting of transporters also provides a natural opportunity for assessing fees to fund the state regulatory programs. While states have previously had little or no funds available for establishing or maintaining useful information on hazardous chemical carriers, the establishment of registration and/or licensing fees provides a financial base for initiating such an information system. These fees may also be used to improve enforcement of hazardous chemical shipment regulations and to increase emergency response preparedness for hazardous materials accidents.

Of the 116 state agencies for which regulatory information was tabulated in Appendix B, 41 agencies, representing 33 states, were found to have special registration, permitting, or licensing requirements for hazardous chemical transporters. Thirty two of these agencies' requirements apply to hazardous waste transporters, while 7 apply to hazardous materials carriers. Two additional agencies, the California Department of Highway Patrol and the Connecticut Department of Environmental Protection, have special registration or licensing requirements for both hazardous materials and hazardous waste transporters. Environmental or health departments which require waste transporters to obtain a registration number as part of the state-run hazardous waste program, without additional requirements, were not included in these calculations. Agencies such as Public Service or Public Utility Commissions, which register motor carriers in general rather than hazardous materials carriers specifically, were also not included in the agency count. It should additionally be noted that few distinctions were made in state agency regulations between the terms "registration," "permit," and "license." Generally, however, requirements for "permits" or "licenses" seem to imply that an agency can deny a transporter the opportunity to operate in a state, whereas requirements for transporter "registrations" do not appear to wield such power. The issuance of permits or licenses also typically appears to require transporters to meet certain conditions and responsibilities, whereas registrations generally only seem to require the submittal of certain information. The number of states which require the registration, permitting, or licensing of hazardous materials or hazardous waste transporters is summarized in Table 2.

TABLE 2. NUMBER OF STATES WHICH REQUIRE REGISTRATION, PERMITTING, OR LICENSING OF HAZARDOUS MATERIALS OR HAZARDOUS WASTE TRANSPORTERS

Type of Transporter Regulated	Number of States with Requirements
Hazardous Materials only	1
Hazardous Waste only	20
Hazardous Materials and Hazardous Waste	12

The larger number of agencies and states which require registration or permitting of hazardous waste carriers rather than hazardous materials carriers probably results from the fact that state transportation agencies, as the primary regulators of hazardous materials, have traditionally been more able to obtain information on transporter activities. For example, registration and operating activity records on hazardous material carriers, maintained by Public Utility or Public Service Commissions, have long been accessible to other transportation agencies. Information also has frequently been obtainable by conducting roadside vehicle checks. The fact that these information gathering devices have not customarily been available to hazardous waste regulatory agencies has probably resulted in increased pressure for the agencies to obtain transportation information from registration, permitting and licensing systems. A similiar need for information collection has apparently been felt by city governments; 6 cities were found to have adopted registration or permitting requirements for hazardous materials shipments passing through their jurisdictions. It is expected that many additional cities also have these requirements, but it was beyond the scope of this project to determine any exact numbers.

The period of validity for the transporter permits, licenses, and registrations recorded in Appendix B ranged from 1 - 10 years. The vast majority were issued for 1 year; the only exceptions were in Wisconsin and Pennsylvania (2 yr permits), South Carolina (3 yrs),

Arkansas (5 yrs), and Virginia (10 yrs). The length of validity for each permit or registration is shown in parentheses in column 4 of the appendix when the time period is greater than 1 year.

The fees for the transportation permits, licenses, and registrations, when known, are also shown in column 4. Twenty-nine state agencies and one city, Denver, assess fees. First-time charges range from approximately $20 to $575 for hazardous waste transporters and $100 to $500 for hazardous materials transporters. Hazardous waste permit fees averaged in the neighborhood of $180, while fees for hazardous materials permits averaged around $250. Accurate averages were difficult to calculate due to differences between first time fees and renewal fees, and because many states assess fees according to the number of vehicles which the transporter operates.

Some state agencies issue general permits for hazardous chemical transportation, while others issue permits or licenses which are specific for the wastes carried, vehicles used, and place of destination.[51] Information which must be submitted to a regulatory agency in order to obtain a registration or permit, however, is usually similiar. Company name, address, and emergency phone number are understandably required. A number of permit and license applications also require information on the type and quantity of hazardous material or waste carried, and the origination and destination of the shipments. Other agencies, such as the New Hampshire Department of Health and Human Services, request a list of customers from whom or to whom the chemicals are transported. This type of information may be used to track chemical shipments and to establish a network of information on businesses which use hazardous materials and/or produce hazardous waste. Illegal operations, such as the processing or disposal of hazardous waste without a permit, may be uncovered by examining this information. Requirements for listing transporter vehicle identification numbers and names and aliases of company stockholders on permit forms may also result in uncovering illegal activities. Some hazardous waste transporters have been found to go out of business frequently to avoid prosecution for illegal waste disposal activities. They then reopen under new company names with alias names for owners and stockholders.[49] For this reason, agencies such as the Missouri Department of

Natural Resources require information on company aliases and vehicles. Other licenses require submittal of information on past company suits, convictions, and fines. Massachussetts requires not only this, but also mandates that public notice be made of each license application. A 5 year history of company compliance (or noncompliance) with transportation regulations is required by The Pennsylvania Department of Environmental Resources.

Special requirements associated with permit or license issuance are often related to improving safety, emergency response, and compliance with transportation regulations. Several states require that drivers or company personnel be trained about the chemicals that they handle, including safety precautions, emergency response techniques, and state and federal regulations. Records of training must often be provided to regulatory agencies before permits or licenses are issued. Many agencies also require submittal of contingency plans or descriptions of emergency response procedures and of equipment which will be used in the event of a spill or discharge. Other states mandate that transportation companies post a bond or show evidence of insurance coverage for accidents before a permit will be issued. To facilitate confirmation of company compliance with permitting or licensing requirements, most agencies demand that copies of the permits or licenses be displayed in each vehicle. Some agencies require assigned permit or registration numbers to be visibly marked on transportation vehicles.

Some state agencies also require separate registration or licensing of hazardous chemical transportation vehicles, even though vehicle information may be included in transporter permits. The California Department of Highway Patrol, for example, requires that all cargo tanks used for transporting hazardous materials be registered with their Department. The New Jersey Department of Environmental Protection similiarly mandates the registration of hazardous waste vehicles, while The New Hampshire State Police demands that all hazardous materials and hazardous waste hauling vehicles obtain a vehicle license. Fees associated with these registration and licensing requirements range from $3 to $200 per vehicle.

State inspection and certification requirements for transportation vehicles are also common. Despite the existence of strict, detailed federal rules which already require

transportation companies to conduct daily vehicle inspections [52], agencies such as the Missouri and Wisconsin Departments of Natural Resources mandate hazardous waste transportation companies to conduct vehicle inspection programs and maintain records of company inspections for Departmental review. The California Highway Patrol and the Oklahoma Department of Health, on the other hand, inspect all hazardous waste vehicles themselves in association with their transporter registration program. The Maryland Waste Management Administration and the Michigan State Fire Marshal both require certification of all hazardous chemical transportation vehicles before the vehicles may be used in their states. The abundance of these types of state regulations attests to the states' awareness of the number of unsafe vehicles operating on public highways, despite long-existing federal regulations.

Financial Responsibility

Motor vehicles (cars, buses, and trucks) are required to maintain certain levels of insurance to cover costs of property damage and bodily injury which may result from highway accidents. For motor carriers, the level of financial responsibility is set by the federal Department of Transportation. The minimum amount of coverage depends upon the type of freight hauled, the gross weight of the vehicle, and the intrastate versus interstate jurisdiction of the carrier. For example, nonhazardous materials carried by interstate, for-hire carriers in vehicles of 10,000 pounds or more gross weight are required to maintain $750,000 of liability coverage. Any carrier hauling bulk compressed gases, bulk Class A or B explosives, or highway route-controlled quantities of radioactive materials is required to maintain $5 million of financial coverage when vehicles weighing at least 10,000 pounds are used. Carriers hauling certain oils and hazardous wastes must maintain $1 million of financial coverage when vehicle weight equals a minimum of 10,000 pounds. These requirements for financial assurance may be attained through the posting of a surety bond or the maintenance of public liability insurance. The U.S. Department of Transportation mandates that the financial responsibility coverage include property damage or bodily injury costs, and the cost of environmental restoration, at the specified levels. These

requirements are found in Part 387.9 of Title 49, Code of Federal Regulations, and are reproduced in simplified form in Appendix C of this report. It should be noted from this appendix that none of the DOT insurance requirements apply to intrastate carriers of non-bulk hazardous materials, nor to hazardous waste shipments carried in vehicles weighing less than 10,000 pounds.

Many of the U.S. states have adopted the federal motor carrier insurance requirements. Other states have set their own limits of financial responsibility for different groups of carriers. Hazardous waste carriers, in particular, have been assigned special financial assurance requirements. Agencies in 16 states have established specific requirements for hazardous waste carriers which differ from the DOT's prescribed levels. These state requirements range from the posting of special surety bonds for spill clean-up, to requirements for $5 million of public liability assurance.

The Alabama Department of Environmental Management and the Maryland Waste Administration, for example, both require hazardous waste carriers to post surety bonds to provide for spill clean-up. In Alabama, the bond must be posted before a transporter permit can be issued, and in Maryland, the bond must be provided before a hauler can receive state certification. In Pennsylvania, Massachusetts, and Michigan, a surety bond is required in addition to standard mandatory financial requirements. The bond requirements of different states range from $10,000 to $40,000. Some bonds, such as Pennsylvania's, have unique stipulations. Pennsylvania states that the required bond may be forfeited for violations of the state hazardous waste regulations, and that it may be forfeited for up to one year after the transporter's license has been terminated. These provisions provide transporters with strong compliance incentives.

Required amounts of financial responsibility for hazardous waste carriers vary significantly between the states. Ten states require that the DOT level of $1 million be met. Four state environmental agencies require amounts less than this present federal limit. Louisiana, Maine, Michigan, and Missouri all require $500,000 of insurance coverage. Since this equals DOT's July 1, 1981 level for hazardous waste carriers, it is possible that these agencies

originally structured their requirements to equal the DOT's, but did not raise their limits in 1984, when the DOT minimum levels increased.

The California Department of Health Services requires transporters of specific hazardous wastes and hazardous materials to demonstrate financial responsibility in the amount of $1,200,000. This level is adopted from liability limits established by the California Public Utility Commission for petroleum, petroleum products, and petroleum related wastes. Kentucky and New Hampshire require $1 million of coverage each for property damage and bodily injury. This contrasts with the DOT requirement of $1 million for the two components combined. The New York Department of Environmental Conservation was found to have the highest financial assurance requirements. New York requires $5 million of public liability coverage for hazardous waste trucks with gross weights of 10,000 pounds or more, and $1 million of coverage for shipments in vehicles weighing less than 10,000 pounds.

Two cities were also found to require financial assurance mechanisms from motor carriers. Denver, Colorado mandates that hazardous materials carriers show proof of liability coverage at the DOT minimum level before a city transporter permit can be issued. The City of Chickasaw, Alabama requires waste carriers to post a $10,000 bond if one of the company's vehicles is found to be leaking. To detect the presence of leaks, waste shipments must be inspected by local police before the shipments may enter the city. Chickasaw's requirements, however, were challenged in court in 1984 by Waste Management, Inc. The outcome of this challenge is unknown.

Emergency Response

Local fire departments and state police are usually the first responders to hazardous materials transportation accidents. State emergency response personnel commonly respond next, by serving as on-scene coordinators of response procedures or by directing response activities from distant control centers. Federal agencies designate "On-Scene Coordinators" for hazardous materials incidents occurring in different U.S. regions [53], but federal response personnel do not

respond to the majority of hazardous materials emergencies. [54] The primary responsibility for emergency response is thus left up to state and local governments.

To ensure that appropriate emergency response personnel are contacted when a hazardous material incident occurs, at least eight state agencies are known to require transporters to maintain a list of state emergency responders. The Michigan State Police require hazardous material transporters to carry a list of emergency response phone numbers on board their vehicles, while environmental agencies in Alabama, Louisiana, Maine, New Hampshire, New Jersey, Pennsylvania, and Rhode Island require a list to be maintained by hazardous waste carriers.

Notification of state or local emergency responders, though, may not always result in mitigation of hazards. Most emergency responders have little knowlege of which chemicals are being transported through their area, and they often are not adequately trained to respond to hazardous materials incidents. [55] When untrained in hazardous chemical response and faced with discharges of unknown chemicals, responders frequently make serious mistakes. One federal publication reports that responders and the local community are most likely to be harmed from hazardous materials incidents because of inappropriate responses of emergency responders who are untrained or inadequately trained. [56] Inadequate training of emergency responders thus creates more risk for the public than is necessary. [57] The fault is not, however, with the emergency responders. Approximately 85% of the firefighters in the U.S. are unpaid volunteers.[56]

Funding is typically unavailable not only for emergency response training, but also for personal safety and chemical response equipment. Protective clothing and chemical containment equipment which is needed by emergency responders varies with nearly every class of chemical on the market. [58, 59] The specificity of this equipment and the need for multiple types thus results in high costs which most communities cannot afford.

Because of the difficulties which states are experiencing in funding emergency response programs, training, and equipment, some state governments have begun developing alternative

approaches for improving their emergency response capabilities. The establishment of fee systems for transporter permits, licenses, and registrations has already been mentioned as one mechanism for funding, and thus improving, emergency response programs. Another mechanism involves requiring transporters to provide emergency response information, expertise, or equipment.

The Oklahoma Department of Health, for example, requires hazardous waste manifests to contain information on emergency response procedures which are to be used if the waste is spilled. Massachusetts mandates that 2 emergency response guidebooks be carried on all hazardous waste vehicles. Information in these manifests or guidebooks may assist both vehicle drivers and local emergency personnel in responding to hazardous waste incidents.

Other states require information and expertise from the transporter in the form of spill contingency plans. State environmental agencies in Alabama, Louisiana, Maine, New Hampshire, Pennsylvania, and Rhode Island, for example, require hazardous waste transporters to prepare spill contingency plans. The Georgia Public Service Commission requires transporters of radioactive materials, liquified natural gas, or PCBs to design an "Emergency Action Plan." California requires each hazardous waste transporter to comply with the California Department of Health Services' own "Waste Hauler Transportation Safety Plan." These plans typically identify steps which will be taken by a transporter to reduce the impact of a hazardous chemical spill on public health and the environment (for example, containment and clean-up procedures). Contingency plans usually contain a list of emergency equipment which will be maintained on board each of the transporter's vehicles, and a list of emergency response contractors who may be contacted for emergency assistance or spill clean-up. The plans generally provide information which is to be used by vehicle drivers or other transportation company personnel to ensure that appropriate and adequate response actions are performed during a hazardous material incident. A transporter's own preparation of a contingency plan is generally considered by state agencies to be a written assurance that mitigative actions will be performed in an acceptable manner.[60] The

transporter contingency plans thus place the responsibility for the mitigation and clean-up of hazardous chemical incidents and spills onto the transportation companies themselves.

Increased responsibility for lessening spill impacts is also being placed on transporters by encouraging drivers to perform initial response actions. Arkansas, for example, requires emergency response equipment to be supplied to hazardous waste drivers. Pennsylvania, Rhode Island, and Oklahoma require that first aid and personal safety equipment be carried on hazardous waste transportation vehicles. Wisconsin requires all PCB shipments to carry absorbent material or clean-up equipment for use on transportation-related spills. When liquid hazardous waste is carried in containers of 110 gallons or less, Pennsylvania also requires absorbent material to be carried on vehicles. Pennsylvania further mandates that hazardous waste handling equipment be kept on all hazardous waste vehicles, and that communication equipment, such as a 2-way radio, be present when acute hazardous waste is transported. Rhode Island, on the other hand, requires a 2-way radio to be carried on every hazardous waste vehicle. All 6 of these states mentioned above also require hazardous waste drivers to be trained in emergency response techniques.

TABLE 3. EMERGENCY RESPONSE REQUIREMENTS FOR HAZARDOUS CHEMICAL TRANSPORTERS

Chemical Transported	Emergency Response Requirements	States
Hazardous Waste	Spill Contingency Plan	Alabama California Louisiana Maine Pennsylvania
Hazardous Waste	Emergency Response Equipment Must Be Carried on Vehicle	Arkansas Massachusetts Oklahoma Pennsylvania Rhode Island Wisconsin
Hazardous Materials	Emergency Action Plan	Georgia
	List of Emergency Phone Numbers	Michigan

Prenotification

Another method for enhancing emergency response capabilities is to require transporters to notify state or local authorities of hazardous chemical shipments before the shipments are made. Since the type of emergency response training and equipment needed for responding to hazardous chemical incidents varies with chemical types, early identification of the chemicals which will be moving through a particular jurisdiction may assist local or state officials in achieving adequate emergency preparedness.

Prenotification of hazardous shipments can also provide information which may be used by government officials for planning hazardous chemical routes. Rather than having hazardous shipments travelling across all state or local roads, government planners can confine shipments to certain safer highways, and provide for increased emergency response capabilities along these routes.

According to the U.S. Office of Technology Assessment, 9 states currently require notification of hazardous waste shipments, and 4 require notification for hazardous materials. [61] Information received by this author, however, indicates that these states should number 11 and 3, respectively. [62] Furthermore, it is suspected by this author that some of these states' notification requirements pertain to the registration or permitting of hazardous chemical transporters (for example, transporters must notify states of their general transportation activities in order to obtain a registration or permit), and do not represent the specific shipment prenotification requirements which are the subject of this subchapter. Only agencies which are thought by this author to maintain specific prenotification requirements are indicated in Appendix B of this report.

Seven cities are also known to require chemical shipment prenotification. Four cities' requirements apply to hazardous materials shipments, while one city's requirement applies to hazardous waste. Covington, Kentucky, and Phoenix, Arizona require prenotification for both hazardous materials and hazardous waste. Numerous transportation facilities, such as the New

Jersey Turnpike and the Francis Scott Key bridge in Maryland, also require prenotification of hazardous chemical shipments. [63]

Shipment prenotification requirements have been greatly criticized for their creation of excessive paperwork for industry and state and local governments. A 1981 study contracted by the U.S. DOT to the Puget Sound Council of Governments [64] has stated that prenotification recipients would be overwhelmed with information if all hazardous materials or hazardous waste carriers notified state or local officials of their shipments. A more recommended approach is the application of prenotification requirements only to the few most hazardous chemicals which necessitate special emergency response planning or transportation precautions.

Limitation of prenotification applicability would additionally improve the feasibility of enforcement activities. A Battelle Memorial Research Laboratories publication [65] has reported that most local governments do not have the resources or the expertise to implement and enforce prenotification requirements for a broad range of hazardous materials.

It has also been suggested that for prenotification requirements to be cost-effective, notifications should be made to state governments, with local government allowed access to the information. [66] Such a coordinated system would be expected to decrease the amount of paperwork imposed on both industry and local governments. Nevertheless, the Materials Transportation Bureau has determined that the burdens associated with prenotification requirements outweigh the potential benefits. The effect of this determination on state regulations will be discussed in Chapter Seven.

Routing

Routing hazardous materials or hazardous waste shipments along specific highways may significantly reduce the frequency or potential consequences of hazardous chemical accidents. Selecting routes for hazardous shipments which skirt densely populated areas, such as the downtown section of cities, and which avoid dangerous roads, intersections, or facilities (for instance, tunnels or railroad grade crossings) can ensure greater protection of both public safety

and chemical cargoes. Route selection by state or local governments may also assist in emergency response preparedness and effectiveness by ensuring that hazardous chemical routes are known and accessible to emergency responders.

The value of restricting hazardous materials routes is recognized by the U.S. DOT in Section 397.9 of the federal regulations. This section states that "Unless there is no practicable alternative, a motor vehicle which contains hazardous materials must be operated over routes which do not go through or near heavily populated areas, places where crowds are assembled, tunnels, narrow streets, or alleys. Operating convenience is not a basis for determining whether it is practicable to operate a motor vehicle in accordance with this paragraph."

Although this requirement would appear to limit the transport of hazardous materials through the middle of cities, this is not the practiced situation. Few hazardous materials carriers follow the prescribed requirements, nor do DOT enforcement personnel. According to DOT documents, no company has ever been fined for violation of these routing regulations [45], yet hazardous materials shipments proceed through populated areas every day.

Another problem with the DOT routing regulations is that they apply only to shipments which require placarding. Shipments of certain hazardous materials in quantities less than 1000 pounds, and shipments of certain hazardous wastes and substances are thus exempt from the requirements. Deficiencies like these have led the Chairman of the Transportation Safety Board to express concern "... about the adequacy of current requirements for the routing of hazardous materials." The Board has also recognized "The need for improved routing of specific [hazardous] materials...." [28]

Concern for public safety and recognition of the inadequacies in the federal routing regulations have spurred numerous state and local governments to initiate their own routing regulations for hazardous chemical shipments. Five states and eleven cities are known to enforce routing regulations for hazardous materials shipments. Two additional states and cities maintain routing regulations for hazardous waste shipments. These routing requirements range from the

designation of "preferred" hazardous chemical routes, to restrictions in the time of day that shipments may be made, to the complete ban of certain hazardous cargoes within city limits.

TABLE 4. NUMBER OF STATES AND CITIES WITH ROUTING REQUIREMENTS FOR HAZARDOUS CHEMICAL SHIPMENTS

Type of Chemical Shipment	No. of States	No. of Cities [1]
Hazardous Materials	5	11
Hazardous Waste	2	2

[1] Many additional cities are believed to require routing of hazardous chemical shipments; only cities for which information was received are included in this table. See Transportation of Radioactive and Hazardous Materials: A Summary of State and Local Legislative Requirements for the Period Ending December 31, 1984 for one list of other cities with routing requirements.

The State of Kansas and the City of Cinncinnati, for example, require "through" chemical shipments to use bypasses or beltways around their respective cities. Denver, Colorado and The New York City Port Authority and Thruway Authority prevent certain hazardous shipments from using specific roads. Highways surrounding drinking water supplies are protected from hazardous chemical shipments by the California Department of Highway Patrol and the Rhode Island Division of Emergency Management. Downtown streets may be restricted from the pick-up or delivery of hazardous materials during rush hours, as in Atlanta, Georgia. Hazardous shipments may also be prohibited in cities during dangerous weather conditions, such as when hurricane or tornado watches or warnings are present, when wind is over 50 mph, or even if it is raining, has rained, or rain is forecast.[67] Mobile, Alabama completely bans the shipment of hazardous waste through its city limits.

Strict city or state routing regulations may create serious problems for the trucking industry, causing government and industry to clash in a head-on battle. While city and state governments are primarily concerned with ensuring public safety, industry is concerned with

ensuring cargo safety and with delivery of shipments in a minimum amount of time. State or local government restrictions on shipment routes or on permissible hours of travel may significantly delay transporters, and may even result in the routing of shipments along more dangerous roads. For example, cities may route hazardous shipments outside of the city limits, placing the trucks on inadequate roads and away from adequate emergency response services. Because of these encumbrances, many state and local routing regulations have been legally challenged by industry.

Routing regulations may also be challenged by adjacent local or state governments. This is because one jurisdiction's routing requirements may often shift the risks associated with hazardous chemical shipments onto a nearby locale. This situation is exemplified by New York City's city-wide ban on the transport of spent nuclear fuel. [68] New York's ban resulted in the rerouting of spent fuel shipments first to Michigan and then to Vermont. [69] When both Michigan and Vermont developed regulations prohibiting spent fuel shipments, Connecticut became the next target for the radioactive cargoes. [70] Because this shifting of risk is prohibited by the DOT, states are provided with an opportunity to challenge neighboring state's regulations through a DOT administrative ruling process. The DOT has previously ruled that state or local routing regulations are only acceptable when they afford "an equal or greater level of protection to the [overall] public than is afforded by the [DOT] requirements" [69], and when "substantive consultation with affected local jurisdictions and any other affected states" has occurred. [71]

Vehicle Marking

In order to facilitate identification of hazardous chemical vehicles during emergency situations, a number of state governments have established requirements for marking hazardous chemical transport vehicles. Marking vehicles with the type of chemical carried is of particular benefit to emergency responders, while marking with the company name or permit number may be useful not only for determining the nature of hazardous chemical loads, but also for assisting state agencies in compliance and enforcement activities.

State agencies in California, New Hampshire, New York, and Rhode Island facilitate identification of hazardous waste hauling vehicles by requiring the vehicles to be marked with the name of the transportation company. The company name is usually required to appear on both sides of the vehicle, and the lettering must be clearly visible from a distance of 50 feet. These requirements are apparently modelled after the U.S. Department of Transportation's regulations for the marking of hazardous materials vehicles, as found in Section 397.21 of Title 49, Code of Federal Regulations. [72] The federal rules state that vehicles transporting hazardous materials must be marked on both sides with the name and office location (city or community, and state) of the motor carrier, and that the marking must be visible from a 50 foot distance. These rules, however, apply only to carriers who are transporting hazardous materials which require placarding. As discussed earlier in this report, many hazardous wastes do not require placarding. The DOT vehicle marking regulations thus do not often apply to hazardous wastes. The four state agencies mentioned above have therefore apparently established their hazardous waste vehicle marking requirements as a result of this gap in the federal regulations.

More specific vehicle identification marking is required by 11 state agencies. Four of these agencies require the marking of state registration or permit numbers on both sides of vehicles which are used to transport hazardous waste. Three of the states require that a state registration, license, or certification decal or sticker appear on hazardous waste carrying vehicles. The Massachusetts Department of Environmental Quality and Engineering charges $200 per vehicle per year for their hazardous waste vehicle identification device.

These identification requirements apply in some states to hazardous materials vehicles. Four state agencies, the California Department of Transportation, the Massachusetts Department of Public Utilities, the Michigan State Fire Marshal, and the New Hampshire State Police, require the placement of vehicle registration, license, or certification decals on hazardous materials trucks. A fee of $15 per vehicle is assessed by the Massachusetts Department of Public Utilities for every vehicle that it marks.

Special wording is required on hazardous waste vehicles by the Illinois Environmental Protection Agency, the Michigan Department of Natural Resources, and an unidentified agency in Indiana. In Illinois, the wording which must appear on each vehicle is "Licensed Special Waste Hauler," while in Indiana, the required marking is "Licensed Industrial Waste Hauler." "Hazardous Waste Hauling Vehicle" must be written on hazardous waste vehicles in Michigan. The Michigan and Indiana agencies additionally require each vehicle to display their departmental seal. These state requirements would appear to be allowable due to wording which appears in Section 397.21 of Title 49, Code of Federal Regulations. The CFR states that identifying information which differs from the federal requirements may be displayed on vehicles if it is not inconsistent with the federal requirements. Although the state regulations mentioned above would not seem to be inconsistent with the federal rules, but would rather appear to assist state emergency response and enforcement efforts, the U.S. DOT has made it clear through administrative rulings that state vehicle marking regulations are not consistent with the federal government's plan. This subject will be discussed further in Chapter Seven.

TABLE 5. NUMBER OF STATES WITH VEHICLE MARKING REQUIREMENTS

Chemical Transported	Type of Marking Required	No. of States
Hazardous Waste	Name of Company	4
	Registration or Permit Number	4
	Registration or License Decal or Sticker	3
	Special Wording	3
	Departmental Seal	2
	Total	16
Hazardous Materials	Registration License Decal or Sticker	4
	Total	4

Driver Training

Since two-thirds of the transportation accidents involving hazardous substances are held to be the result of human error [33], many public officials believe that transportation accidents could be significantly reduced by requiring better training of hazardous chemical drivers. Although federal driver training regulations exist, the regulations are generally regarded as inadequate. Chairmen of a House subcommittee, for example, recently stated that the federal driver training regulations are vague and need strengthening. The problem identified is that the regulations "do not specify the nature, content, objectives, or length of required instruction, its desired frequency, or when new employees should be trained." [73] This is because the federal regulations specify only that "It is the duty of each . . . carrier to make the prescribed [federal DOT] regulations effective and to thoroughly instruct employees in relation thereto." [74] The federal requirement thus leaves much of the content and extent of employee instruction up to the discretion of the employer. This results in a great diversity of driver training programs, ranging from superficial and lacking to comprehensive and commendable. Training programs conducted by large, for-hire or private trucking firms are generally regarded as being satisfactory, whereas training provided by small trucking companies, or training received by independent truck drivers (truck "owner-operators") is generally considered to be inadequate or nonexistent. This is not always the case, but training programs cost money, and in an industry where profit margins run approximately five percent of revenues [75], it is generally only larger, established companies that can absorb the costs of training employees.

Training programs in hazardous materials transportation regulations, transportation safety, and spill response are offered by a variety of governmental, university, and private organizations, but these programs are primarily oriented toward transportation company managers or government enforcement personnel. Very few training programs are offered for individual truck drivers. For example, the Colorado Training Institute, supported by the U.S. DOT and operated by the Colorado Division of Highway Safety, offers hazardous materials seminars and

vehicle compliance and inspection courses for industry officials, state and federal enforcement personnel, and emergency responders. The Transportation Safety Institute (TSI), run by the Research and Special Programs Administration of the U.S. Department of Transportation, offers courses in hazardous materials transportation safety and in cargo tank compliance and enforcement. These two courses are open to industry and government officials. A "Driver-Vehicle Inspection" course is also provided for state enforcement personnel, and a hazardous materials "Train the Trainer" program, which certifies individuals as hazardous materials trainers, is additionally available. A hazardous materials and hazardous waste "Train the Trainer" seminar is also offered by Transportation Skills Program, Inc., a private training company.

Numerous universities, corporations, and associations offer courses in spill response or spill management. Examples include Corpus Christi State University's "National Spill Control School" and Texas A & M University's "Hazardous Material Control Course." Conferences, such as the National Conference and Exhibition on Management of Hazardous Wastes and Environmental Emergencies (Houston, Texas, March, 1984), provide additional opportunities for training. Although hazardous materials drivers could attend such spill conferences or training courses, the scope of these programs would be beyond the driver's needs, and the costs would be prohibitive. Charges for attending spill control courses and seminars on hazardous materials regulations typically run a minimum of four hundred dollars.

More basic training (such as vehicle operating skills, accident avoidance, and vehicle preventive maintenance) is offered to drivers through truck driver training schools, but these schools do not usually offer training in hazardous materials regulations or emergencies. The Transportation Safety Institute has proposed the development of a driver training course, as has J.J. Keller & Associates (a firm which supplies regulatory compliance information)[76], but these courses are not yet in use. Given the limitations in existing training opportunities, most hazardous chemical drivers must thus rely on their employers for hazardous materials training.

Numerous resources are available to assist trucking firms in developing effective training programs for hazardous materials drivers. First, the U.S. DOT recently published

"Proposed Minimum Training Standards" [77] and a sample model training curriculum for tractor-trailer drivers. The minimum training standards, which are "intended to serve as a guide . . . and should not be construed as mandatory requirements," [78] specify the number of hours of training which tractor-trailer drivers should receive, subjects which should be covered, and driver learning objectives. The proposed minimum standards include training in vehicle operation, vehicle maintenance, accident prevention, cargo handling, and accident procedures (such as first aid and the use of fire extinguishers). Although this safety training is useful for all tractor-trailer drivers, the DOT standards do not address hazardous materials shipments and thus are not sufficient for hazardous chemical drivers. Additional topics which need to be covered include the hazardous materials regulations, chemical hazards, hazardous materials handling precautions, and spill response procedures (including spill containment). Industry publications such as the American Trucking Association's Handling Hazardous Materials [79] and J.J. Keller & Associates' Driver's Pocket Guide to Hazardous Materials [80] provide much of this needed information. Hazardous materials handling manuals produced and used by individual transportation companies, such as Pilot Freight Carriers of Winston Salem, North Carolina [81], may also provide useful driver training information.

Guidelines on hazardous materials driver training may also be borrowed from the joint DOT and Nuclear Regulatory Commission (NRC) training requirements for radioactive material shipment drivers. These regulations, contained in 49 CFR, Section 177.825, require a driver transporting large quantity radioactive materials to have received written training on the following subjects within the last two years: (i) requirements found in certain sections of the regulations, (ii) the properties and hazards of the materials being transported, and (iii) procedures to be followed in case of an accident or other emergency. The regulations further require drivers to carry in their immediate possession a certificate of training which shows the dates of their training, the name and address of the person who provided the training, a statement that the driver has been trained in the hazards and characteristics of large quantity radioactive

materials, and a statement by the trainer which certifies that the information on the certificate is accurate.

Video programs are also available to assist trucking firms in training their drivers. The American Trucking Association (ATA) and FLI Learning Systems, for example, have produced an audio-visual called "Coaching the Professional Truck Driver." This program utilizes videos, driver workbooks, and leader-driver discussions to help improve driver highway safety. The program emphasizes safe driving skills, responsibility for highway safety, and preventative responses to potential accident situations. For specific hazardous materials training, the ATA offers a slide series on hazardous materials identification and shipment. Driver training videocassettes produced by J.J Keller & Associates, however, probably address hazardous materials shipments in more depth. These videocassette topics include "What a Bill of Lading Must Contain," "Hazardous Materials Regulations," "Driver Pre-Trip Equipment Inspections," "Driving Safety: Trucks," and "What to Do in Case of An Accident."

Many sources of information on transportation safety and the handling of hazardous materials shipments are thus available in the United States. Although this information may easily be used for developing comprehensive training programs for hazardous chemical drivers, little progress in training will be made without improvement and enforcement of the training requirements. Currently, penalties are rarely assessed to truck drivers or to transportation companies when drivers are found to be untrained in hazardous materials transportation regulations. This lack of enforcement is one reason why a number of state agencies are beginning to initiate their own training requirements for hazardous chemical drivers.

Seven states are shown in Appendix B to specifically require training of hazardous waste drivers. Seven additional states require training for all hazardous waste employees, one state requires hazardous materials driver training, and one state requires training of both hazardous materials and hazardous waste drivers. These state training requirements typically mandate instruction in the identification and handling of hazardous chemicals (such as shipment descriptions, chemical hazards, and the loading, bracing, and storing of loads), the hazardous

materials transportation regulations (for instance, package marking and labelling, and vehicle placarding), safe vehicle operation (for example, safe driving practices and equipment inspection and maintenance), and emergency response procedures (primarily notification requirements and initial spill containment). For example, The Oklahoma Department of Health specifies that hazardous waste drivers must be educated in waste handling procedures and in emergency precautions. Environmental or health agencies in Maine, New Hampshire, and Arkansas mandate that drivers know the properties of hazardous waste which is carried, and actions to be taken in the event of a discharge. The Rhode Island Division of Emergency Management requires waste drivers to be knowledgeable about manifesting, waste handling, emergency response, and spill notification procedures.

In Wisconsin, all hazardous waste handlers and drivers must be informed about the problems and potential hazards of hazardous waste transportation, and must be familiar with techniques of equipment inspection. New Jersey requires waste handlers to be trained in safe handling procedures, safe vehicle operation, emergency procedures, and the use of emergency equipment. The training requirements of the Pennsylvania Department of Environmental Resources, however, apply to all hazardous waste employees. In Missouri, files on the training of hazardous waste employees must be maintained, but no stipulations about the content of that training are made.

The Michigan State Fire Safety Board implements regulations for the training of certain hazardous materials drivers. Generally, drivers of tank trucks carrying flammable or combustible liquids must be trained in the hazards of the product carried and in the use of appropriate safety equipment. California, however, prescribes training requirements for both hazardous waste and hazardous materials drivers. The Department of Health Services, the Department of Motor Vehicles, and the Department of Highway Patrol are currently working together to develop training standards for drivers. Hazardous materials drivers will have to be trained in the hazardous materials regulations and pass a special test or receive certification of

training under California's current plans. Hazardous waste drivers are already required to obtain special certification.

Maryland also requires the certification of hazardous waste drivers. The training program which is used for certification must be approved by the Department of Health and Mental Hygiene, and the instructor conducting the training program must meet specific qualifying requirements. Content of the training program is also fairly delineated. Additionally, the Department will require each driver to complete an approved written examination when the exam has been fully designed.

TABLE 6. NUMBER OF STATES WITH TRAINING OR CERTIFICATION REQUIREMENTS FOR HAZARDOUS CHEMICAL DRIVERS OR EMPLOYEES

Applicability	Number of States with Training Requirements	Number of States with Certification Requirements
Hazardous Materials Drivers	1	-
Hazardous Waste Drivers	7	7
Hazardous Waste Employees	7	-
Hazardous Materials and Hazardous Waste Drivers	1	1

One method of ensuring that hazardous materials or hazardous waste drivers are sufficiently trained in hazardous chemical identification, regulation, and emergency response is through the requirement of special endorsements on their driving licenses. These endorsements indicate that a driver has been trained in hazardous materials transportation or has demonstrated a certain standard of knowledge. At this time, a minimum of four states are known to at least be considering the implementation of such "hazardous materials licenses." The Tennessee Public Service Commission is discussing their use, while the Arizona Department of Transportation is

proposing related legislation. California recently passed legislation which called for endorsements on the licenses of California-certified hazardous materials drivers. North Carolina has also expressed an interest in the development of these special licenses. [82]

STATE ENFORCEMENT PROGRAMS

Information on state and local enforcement programs for hazardous materials and hazardous waste transportation activities was obtained through use of the same inquiry letter which was sent to state regulatory agencies. When enforcement information was not directly provided in agency reply letters, each state's regulations were examined for references to enforcement activities. Enforcement information was also obtained from follow-up phone calls which were made to a large number of state agencies, and from the publications Transportation of Hazardous Materials: State and Local Activities and Hazardous Materials Transportation: A Legislator's Guide.

Data received from these information sources is listed in Appendix D, "State Enforcement Programs for the Transportation of Hazardous Materials and Hazardous Waste." This appendix contains entries on hazardous materials and hazardous waste transportation enforcement activities conducted by 102 state agencies, 3 city governments, and 2 county governments. Information is also provided on 12 state enforcement programs for which the enforcing agency is unknown. These entries are identified by the term "Unidentified Agency." Furthermore, 7 of the appendix entries are considered "undocumented," under criteria explained in Chapter Five. These entries are indicated by enclosure of the agency name in parentheses, the same procedure which was used for undocumented entries in Appendix B.

The enforcement authority of agencies listed in Appendix D is indicated by the abbreviations "HW" for hazardous waste transportation activities, and "HM" for hazardous materials transportation activities. The enforcement authority of most agencies was found to be similiar to their regulatory authority (for example, authority over HM, HW, or both), but agencies with lead responsibility for developing hazardous chemical transportation regulations were not always the same agencies with primary responsibility for enforcing the regulations. For example, by

comparing entries in Appendix B and Appendix D, it can be seen that the main regulator of hazardous materials transportation in Arizona is the Arizona Department of Transportation. The Arizona Department of Public Safety, however, appears to be the prime enforcer of the regulations. According to the Office of Technology Assessment, transportation inspectors have enforcement powers in approximately half of the U.S. states; in the other states, inspectors must report transportation violations to a separate agency which has the authority to enforce regulations and to assess penalties.[83]

The enforcement information contained in Appendix D is generally not as detailed and complete as the regulatory information which appears in Appendix B. This is because less information was located on state and local transportation enforcement programs. All 50 states and the District of Columbia, however, are reported to have entered cooperative agreements with the U.S. Department of Transportation for enforcement of the hazardous materials transportation regulations.[84] Furthermore, all the states which have received state authorization for hazardous waste management from the U.S. EPA, or which are operating under an EPA cooperative agreement, should be enforcing the hazardous waste manifesting regulations.

It should be noted that state-conducted hazardous waste transportation enforcement activities are generally not as extensive as actions undertaken by hazardous materials transportation enforcement personnel. Since most state hazardous waste agencies regulate not only transporters, but also generators, treaters, storers, and disposers of hazardous waste, these agencies are only able to focus a portion of their enforcement efforts on hazardous waste transporters. Also, as mentioned in Chapter 3, state hazardous waste agencies have less effective means for monitoring transporter activities than do their hazardous materials transportation enforcement counterparts. Hazardous waste agencies are also restricted by a lack of law enforcement authority, which may be used by state hazardous materials transportation agencies to perform searches or seizures, or to arrest noncompliant transporters.

Enforcement Methods

Some general characteristics of state transportation enforcement activities may be discerned from data entries in Appendix D. Most transportation, highway, and public safety agencies, for instance, enforce hazardous material transportation regulations through roadside vehicle inspections. A number of state public service or public utility commissions, and state departments of transportation, also conduct roadside vehicle inspections. Vehicle inspections are most frequently conducted by personnel assigned to fixed site "weigh" stations, but they may also be performed by mobile enforcement units at temporarily designated "truck check" sites. In some states, such as Colorado, fixed site inspection stations are placed just inside state boundaries so that trucks, drivers, and shipping documents are checked for compliance with transportation safety regulations as soon as vehicles enter the state. When shipments, vehicles, or drivers are found to be in violation of one of the transportation rules, a notice of the violation is usually sent to the carrier's office, and the truck (or driver) may be taken out of service until the transgression is remedied.

In addition to roadside vehicle inspections, a few state agencies conduct "terminal audits," where enforcement personnel visit a facility which ships or transports hazardous materials. During these audits, state officials may check on-site vehicles, shipping documents, packages, and shipment loading procedures for compliance with state and federal transportation regulations. Unfortunately, terminal audits take more time than the roadside vehicle inspections. They are also limited in applicability to motor carriers who have terminals within the subject state. Nevertheless, terminal audits are very useful and they are conducted by a number of state agencies, including the Idaho Public Utilities Commission, Maryland State Police, Nevada Highway Patrol, Oregon Public Utilities Commission, and the Pennsylvania Department of Transportation.

In many states, motor vehicle officers who are specially trained in the hazardous materials regulations are in charge of hazardous materials enforcement. These "hazardous materials officers" currently number 45 in the Illinois State Police, 32 in the Colorado Port of Entry, and 20 in the Utah Highway Patrol. In Colorado, hazardous materials officers attend

quarterly meetings to update their knowledge of the hazardous materials regulations. Officers in the West Virginia Department of Highways and the Virginia State Police are trained in the enforcement of both hazardous materials and hazardous waste regulations. A basic chemistry course is also in the process of being designed for the Virginia State Police officers. [65]

In a number of states, hazardous materials officers are organized into special "hazardous materials units." Hazardous materials units are used as enforcement tools in Louisiana, Massachusetts, and Michigan. Hazardous materials commanders are responsible for special hazardous materials activities in several other states. For example, one hazardous materials commander coordinates the hazardous material enforcement activities of the Maine State Police, whereas 4 commanders, 1 per district, coordinate activities for the South Dakota Highway Patrol.

Environmental or health agencies which exercise authority over hazardous waste transportation generally base their enforcement activities on inspections of transporter facilities. During these "facility inspections," hazardous waste manifests are usually examined for compliance with the manifesting regulations, and the buildings and surrounding grounds of the company are inspected for compliance with hazardous waste storage and disposal regulations. Although many hazardous waste agencies have adopted portions of the DOT hazardous material regulations, hazardous waste personnel do not usually inspect on-site transportation vehicles or packages for regulatory compliance because they rarely receive training on the regulations. A partial exception to this general situation is provided by the California Department of Health Services, which requires hazardous waste transportation vehicles and containers to be inspected and certified annually by the California Highway Patrol. Also, the West Virginia Department of Highways conducts annual audits of hazardous waste transporter facilities, and inspects both transportation vehicles and containers during these audits.

Two state agencies, the Oregon Public Utilities Commission, and the South Carolina Public Service Commission, conduct special inspections on hazardous waste shipments which enter hazardous waste disposal facilities in their states. Similiar inspections are made for low-level

radioactive waste shipments as they enter low-level radioactive waste disposal sites in Nevada and Washington State.

A few cities and counties also enforce compliance with the transportation regulations by conducting inspections of hazardous chemical shipments. The Denver Police Department, for example, performs truck checks in order to enforce Denver's hazardous materials routing ordinance. The Portland Police, the Multnomah County Sheriff's Department, and the Washington County Sheriff's Department, all located in Oregon, have adopted the U.S. DOT regulations and conduct vehicle inspections within their jurisdictional areas.

Compliance with the federal transportation regulations may also be sought through education of the trucking industry, rather than through enforcement activities. It is a commonly held belief that much of the trucking industry's noncompliance with the federal and state transportation regulations results from their lack of knowledge and understanding of the regulatory requirements.[86] Therefore, a number of state enforcement agencies have developed education and training programs which attempt to facilitate industry compliance. The California Highway Patrol, and the Maryland and Illinois State Police, for example, meet regularly with trucking industry associations in order to educate truckers about the transportation regulations and highway safety. The Maryland State Police also offer a training program for commercial carriers, and the California Highway Patrol offers 12 hour seminars on vehicle self-inspection. The New Hampshire State Police provide special instruction on achieving regulatory compliance, and the West Virginia Department of Highways conducts training seminars for hazardous waste companies. Although these programs are valuable for their education of transporters and for their facilitation of good industry-governmental relations, their effectiveness in promoting compliance has not yet been confirmed.

When obvious or persistent non-compliance occurs with the hazardous chemical transportation rules, various procedural or administrative tools may be used by agencies to enforce transporter compliance. Warning letters and compliance letters are two of the earliest administrative devices to be used. These letters generally notify transportation companies of their

regulatory violations and instruct the company to achieve compliance. The letters may suggest activities which should be performed by the company, and/or mention actions which may be taken by the agency to obtain the company's compliance (for instance, the assessment of penalties or initiation of an injunction). Additional warning letters or a compliance order may be issued next, if the offending company does not remedy its illegal activities. Compliance orders are usually more detailed and formal than warning letters or compliance letters; they generally specify more precisely what the company must do to become compliant with the regulations, the date by which compliance must be achieved, and the type of penalties or other actions which the company may be subject to if compliance is not achieved by the given date. Compliance orders are traditionally issued by environmental or health agencies rather than by transportation or highway related agencies. Neither compliance orders, compliance letters, or warning letters, however, can be very effective unless enforcement agencies have a strong penalty system or injunctive relief powers to back up their warnings.

Several states provide good examples of such back up enforcement systems. California has access to court orders, restraining orders, and injunctions as back ups for their compliance orders. The Illinois Department of Transportation obtains a court order to stop transportation activities after a fifth warning letter has been sent to a company. The Pennsylvania Department of Transportation has the option of obtaining a restraining order for illegal activities, or seizing and confiscating property belonging to the offending transporter. Michigan's State Fire Marshal uses similiar compliance tools; vehicles in need of repair are impounded or condemned for use. [87] Surely, the exercise of such powers in a few well publicized situations would serve as a strong deterrent to other violators. Enforcement actions such as restraining orders, injunctions, and property confiscations would thus appear to have more power for facilitating industry compliance than the most prevalently used, present enforcement system - that of ordering trucks "out of service" for certain noncompliant criteria [88], and notifying transportation companies of their driver or vehicle violations.

TABLE 7. METHODS FOR ENFORCING HAZARDOUS MATERIALS OR HAZARDOUS WASTE TRANSPORTATION REGULATIONS

Hazardous Materials Enforcement Methods		
Roadside Vehicle Inspections	Taking Vehicle "Out of Service"	Court Orders
Terminal Audits	Notices of Violations	Injunctions
Hazardous Materials Officers	Warning Letters	Restraining Orders
Hazardous Materials Units	Compliance Letters	Education
Hazardous Materials Commanders	Property Seizure or Confiscation	

Hazardous Waste Enforcement Methods	
Facility Inspections	Compliance Letters
Annual Vehicle & Container Inspections	Compliance Orders
Annual Certification of Vehicles & Containers	Injunctions
Inspection of Shipments Entering Disposal Facilities	Restraining Orders

Data Management

So that they may access useful, integrated information on individual hazardous chemical carriers, many states have recently established computerized data management systems. These databases are often organized into "carrier profiles," which maintain general identifying information, operating authority, and regulatory compliance information on chemical transporters. Regulatory compliance information contained in these profiles usually consists of reports from roadside vehicle inspections, hazardous materials terminal audits, and sometimes, hazardous

waste facility inspections. Violations of the transportation regulations, enforcement actions taken by the state agency, and corrective actions taken by the transporter are generally also included. Records on carrier safety, determined by accident information and calculations on accident-per-mileage driven, are also sometimes included in the carrier profiles. The collected information may be used to identify truckers who have escaped recent vehicle inspection, or to identify troublesome carriers whose activities need to be monitored in more detail or more frequently. This latter group of carriers may be priority ranked for receiving a terminal audit, or enforcement or compliance procedures such as warning letters, compliance orders, or court orders may be initiated as a result of the carrier's history of noncompliance.

Some of the state data management systems identified in this study include the Colorado Port of Entry's "compliance profiles," which monitor the transportation violations of general commodity motor carriers as well as hazardous chemical carriers. Also, "hazardous materials information systems" are used by the Pennsylvania Department of Transportation and the Virginia and Idaho State Police to monitor hazardous materials transporters. Two similiar data management systems are the Washington State Patrol's "Critical Safety Management Breakdown Analysis," and California's "Registration Data Management System." The California database contains profile information on transporter licenses, vehicle inspections, citations, and spills.

Hazardous waste data management systems are used by the Connecticut Department of Environmental Protection, the Tennessee Department of Health and the Environment, and the West Virginia Department of Highways. These systems utilize information from hazardous waste manifests or from annual reports (submitted by hazardous waste generators and TSD facilities) for verifying transporter operating authority and waste shipment delivery. West Virginia's system also identifies transportation violations committed by hazardous waste transporters.

Five agencies in four different states are currently engaged in a joint, federally sponsored expansion of their data management systems. The Michigan Department of Natural Resources, Michigan State Police, Colorado State Patrol, Oregon Public Utilities Commission, and the North

Carolina Department of Transportation are all designing state databases which will be used to develop a comprehensive, national, motor carrier information system called "SAFETYNET". To develop the database, state information will be sent to the U.S. DOT, where it will be added to the present federal "Motor Carrier Safety" and "Hazardous Material Information System" databases. The latter database already contains information on more than 200,000 interstate carriers and 25,000 hazardous materials shippers. [41]

Although the SAFETYNET project is currently only in its initial stage, it will eventually be used to determine carriers' average number of violations per inspection, accident-per-mileage ratios, number of truck inspections, and dates of their most recent safety audits. It is expected, however, that full implementation of the SAFETYNET system across the United States will take a minimum of 10 years. [22]

Although numerous state and federal data management systems currently compile information on motor carrier accidents and safety violations, no comprehensive, computerized data management system is known to have been established for providing analysis of hazardous materials shipments by chemical class, quantity, or route. The need for such a "hazardous material flow" analysis system has been vocalized by a number of state and federal groups over the last few years. [89] A recent publication by the Office of Technology Assessment has stated that federal hazardous material flow information exists, but that it is not sufficient to meet the informational needs of state and local governments. [90]

Penalties

The types and amounts of penalties assessed to violators of hazardous materials and hazardous waste transportation regulations very among states. Some states only prescribe civil penalties, some issue criminal penalties, and many have the authority to assess both. Frequently, state penalties are structured similiar to the authorized U.S. DOT or U.S. EPA penalties. As mentioned in Chapter Four, the DOT may assess a maximum of $10,000 per offense per day for a civil penalty, and up to $25,000 per offense per day for a criminal penalty. The

EPA may assess higher levels of penalties than the DOT, such as a maximum of $25,000 per offense per day for civil proceedings. The EPA's criminal penalties may reach $25,000 per offense per day for the first conviction, and $50,000 per violation per day for a second or subsequent conviction. Certain acts, such as the transport of hazardous waste to a non-permitted facility, are subject to a criminal penalty of $50,000 per violation per day for the first conviction.

The falsification, alteration, or concealment of a hazardous waste manifest is considered by the EPA to be a criminal misdemeanor offense. The transportation of hazardous waste to a non-permitted facility, however, is considered a felony offense. Many state hazardous waste agencies follow this criminal offense classification, while others, such as the Oklahoma Department of Health, consider all hazardous waste transportation offenses to be misdemeanors.

State agencies with enforcement authority for hazardous materials shipments also predominantly label criminal violations as misdemeanors. Three different misdemeanor classes are usually assigned; these range from Class 3 misdemeanor to Class 1 misdemeanor in relation to an increasing number of offenses or convictions. The level of penalties assessed to a violator is frequently related to the misdemeanor class.

Only one state agency, the Illinois State Police, is known to have replicated the DOT maximum penalty levels for hazardous materials transportation offenses. Several state environmental or health agencies, however, have structured their hazardous waste transportation penalties similiar to the EPA levels. The California Department of Health Services, New Jersey Department of Environmental Protection, and the Pennsylvania Department of Environmental Resources have maximum penalty levels equal to EPA's. Variations occur in these state penalty provisions, though. California, for example, is able to recover their corrective action expenses plus 10% of their incurred administrative costs in addition to collecting the maximum penalties for civil actions. The California Department of Health Services may also give illegal hazardous waste activity informants an award equal to 10% of the civil or criminal penalty which is assessed to a violator. Instead of assessing the EPA maximum penalty amount, the Pennsylvania Department

of Environmental Resources may assess up to $500,000 per offense per day for criminal convictions of certain state hazardous waste regulations, or for violations of departmental orders.

For hazardous waste transportation violations, the maximum amount of penalties which may be assessed by states through civil proceedings was found to vary from $1,000 per violation per day (Connecticut), to $25,000 per violation per day (Arkansas, California, Kansas, Kentucky, and Pennsylvania). Maximum criminal penalty levels for hazardous waste violations were found to vary from $10,000 per offense per day (Arkansas, Oklahoma, Oregon, and Rhode Island) to $500,000 per offense per day (Pennsylvania). The maximum amount of civil penalties provided for hazardous materials shipment violations varies from $10,000 per offense per day (Illinois) to $25,000 per offense per day (Kentucky and Louisiana). Maximum criminal penalties for these shipments range from $1,000 per violation (Oregon) to $50,000 per violation per day (Pennsylvania)

Some states assess fines to hazardous chemical transporters either in lieu of or in addition to civil or criminal penalties. Fines were found to be assessed by the California Highway Patrol, Colorado Port of Entry, Denver Police Department, Pennsylvania Department of Transportation, Tennessee Department of Health and the Environment, and the Texas Department of Public Safety. The maximum amount of fines was found to range from $200 to $2500.

Matrix systems are used by some states to assess penalties or fines for transportation violations. The amount of fines assessed to hazardous material motor carriers by the Illinois State Police and the Louisiana Department of Public Safety, for example, depends on the carrier's history of compliance with the regulations, the severity of the violation, and the ability of the carrier to pay the fine. These criteria are adopted from DOT matrix guidelines. Similiarly, several state health or environmental agencies are known to assess fines to hazardous waste transporters according to a penalty matrix developed by the EPA. The Connecticut Department of Environmental Protection, the North Carolina Department of Human Resources, and the Rhode Island Department of Environmental Management all use EPA's matrix.

State hazardous material transportation inspectors are reported to have the authority to issue citations for transportation violations in approximately half of the U.S. states [83], but very little indication of citation use was received during this author's study. This phenomenon can probably best be explained by a DOT-encouraged reliance on voluntary transporter compliance. According to state hazardous materials officers, receipt of federal funding for state transportation programs requires an emphasis on voluntary transporter compliance and a minimization of enforced compliance actions, such as the issuance of fines or citations. [91] Although the concept of promoting voluntary transporter compliance is a noble goal, the nationally high noncompliance rates for hazardous chemical transporters testify to the ineffectiveness of this enforcement approach.

State enforcement programs may also be inadequate when penalties for transportation violations are assessed by city or county courts or officials, rather than by an administrative agency or state courts. Local judges and legal officials (such as Justices of the Peace) who are entrusted with assessing hazardous materials penalties are rarely knowledgeable about the transportation regulations, nor do they usually understand the potentially serious consequences which may be associated with hazardous chemical transportation violations. [31, 83] As a result, inconsequential penalties may be assessed to violators. [91] To add to the problem, hazardous materials transportation enforcement officers are infrequently trained in the collection or presentation of legal evidence. Many legal cases are thus dismissed due to a lack of sufficient evidence or from a misunderstanding about the regulatory requirements. These problems may be partly improved by assessing penalties through an administrative procedure, such as an agency hearing. Delegating penalty assessment authority to an agency which enforces the transportation regulations increases the probability that cases will be understood and that violators will be appropriately reprimanded.

In many states, penalties are assessed for hazardous waste transportation violations through the state court system. In these situations, a lawyer from the state Attorney General's office usually represents the state regulatory agency. The Pennsylvania Department of

Environmental Resources uses this procedure to assess what appears to be the highest level of penalties provided for in the United States. The Department's maximum penalty amounts vary from $25,000 to $500,000 per offense per day, depending on the type of offense and number of convictions. This penalty system appears to be put to good use. In 1985, for example, a waste hauler was sentenced to four years in state prison and fined $50,000 for illegal waste disposal activities.[92]

In addition to collecting prescribed levels of civil or criminal penalties, two environmental state agencies, the California Department of Health Services and the Arkansas Department of Pollution Control and Ecology, have retained the right to recover administrative, investigative, and corrective action costs associated with the correction of hazardous waste transportation violations. This penalty provision adds forcefulness to the agencies' enforcement actions and wisely allows the agencies to replace lost operating funds.

As an alternative to assessing penalties through the state court system, numerous state environmental or health agencies notify hazardous waste violators of probable penalty amounts, then negotiate these amounts with the violators during "compliance meetings." During these meetings, the penalty amount is usually reduced (or even dropped) in exchange for the performance of actions which will remedy the unlawful activity.

Another alternative to legal penalty assessments is the suspension or revocation of transporter licenses, permits, registrations, or operating authority. Although this enforcement method is not as drastic as the assessment of penalties, it is also less tedious and spares an agency from tying up its enforcement personnel and money in legal proceedings. Suspension or revocation of transporter permits, licenses, or operating authority was found to be used as an enforcement tool by 12 state agencies. One of these agencies, the Ohio Public Utilities Commission, requires a hazardous chemical transporter to notify all of its customers when its license is suspended or revoked.

Coordination

When multiple agencies within one state are responsible for enforcing hazardous chemical transportation regulations, jurisdictional overlap frequently occurs. This may result in either duplication of efforts or a lack of enforcement in "grey areas" where agency responsibilities are unclear. A good example of this situation was found during the course of this author's study. In response to this author's request for information on state regulatory and enforcement activities, one agency reported that another agency in the same state had primary authority over a particular regulatory requirement. The indicated agency, however, reported that the specific regulatory area was the responsibility of the first agency. Obviously, if each agency thought that the other agency was in charge of this area, no regulation or enforcement was occurring (unless the function was being performed by a third agency).

On the other hand, officials of one state agency may be totally unaware that another state agency does have authority over hazardous chemical transportation. To illustrate, two state agencies in separate states responded to this author's inquiry letter by reporting that no regulation of certain hazardous chemical transportation areas occurred in their respective states. Meanwhile, a letter was received from a second agency in each of the two states which identified the new agency as being in charge of the questioned area. If this sort of situation reflects typical communication and clarification of state agency roles, it is no wonder that hazardous chemical transporters are frequently found to be unaware of and noncompliant with state agency requirements.

Duplicative inspection of hazardous chemical shipments by agencies in different states may also be viewed as inefficient regulatory overlap. Inspection of a vehicle which has already been inspected by officials in a neighboring state wastes agency resources which could be expended in checking trucks which have not yet been inspected. Multiple inspections of a single load also unnecessarily delay the transporter. Additionally, adoption of transportation requirements in one state which conflict with requirements in other states imposes a regulatory burden on motor carriers which prevents them from reaching regulatory compliance. Coordination of regulations

and enforcement activities between agencies within the same state and between agencies in different states, however, may correct these problems and lead to a more comprehensive and effective regulatory and enforcement program.

Several states which responded to this author's inquiry letter mentioned their interstate coordination of information and knowledge on hazardous chemical transportation activities. Colorado, for example, advised of their consultation with other states to keep abreast of regional regulations and enforcement activities, and to gather information on selected hazardous materials transportation activities. In New York, when a hazardous waste transporter applies for a transportation permit, comments are solicited from other states regarding the appropriateness of permit issuance. Michigan notifies states in which hazardous waste transporters plan to operate once the transporter license is issued. These are just a few examples of interstate information exchange. Many other states are also expected to exchange regulatory and enforcement information concerning hazardous chemical transportation.

Actual coordination of general commodity vehicle inspections is presently taking place between 40 agencies within 34 different states through a unique coalition called the Commercial Vehicle Safety Alliance (CVSA).[93] The Alliance, composed of representatives from motor vehicle enforcement agencies and representatives from the trucking industry, was formed to promote more cost-effective utilization of regional inspection and enforcement resources, and to standardize safety inspections performed by different states. Member agencies of CVSA agree to use prescribed inspection standards which focus on the correction of certain "critical" violations which are found to be of frequent occurrence (for example, inadequate brakes, steering mechanisms, tires, or driver qualifications). Industry members provide knowledge and advice on transportation problems. CVSA members also attend regional and national meetings to discuss transportation safety issues, and exercise strong lobbying power through their united governmental-industry front.

The CVSA vehicle inspection procedure involves placement of a special decal on a truck when the vehicle passes a standardized safety inspection. The decal is good for a period of 3

months, and indicates to other inspectors located in the same state or in other states that the vehicle has recently passed a CVSA inspection. This allows other inspectors to bypass recently inspected trucks (unless a defect on the vehicle is readily visible), and to concentrate their efforts on vehicles which have not been recently evaluated. This procedure conserves limited governmental resources, eliminates duplication of effort, and prevents unnecessary shipment delays.

Hawaii, unable to coordinate its vehicle inspections with neighboring states, has developed a Vehicle Equipment Safety Compact which operates similiar to the CVSA. In this Compact, island agencies participate in coordinated vehicle inspections.

TABLE 8. COORDINATING MECHANISMS FOR INTERSTATE ENFORCEMENT ACTIVITIES

Information Exchange (Regulations, Violations, License Issuance, Enforcement Methods)	
Training of Enforcement Personnel	Coordinated/Standardized Vehicle Inspections
Joint Inspections or Investigations	Transporter License or Permit Denials

Numerous intrastate-coordinated transportation activities also occur in a variety of U.S. states. Enforcement and inspection information is known to be exchanged among state agencies located in Connecticut, Colorado, Kentucky, North Carolina, Nevada, Rhode Island, and Texas. Coordination and/or adoption of other agency's transportation regulations, in some cases with reciprocal enforcement of intrastate agency regulations, occurs in Louisiana, Oregon, and New Jersey. Instruction of intrastate agency personnel about a particular department's regulations occurs in California, Illinois, Kentucky, New York, Oregon, and Texas. Enforcement program funding is provided to sister state agencies by the Colorado State Patrol, Maine Board of

Environmental Protection, and the Oregon Public Utilities Commision. Some state agencies, such as the California Highway Patrol, the Connecticut Department of Motor Vehicles, and the Michigan State Fire Marshal, inspect certain trucks so that other agencies in the state may issue a permit to the motor carrier. Additional intrastate-coordinated enforcement activities (for instance, joint field investigations and reciprocal license revocations) are performed in Kentucky, New Hampshire, Pennsylvania, Virginia, and Washington State.

Transportation enforcement activities are also coordinated between state and local governments in a number of states. In California, for example, the Department of Health Services notifies local health officers of hazardous waste transportation violations and of legal proceedings asociated with the violations. In Oregon, the Public Utilities Commission solicits city and county input before hazardous waste transportation permits are issued. The Maine Department of Environmental Protection sends copies of hazardous waste transporter licenses to different municipalities within the state.

In addition to providing local officials with information on hazardous chemical transporters, state agencies are also known to provide enforcement training and enforcement program funding to local governments. State hazardous materials transportation regulations are enforced by local officials in Massachussetts, Oregon, and New Hampshire. Training for local government personnel is provided by state agencies in all three of these states. Funding of local government transportation enforcement programs is supplied in Oregon by the Public Utilities Commission.

State hazardous waste transportation regulations are adopted and enforced by local governments in California, while in New Hampshire, the Department of Health and Human Services has adopted local public health regulations. The California Department of Health Services funds local health enforcement programs in California, but it is unknown if any of this money is used for transportation enforcement activities.

TABLE 9. COORDINATING MECHANISMS FOR INTRASTATE ENFORCEMENT ACTIVITIES

(Interagency or state-local government coordination)

Information Exchange (Regulations, Violations, License Issuance, Enforcement Methods)	
Coordination of Regulations	Adoption of Regulations
Training of Enforcement Personnel	Joint Inspections or Investigations
Funding of Inspection and/or Enforcement Programs	Reciprocal License Revocations

The final area of intergovernmental coordination is federal-state coordination performed between the U.S. DOT and state hazardous materials transportation agencies, and between the U.S. EPA and state hazardous waste transportation agencies. The DOT delineates guidelines for cooperative agreements between the Department and state agencies in Part 388, Title 49 of the Code of Federal Regulations. According to this Part, cooperative agreements provide for reciprocal exchange of inspection and investigation information, notification of changes in rules and regulations, and reciprocal exchange of assistance in obtaining evidence for use in enforcement activities (including provision of the name of an agent who will be made available to testify in court, if needed). Cooperative agreements also provide for joint investigations, inspections, or examination of motor carrier property, equipment, or records, scheduled joint conferences of staff members, and assistance in conducting training for federal and state enforcement officials.

Coordination of activities between the U.S. EPA and state hazardous waste agencies primarily consists of information exchanges, federal guidance on complicated situations, and federal assistance in getting violators to comply with hazardous waste regulations. In a number of states, compliance orders are drafted by state agencies and then sent to the EPA for transmittal to hazardous waste transportation violators. A similiar procedure is often used by hazardous

materials transportation agencies; some states transmit copies of vehicle inspection reports to the DOT for federal enforcement.

TABLE 10. COORDINATING MECHANISMS FOR FEDERAL-STATE ENFORCEMENT ACTIVITIES

Information Exchange (Regulations, Inspection Reports, Violations, Enforcement Action Guidance)	
State Adoption of Federal Rules	Training of Enforcement Personnel
Standardized Inspection Procedures	Joint Investigations and Prosecution
Issuance of Compliance Orders	Funding of Inspection and Enforcement Programs

Numerous methods for coordinating transportation enforcement activities are thus being used by state, local, and federal governments. This coordination of effort is useful for improving the effectiveness, efficiency, and level of enforcement. Coordination of activities also provides for the conservation of agency resources (manpower, money, and equipment), and encourages standardization of enforcement methods and criteria. A U.S. Department of Transportation publication, Community Teamwork: Working Together to Promote Hazardous Materials Transportation Safety, A Guide for Local Officials, [94] contains further information, as well as advice, on the coordination of inter-governmental activities.

Funding

State transportation enforcement programs may be funded from a variety of different sources. Probably the most significant financial contribution to hazardous materials enforcement programs is made by the Bureau of Motor Carrier Safety of the U.S. DOT. Funding is provided to

state agencies through the Bureau's "Motor Carrier Safety Assistance Program (MCSAP)." The purpose of this program is to encourage states to enforce uniform motor carrier safety regulations and to use nationally coordinated inspection programs and enforcement activities for reducing the number and severity of transportation accidents. The MCSAP program involves an 80/20 federal-state matching grant which is given to states that adopt and enforce the U.S. DOT's Federal Motor Carrier Safety Regulations and Hazardous Materials Regulations (or compatible state regulations). Two different levels of funding are available to states - up to $50,000 per year for the adoption of the DOT regulations and the development or modification of an enforcement program ("Development Grant"), or up to $1,200,000 per year for the initiation or continuance of an already established enforcement program ("Implementation Grant").

Additional conditions for receiving MCSAP funding include 1) agreement by the state to adopt and enforce the federal regulations, 2) preparation of a state enforcement plan which will be reviewed by the DOT, 3) designation of a state agency which will be responsible for administration of the enforcement program, 4) dedication of qualified personnel and adequate resources (including money) to the enforcement program, 5) establishment of statutory authority for right of entry and inspection of transporter vehicles and facilities, 6) establishment of authority to regulate both private and for-hire carriers, and 7) submission of documents and reports which certify the state's progress in meeting the above criteria. Funds received under the MCSAP program may be used for recruitment and training of enforcement personnel, payment of salaries and fringe benefits, travel expenses, clerical and administrative expenses, and for equipment, such as vehicles, uniforms, and communication equipment. Expenses related to the development of a state transportation safety database are also reimbursable, because the development of databases is a second function of the MCSAP program. [95]

The MCSAP program was initiated in 1982 under the Surface Transportation Assistance Act, and it is financed through the Highway Trust Fund for a period of 5 years. Ten million dollars was appropriated to the MCSAP program for its first year of operation (1984), and $10 million is to be added to the program each year up through 1988. For fiscal year 1986, the

"recommended approved amount" of money which was to be appropriated to the states totalled approximately $17.5 million. The amount of individual appropriations ranged from $40,000 to $50,000 for development grants and from $104,552 to $1,200,000 for implementation grants. Fourty-six agencies located in 44 states plus the District of Columbia are identified in Appendix D as receiving 1986 funding from the MCSAP program. It should be noted, though, that these appropriations are not exclusively for hazardous material transportation activities. Because of the limited number of hazardous materials shipments on the road, the majority of this money is probably used for inspection of general commodity carriers and for enforcement of the Motor Carrier Safety Regulations (applicable to general commodity carriers), rather than the Hazardous Materials Regulations.

One of the greatest sources of funding for hazardous waste enforcement programs is the U.S. EPA. EPA funding, however, is usually provided to state agencies for inspection and enforcement activities associated with hazardous waste generators, TSD facilities, and transporters. Because generators, treaters, storers, and disposers of waste are usually more numerous and are generally more regulated than waste transporters, the proportion of money budgeted for transporter inspection and enforcement activities is usually much less than the amount budgeted for regulation of the other industries.

A major source of funding for both hazardous waste and hazardous materials transportation enforcement activities is individual state governments. Clearly, the amount of money received from this source varies significantly between states, according to each state's perception of the importance of regulating hazardous chemical shipments, the lobbying power of the state's trucking industry, the financial welfare of the state, and many other factors.

In many states, fees and penalties collected by a state agency in the administration of its enforcement program are deposited in the general state treasury from which the agency draws its budget. In a few states, when such money is collected by hazardous waste regulatory agencies, it is deposited in a "Hazardous Waste Fund" which is used to clean up hazardous chemical discharges or hazardous waste dumps. In both of these situations, the state agencies which have collected fees or

penalties from industry are not able to use the money for enhancement of their regulatory or enforcement programs.

A few states, however, allow collected monies to be kept by or returned to the agency for program use. State agencies which use transporter license, permit, or registration fees to run their hazardous waste enforcement programs include the Kentucky Transportation Cabinet, the New York Department of Environmental Protection, and the California Department of Health Services. Similiarly, the City of Denver uses hazardous materials transportation permit fees to operate its inspection and enforcement program. The California Department of Highway Patrol utilizes hazardous materials transporter inspection fees to cover the costs of its inspection and enforcement program, and nonidentified transporter "fees" have been reported to provide funding for the Michigan State Fire Marshal, the Oregon Public Utility Commission, and the North Carolina Department of Human Resources. Money collected from civil and criminal penalties was only found to be utilized by the California Department of Health Services, although it is believed that other state agencies use this program funding mechanism too.

Though only a few states were found to be utilizing industry fees or penalties for funding their enforcement programs, the National Conference of State Legislatures has stated that "The notion of regulated industries paying the cost of regulating themselves . . . has long been an accepted practice with regard to the trucking industry."[96] Further, the amount of money which may be collected from this regulated community is nothing to scoff at. California, as an example, collected $500,000 from its hazardous materials transporter licensing fees in the first 9 months of implementing the fee requirement.[97]

FEDERAL PREEMPTION OF STATE AND LOCAL REGULATIONS

Section 1811 of the Hazardous Materials Transportation Act (HMTA) [98] provides the Secretary of Transportation (U.S. DOT) with the authority to preempt state or local transportation requirements which are inconsistent with the HMTA or with any regulations issued under the Act. However, provisions are also made in the HMTA for inconsistent regulations to not be preempted by the U.S. DOT if the requirements 1) "afford an equal or greater level of protection to the public" than is afforded by the HMTA requirements or by the DOT's regulations, and 2) do "not unreasonably burden commerce." [99]

The determination of whether or not a state requirement is inconsistent with the HMTA or with the regulations issued by DOT under the statutory authority of the HMTA is made by the DOT's Office of Hazardous Materials Transportation (OHMT). However, because OHMT was only recently created from the Materials Transportation Bureau (MTB) [100], this function has been carried out in the past by the MTB.

An administrative procedure called an "Inconsistency Ruling" (IR) is used by the DOT to evaluate the consistency of state or local regulations. These rulings may declare that a state or local requirement is or is not inconsistent with DOT regulations, specifically in regards to the Hazardous Materials Regulations (HMR) which were written under HMTA authority. If a state or local regulation is found to be inconsistent with these rules, the state or local government can apply to the DOT for a waiver of preemption. The DOT states its decision about an application for a preemption waiver in a "Non-Preemption Determination" (NPD). To date, 17 inconsistency rulings and 1 non-preemption determination have been issued by the U.S. DOT. These administrative rulings are listed chronologically in Appendix E.

According to the U.S. DOT, "the determination as to whether a State or local requirement is consistent or inconsistent with the Federal statute or Federal regulations is traditionally judicial

in nature." [21] However, deciding the issue through an administrative inconsistency ruling "provides an alternative to litigation for a determination of the relationship of Federal and State or local requirements." [101] It should be remembered, though, that an inconsistency ruling

> is an advisory opinion of the Department of Transportation. As is evident from our procedures, it is not the product of formal adjudication ... or any other type of adversary proceeding .... The process was not designed for the resolution of factual disputes, but rather to indicate to effected parties ... the Department's view as to the propriety of specific State or local hazardous materials transportation requirements under the Federal statute and regulatory scheme .... An inconsistency ruling generally turns on legal issues. [102]

Although the DOT acknowledges that its rulings do not have the weight of formal legal decisions, the Department does clearly recognize the judicial nature of its determinations. As a result, the agency incorporates case law criteria and judicial holdings on state and federal roles into its quasi-judicial decisions.

Many of the case law criteria and judicial holdings considered by the DOT are embodied in the federal case Dixy Lee Ray v. Atlantic Richfield Company and Seatrain Lines, Incorporated. [103] Quotes from this case will thus be used to demonstrate the basis for DOT's legal reasoning in its preemption decisions.

The first of the legal criteria which is considered by the DOT in its rulings is the extent of preemptive power which is provided to the Department under its empowering statute. The Supreme Court, in the Dixy Lee Ray case, summarizes the conditions which are necessary for an agency to exert preemptive power over state or local regulations. "We start from the assumption that the historic police powers of the States were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress." [104, 105] Therefore, "one of the legitimate inquiries is whether Congress has either explicitly or implicitly declared that the States are prohibited from regulating the various aspects of ... operations ... with which the [state law] is concerned." [103] Under the HMTA, Congress clearly provided the Secretary of Transportation with

the authority to preempt state or local regulations which are inconsistent with the HMTA or with regulations issued under the Act. However, no criteria were provided for determining if state regulations are inconsistent with federal requirements. It is possible that the federal hazardous materials transportation regulations may "cover the field" such that no room is left for state regulations. In the Supreme Court's words, "The scheme of federal regulation may be so pervasive as to make reasonable the inference that Congress left no room for the States to supplement it." [104] "Or the Act of Congress may touch a field in which the federal interest is so dominant that the federal system will be assumed to preclude enforcement of state laws on the same subject." [106]

In order to more clearly define the DOT's preemptive powers as intended by Congress, the Department has examined both the purpose and the legislative history of the HMTA. In enacting the HMTA, the DOT claims, Congress' purpose was to consolidate the DOT's authority over different transportation modes (air, rail, and highway), and to reduce other existing gaps in the DOT's authority. [107] This was, according to DOT, "in order to protect the Nation adequately against the risks to life and property which are inherent in the transportation of hazardous materials in commerce." [108] Further, DOT says, a Senate Report on the HMTA indicates that Congress intended for the preemptive provision of the Act "to preclude a multiplicity of State and local regulations and the potential for varying as well as conflicting regulations in the area of hazardous materials transportation." [109] DOT interprets this to mean that "certain areas of transportation" (specifically, hazardous materials):

> demand a strong, predominant Federal role. In the HMTA's Declaration of Policy and in the Senate Committee language . . . , Congress indicated a desire for uniform national standards in the field of hazardous materials transportation and . . . gave the Department of Transportation the authority to promulgate those standards . . . . The comprehensiveness of the MTB's Hazardous Materials Regulations severely restricts the . . . scope of permissible State or local activity. The nature, necessity, and number of hazardous materials shipments make uniform standards extremely important. [110]

The Department's contention, then, is that uniform federal regulations for hazardous materials transportation are ultimate in authority and preclude the necessity for state or local regulations. State or local regulations which govern the same aspects of hazardous materials transportation that the federal regulations address are especially held to be unwarranted.

When federal regulations or standards do not address specific areas of hazardous materials transportation, however, the preemption of state or local regulations in these specific areas is not as certain as the Department would like to imply. The DOT itself has stated that "Absent Federal occupation of the field, a state may take certain measures, in the exercise of its police power, to safeguard the health, safety, and welfare of its citizens." [111] In regards to railroad safety regulations (governed by the DOT under the Federal Railroad Safety Act of 1970), the Department has said, "A State may adopt or continue in force any law, rule, regulation, order, or standard relating to railroad safety until such time as the Secretary [of Transportation] has adopted a rule, regulation, order, or standard covering the subject matter of such State requirement." [111] Further, in legal cases where courts have sustained state laws regulating federally inspected or licensed vessels, no federal rules addressed the same object "sought to be achieved by the challenged state regulation." [103] It thus appears that state and local jurisdictions should be able to enact regulations for protecting public safety if the regulations govern specific areas unaddressed by federal regulations. However, there are no assurances that such state or local requirements will not be preempted if the regulated areas fall within a federal agency's jurisdiction. The Supreme Court has stated that if a federal agency has not yet initiated a regulation in a particular area of their jurisdiction, and "failure of . . . federal officials . . . to exercise their full authority takes on the character of a ruling that no such regulation is appropriate or approved pursuant to the policy of the statute, states are not permitted to use their police power to enact such a regulation." [103] The acceptability of state or local hazardous materials transportation regulations must thus be evaluated further.

The next two legal criteria which the DOT considers in its review of state or local hazardous materials regulations are the "dual compliance" or "direct conflict" test and the

"obstacle test." The dual compliance or direct conflict test asks if a state or local regulation conflicts with a federal regulation such that compliance with both regulations is impossible, or such that compliance with the state or local regulation causes the federal requirement to violated, or vice versa. The obstacle test concerns regulations which, "regardless of conflict with a Federal requirement, stands as 'an obstacle to the accomplishment and execution of the [HMTA] and the regulations issued under the [HMTA].'" [21] These two tests are borrowed from court dictum such as that found in the Dixy Lee Ray case:

> Even if Congress has not completely foreclosed state legislation in a particular area, a state statute is void to the extent that it actually conflicts with a valid federal statute. A conflict will be found "where compliance with both federal and state regulations is a physical impossibility" . . . or where the state "law stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress." [103]

If a state or local regulation is found to be consistent with DOT regulations or with the objectives of the HMTA according to these two tests, it is not likely that the regulation will be preempted by the U.S. DOT. If the regulation is found to be inconsistent, though, the state or local jurisdiction may apply to the DOT for a waiver of preemption.

In deciding whether or not to grant a waiver of preemption, the first question which will be asked by the DOT is if the regulation is needed to protect the public from a unique local safety hazard. The DOT outlines conditions for the approval of local safety hazard regulations in its second inconsistency ruling, where it states that to "the extent that nationwide regulations do not adequately address a particular local safety hazard, state or local governments can regulate narrowly for the purpose of eliminating or reducing the hazard." [110] This statement follows Supreme Court dictum in the Dixy Lee Ray case, which indicates that a state or city is not prevented from enforcing local laws if the laws have purposes which differ from the purposes of the federal regulations. [103] The DOT stipulates, however, that for a local safety hazard regulation to be considered for a preemption waiver, the regulation must address "exceptional circumstances [which] may necessitate immediate action to secure more stringent regulations." [112] Further,

the petitioner for a waiver must "present an objective demonstration that a Federal regulation, which provides an adequate level of safety on a national basis, fails to provide an adequate level of safety in a given locale because of physical conditions which are unique to that locale." [112] The other half of this requirement is that the state or local regulation must ensure an equal or greater level of public protection than the existing federal requirements provide. Unfortunately, state and local government assertions on these issues are seldom accepted by the DOT.

One of the main reasons for DOT's lack of acceptance of local safety hazard pleas is the Department's concern that if one local government initiates a regulation governing what it considers to be a "local" phenomenon, other local or state governments will do the same. This would lead to the "multiplicity of state and local regulations" which DOT says Congress wanted to prevent. Because of this concern about the development of a "patchwork of varying and conflicting state and local regulations," [113] and because of the Department's desire for full regulatory control through its "uniform national standards," [110] fifteen of the seventeen DOT-issued inconsistency rulings have resulted in preemption of state or local regulations. Additionally, the only state or local government request for a waiver of federal preemption has been denied. [114]

Even if a state or local hazardous materials transportation regulation is determined to be consistent with the DOT's regulations or objectives, or if it is determined to be justified because it adequately protects the public from a unique local safety hazard, the state or local government must still ensure that its requirement meets a final criterion. According to the HMTA, all state and local requirements must not unreasonably burden commerce. This prohibition of burdensome regulations comes from Supreme Court interpretations of the U.S. Constitution's Commerce Clause. Because the prohibition's source is the U.S. Constitution, the judgement about the existance of an undue or unreasonable burden is a Constitutional issue which may only be decided by federal courts. The DOT, as an administrative agency, has no legal authority to declare that a state or local regulation imposes an unreasonable or undue burden on commerce. In making its inconsistency rulings and non-preemptive determinations, though, the DOT frequently considers the "burden"

which may occur as a result of the state or local regulations under its review. The Department has even adopted case law criteria which it uses in its non-preemptive determinations for ascertaining the degree of burden imposed by a state or local regulation. If the burden created by a regulation under review is determined to be unreasonable according to these criteria, the DOT will apparently refuse to issue a waiver of preemption to the state or local government. The case law criteria evaluated by the DOT in making this decision are as follows:

1) The extent to which increased costs and impairment of efficiency result from the State or political subdivision requirement.

2) Whether the State or political subdivision requirement has a rational basis.

3) Whether the State or political subdivision requirement achieves its stated purpose.

4) Whether there is a need for uniformity with regard to the subject concerned and if so, whether the State or political subdivision requirement competes or conflicts with those of other States and political subdivisions. [117]

Although many legal criteria are considered by the DOT during its administrative rulings, some of the criteria may be relied on more heavily than others. Criteria which appear to serve as key factors for DOT decisions are shown in simplified flow charts in Appendices F and G. Appendix F delineates the main criteria considered by the DOT in inconsistency rulings, and Appendix G shows the principal criteria considered for preemption waivers. Additionally, a summary of the DOT's rulings regarding the permissibility of certain types of state or local regulations is provided below, with information listed according to the topic of regulation.

Hazard Class Definitions

Hazard class definitions which differ from DOT's definitions for hazardous materials classifications (for example, flammable liquid, compressed gas, etc.) are expressly preempted by the DOT because of their inconsistency with DOT definitions. State or locally defined hazard classes, according to the DOT, present an obstacle "to the accomplishment of the general Congressional purpose of promoting uniformity in hazardous materials transportation" and to "the

specific purpose of achieving the maximum level of compliance with the HMR." [115] The HMR are so technical and intricate, the Department acknowledges, that "The complexity of this regulatory scheme is often cited as a significant cause of noncompliance." [115] A state or local government's use of regulations based on different hazard class definitions thus "adds another level of complexity to this scheme" and "can only result in making compliance with the HMR less likely ...." [115]

Packaging Requirements

State or local packaging requirements for hazardous materials shipments are clearly preempted by the U.S. DOT. The DOT maintains extensive regulations on shipment packaging, so this is an area where federal involvement precludes non-federal regulation. The DOT's exclusive regulation of shipment packaging is summarized in the Department's second inconsistency ruling. "State and local governments may not issue requirements that differ from or add to Federal ones with regard to packaging design, construction and equipment for hazardous materials shipments subject to Federal regulations." [110]

Hazard Communication (Marking and labelling of packages, placarding or marking of vehicles)

Hazard communication systems are another area where federal standards are considered to be so important and so extensive that there is no room for state regulation. The DOT has said that "overall public safety demands nationally uniform requirements relating to hazardous materials packaging and hazard warning systems." [116] Further, the DOT "has issued regulations on marking and labelling of packages and placarding of vehicles in order to communicate the hazards of the materials contained therein .... Additional, different requirements imposed by States or localities detract from the DOT systems and may confuse those to whom the DOT systems are meant to impart information." [110]

Specifically in response to vehicle marking regulations, "State or locally required signs, emblems or marking on vehicle sides, even if they cannot be confused with DOT placards, nonetheless divert attention from the DOT system." [118] Federal vehicle marking requirements

are exclusive because they are "the type of requirement that is appropriate for the Federal Government to impose on hazardous materials carriers should it be felt that such a requirement is necessary." [118]

Shipping Documents

When state or local governments require hazardous materials transporters to carry shipping documents on board their vehicles, the DOT will preempt the state or local requirement if the required documents duplicate information which is contained on DOT-required shipping papers. Shipping documents required by state or local governments may be shipping papers which contain chemical hazard information for assisting emergency responders, or copies of hazardous materials transporter permits which identify motor carriers and their loads in order to assist state or local enforcement personnel. Although both of these types of documents are designed to enhance public safety, the DOT asserts that "no matter what the form, any State or local requirement that asks for an additional piece of paper that supplies the same information as is required to be on the DOT shipping paper would be inconsistent with the requirements contained in the Hazardous Materials Regulations." [119] State or local jurisdictions must instead obtain desired information "without requiring the truck driver to carry another document with identical information on it." [120] This limitation on shipping documents results from the DOT's attitude towards duplicative regulations, which is expressed as follows. "Redundant requirements present the clearest example of the kind of multiplicity that the HMTA was enacted to prevent. As such, redundant requirements pose an obstacle to the accomplishment and execution of the HMTA, even if there is no direct conflict with an individual Federal requirement." [121] Although redundant documents would thus be preempted by the DOT, shipping documents which do not duplicate information listed on DOT-required shipping papers should be permissible under the federal system.

Emergency Response

"Despite the dominant role that Congress contemplated for Departmental standards there are certain aspects of hazardous materials transportation that are not amenable to effective national regulation." [110] According to the DOT, one of these areas is local emergency response for hazardous materials accidents. The DOT expresses its view of the federal and state roles in emergency response activities in IR-2. "Although the Federal Government can regulate in order to avert situations where emergency response is necessary and can aid in local and state planning and preparation, when an accident does occur, response is of necessity, a local responsibility." [110] Consequently, the Department should provide state and local governments with a little more leeway for enacting regulations which address emergency response needs.

Incident Reporting

Two types of incident reporting are required of hazardous materials carriers by some state and local governments. Immediate notification of hazardous materials spills is commonly required to be made to local or state officials who are responsible for initiating emergency response. This immediate notification is acceptable to the DOT because it "furthers the State's activity in protecting persons and property through emergency response measures." [122] However, written notification of an incident, which often must be made to state or local officials after an accident occurs, is "not necessary to local emergency response." [123] Also, Section 171.16 of 49 CFR already contains a federal regulation which requires submittal of a written incident report to the DOT when certain hazardous materials incidents occur. State or local regulations which also require submittal of written incident reports are duplicative of this requirement and are thus considered inconsistent with federal objectives. "Redundancy does not further transportation safety and represents the type of multiplicity that the HMTA intended to make unnecessary." [119] Although the DOT thus preempts state or local written incident report requirements, the agency does provide an alternate method for state and local governments to obtain the information desired from incident reports. The written incident reports which are

required to be submitted to the DOT under Section 171.16 are considered public information, and the Department has proclaimed its willingness to send copies of these reports to state agencies on a routine basis when this is wanted. [123]

Shipment Routing

The DOT has identified specific criteria which may be used by state or local governments in routing hazardous materials shipments. Some of these criteria are contained in the DOT publication Guidelines for Applying Criteria to Designate Routes for Transporting Hazardous Materials [124], while others have been described in DOT's inconsistency rulings. The primary keys to receiving federal approval of routing regulations are outlined below.

1). Hazardous materials shipments may not be prohibited within a city, but shipments may be routed around a city by designation of an alternate route.

This policy was described by the DOT in its third inconsistency ruling. A city, the DOT expressed, "may not through its regulations exclude motor vehicles transporting hazardous materials from use of its streets, to the extent that use is in compliance with the HMTA." [125] Instead, cities and/or states must designate preferred routes for hazardous materials shipments.

2). Designated routes should minimize transport delays.

The DOT's third inconsistency ruling makes it clear that routing requirements which result in unnecessary delays will be preempted. According to the DOT, "Delay is significant in hazardous materials transportation because it threatens public safety by increasing the total amount of time the public is exposed to risk . . . ." [126]

3). When designating routes, the effects of the designation on neighboring jurisdictions must be considered, and officials from the neighboring jurisdiction should be consulted.

In the Department's sixth inconsistency ruling, the DOT reiterated that "if a local rerouting scheme is to be consistent with the HMTA, the jurisdiction seeking to achieve rerouting 'must act through a process that adequately weighs the full consequences of its routing choices and ensures the safety of citizens in other jurisdictions that will be affected by its rules.' " [127] Also, in the

Department's first non-preemptive determination, it was stated that states should "consult with affected local jurisdictions before designating an alternate preferred route." [71]

4). Overall public safety must be enhanced; the safety benefits which a city receives from routing hazardous materials shipments through a neighboring jurisdiction must exceed the risks which are transferred to the neighboring area.

As expressed by the DOT in its ruling on Boston's routing rules, "if the safety benefits to Boston as a result of its circuitous routing rules do not exceed the risks imposed thereby on other jurisdictions, the delay is unnecessary and the rules are inconsistent . . . ." [126]

5). Routing should be done at the state level, not at the local government level.

"A State government has a much broader perspective than local governments because it is responsible for the safety and welfare of all its communities . . . . Also, a state, unlike a local government, can work directly with other states (individually or through regional compacts) to ensure the consideration of all safety impacts as well as the continuity of designated routes." [71]

6). An anticipated delay which may result from a local or state government's routing requirements must be acceptable to motor carriers.

This provision reflects the Constitutional limitation on the amount of burden which a government can impose on commerce. In the DOT's own words, a city "must show that a carrier, if presented [with] the information the City used to make its routing decision, would reach the same conclusion" concerning the selection of a route. " . . . the carrier, not the local or State jurisdictions, must judge whether a delay is necessary or not . . . . " [126]

Permits

Transporter permits are one of the few state regulatory and enforcement tools which are allowed by the U.S. DOT. In its second inconsistency ruling, the DOT stated "A permit may serve several legitimate State police power purposes, and the bare requirement . . . that a permit be applied for and obtained is not inconsistent with Federal requirements. However, a permit itself is inextricably tied to what is required in order to get it. Therefore, the permit requirement . . .

must be considered together with the application requirements . . . ." [129] The permit application requirements mentioned here refer primarily to submittal of information which may be duplicative of DOT-required information, or which may cause unnecessary shipment delays. The DOT's negative attitude towards duplicative requirements has already been discussed under the "Shipping Document" section, above. An example of permit information requirements which delay hazardous materials shipments is found in IR-2. In this ruling, the DOT preempted Rhode Island permit regulations which required that shipment-specific information be submitted to the state within a limited number of hours after a hazardous materials vehicle was loaded. The DOT ruled that because the information could only be submitted after shipments were loaded, the Rhode Island regulations created an unnecessary delay in transportation. Also contributing to the preemption was the fact that "Much of the information required for the Rhode Island permit could be obtained in such a way that delay in transportation would not be incurred." [119]

Another permit requirement which is examined by the DOT in its preemptive rulings is the requirement for a copy of the transporter permit to be carried in hazardous materials shipment vehicles. As mentioned earlier, the DOT will preempt requirements which call for shipping documents to be carried on hazardous materials vehicles if the documents replicate information which is already required on DOT shipping papers. If the permit information is not duplicative, however, then "to the extent a valid permit is issued, a requirement to carry the permit in the cab of the motor vehicle, and display of a decal, are reasonable aids to local enforcement to which we do not take exception." [123] Permits would not be valid documents, however, if they require the transported hazardous materials to be classified differently from the U.S. DOT hazard classification system (refer to the "Hazard Class Definitions" section, above).

Another condition for federal acceptance of permit requirements is that the requirements must not result in the routing of traffic around the jurisdiction which has the permit requirement. If shipments are diverted into adjacent jurisdictions as a result of the permit requirements, then the requirements constitute "routing rules." Routing rules are described by the DOT as "any action which effectively redirects or otherwise significantly restricts or delays

the movement by public highway of motor vehicles containing hazardous materials, and which applies because of the hazardous nature of the cargo. Permits, fees and similar requirements are included if they have such effects. . . ." [130] If a permit requirement is found to be a routing rule, it will most likely be preempted.

One permit condition, the assessment of permitting fees, has been evaluated for preemption by a federal court, instead of the DOT. In New Hampshire Motor Transport Association v. Richard M. Flynn [131], the U.S. Court of Appeals ruled that the assessment of permit fees does not violate the Commerce Clause of the U.S. Constitution, nor are such assessments preempted by the HMTA if the permit fees are not excessive and resemble "user fees." To resemble user fees, the assessments must represent a fair approximation (not necessarily the actual cost) of a hazardous materials transporter's use of state services or facilities. Such services and facilities may include manpower involved in responding to hazardous materials spills (such as spill investigation and traffic control), manpower used to inspect hazardous materials vehicles and to investigate and bring enforcement action against violators of transportation regulations, personnel training, and equipment used for inspections, spill response, or spill clean-up. State governments which assess permit user fees must, however, be able to show that there is a need for such services and facilities (for instance, by showing the number of hazardous materials spills which occur in the state per year and the number of personnel employed in hazardous materials transportation-related jobs), and that there is a rough matching of the fees assessed and the benefits received. According to the Court, the burden of proving that fees are excessive in relation to state program expenditures falls to the party who is contesting the fees (usually trucking companies). Also, the state authority does not have to show that the permit fees received are actually used for program expenditures. In the words of the Court of Appeals, "what the fees themselves are actually spent on is irrelevant. The question is the relationship between the amount the fees raise and the amount the state likely spends. The Commerce Clause does not require states or courts to trace individual dollars." [131]

Statements such as this provide state and local governments with a fair amount of leeway in assessing transporter permit fees. Even though the Court of Appeals determined these fees to be constitutionally valid, though, the Court also recognized the legal power of the U.S. DOT to preclude permit fee assessments if they lead to a multiplicity of state and local requirements. According to the Court, if federal preemption of permit fees occurred, it would most likely be accomplished by the issuance of a DOT regulation which would supersede all state or local permit requirements. [131] It would be unlikely for the permit rules to be declared inconsistent with the HMTA solely because they produce multiple state and local requirements. [132]

Shipment Prenotification

The DOT has asserted that when local prenotification of hazardous materials shipments "is to enable the city to identify what hazards it should be prepared to deal with and to ensure that it is capable of doing so," these are "valid concerns." [133] However, the DOT will still preempt a local prenotification regulation if it conflicts with or presents an obstacle to the objectives of the HMTA or the Hazardous Materials Regulations. One of these regulations, section 177.853(a) of 40 CFR, states that "All shipments of hazardous materials shall be transported without unnecessary delay, from and including the time of commencement of the loading of the cargo until its final discharge at destination." This requirement affects shipment prenotification rules because "Compliance with the requirement for advance notification would necessarily involve some degree of delay in the transportation of hazardous materials . . . . An individual carrier seldom knows much in advance of any shipment precisely what is being shipped or what route it will follow. Furthermore, carriers frequently make pick-ups and deliveries enroute. In view of these practical considerations, the responsibility for providing advance notification would fall to the driver, who . . . would have to interrupt transportation in order to telephone" the city or state which requires advance notification of shipments. [133] Further, "The mere threat of delay may redirect commercial hazardous materials traffic into other jurisdictions that may not be aware of or prepared for a sudden, possibly permanent, change in traffic patterns." [134] This could, in turn, result in a

decrease of overall public safety, which would make the prenotification requirement inconsistent with the DOT's objective of protecting the entire public from risks associated with hazardous materials transportation. Also, the Department believes that if a city required prenotification of all hazardous materials being shipped through its jurisdiction, it would be inundated by "hundreds and possibly thousands of telephone calls daily." [133] This would overwhelm the city's ability to respond to the calls, essentially rendering the advance notification useless.

The Department's criticism of local prenotification requirements has resulted in the DOT's receipt of "numerous comments urging adoption of a national prenotification regulation" for hazardous materials shipments. [130] The DOT has refused to establish such a national requirement. Still, "The absence to date of prenotification requirements in the HMR cannot be construed as an abdication of the field . . . ." [130] Because the DOT sponsored a study on the need for and feasibility of prenotification requirements (completed by the Puget Sound Council of Governments in 1981), [64] the Department believes that it has "clearly demonstrated its intent to occupy the field of prenotification, to the exclusion of requirements adopted by State and local governments." [130] Further, the outcome of the prenotification study was that "while there appeared to be some merit in alerting jurisdictions to the impending shipment of especially hazardous materials in order to facilitate emergency response preparedness, the usefulness of the prior notice declined sharply as the number of substances subject to it increased." [133] This finding supports the Department's claim that prenotification is "neither the only or the most effective method available" for providing a city with hazard information. " A survey could accomplish the same results more quickly and at less expense to both the city and the carriers." [133] As a result, the Department has stated "Unless DOT reaches and acts on a conclusion that prenotification rules are necessary . . . , independent state and local prenotification requirements are not consistent with" DOT regulations. [135]

Restricted Shipment Hours

A number of cities have initiated regulations which prohibit hazardous materials shipments from travelling through cities during rush hours (such as 6 - 8 a.m. and 4 - 6 p.m.). The DOT has ruled that these restrictions on hours of travel can be applied to pick-up and delivery shipments occurring within a city but not to interstate shipments or to shipments which are just passing through a city. [125] This is because the DOT considers such restrictions on non-local shipments to be routing rules; they may result in the routing of shipments around the restricted city in order to avoid the shipment restrictions. As has already been seen, the DOT prohibits "routing rules" such as this, which may cause unnecessary delays and pass the risk associated with hazardous materials shipments onto neighboring areas. Restricted operating hours would not, however, reroute city pick-ups or deliveries, so the restrictions may be applied to these types of shipments.

Shipment Bans

Although some cities and states have banned thru-city shipments of certain hazardous materials (especially hazardous waste and spent nuclear fuel), this action would most likely be preempted by the U.S. DOT and rejected by federal courts. In 49 CFR 172.101 (the Hazardous Materials Tables), the DOT identifies hazardous materials which are forbidden for transport in commerce, so the Department has already determined which hazardous materials may be banned from public highways. Any city or state regulation which bans hazardous materials shipments not designated by the DOT as prohibited would thus be inconsistent with the federal requirements.

When reviewed by the federal courts, state or local shipment bans would usually be invalidated unless their effects on commerce are not considered excessive in relation to their community benefits. This conclusion was reiterated by the Supreme Court in the 1978 case City of Philadelphia et al. v. State of New Jersey et al. [136] In this case, a New Jersey law prohibiting the importation of solid or liquid waste from outside the state was held to be unconstitutional because of its resultant burden on commerce. One important holding of the Supreme Court was

that waste shipments, although generally considered "valueless," are protected under the Commerce Clause as legitimate items of interstate commerce. Also, states may not discriminate "against articles of commerce coming from outside the State unless there is some reason, apart from their origin, to treat them differently" from intrastate items of commerce. [136] This prohibition would be expected to apply to city-wide shipment bans as well as to state-wide transportation bans.

Financial Responsibility

The DOT's main concern with state or local financial responsibility requirements (such as prescribed minimum levels of insurance coverage or indemnity bonds) is that they may require such a financial outlay that transporters may route their hazardous materials shipments around the state or local jurisdiction in order to avoid the regulations. Other transporters may be forced to temporarily reroute their shipments while the required amount of financial coverage is being obtained. In both cases, the non-federal financial responsibility requirements would be operating "as barriers to transportation" [137] and would be considered "routing rules." This particular form of shipment routing would cause three conditions deemed unacceptable to the DOT. First, it would result in an "increase of overall time in transit" [138] which conflicts with the DOT's 49 CFR 177.853(a) requirement for hazardous materials shipments to be made "without unnecessary delay." Second, the requirements would shift the burden of risk associated with the shipments to neighboring jurisdictions, possibly resulting in a decrease of overall public safety. Third, the DOT claims that "if one state may use insurance requirements to deflect interstate carriers of hazardous materials into other jurisdictions, then all States may .... The logical result would be ... the very patchwork of varying and conflicting State and local regulations which Congress sought to preclude." [139] For these three reasons, non-federal financial responsibility requirements are subject to preemption by the DOT.

Penalties

State or local penalties which differ from the penalty provisions provided for under the HMTA appear to be quite permissible. In the DOT's own words, "Penalties associated with valid local regulations are not likely to be inconsistent with the HMTA, unless they are so extreme, or applied so arbitrarily, that they effectively reroute or otherwise unnecessarily delay vehicles carrying hazardous materials . . . . we know of no reason why a mere difference in penalty provisions between a State or local requirement and the HMTA would be a basis for finding inconsistency." [140]

SUMMARY

Hazardous chemical shipments which travel the nation's highways pose a significant threat to public health and private property. Although the accident rate for hazardous material shipments is relatively low, the high number of shipments on public highways results in a large number of accidents.

The U.S. Department of Transportation is responsible for ensuring the safe transportation of hazardous materials. The DOT executes this function by regulating the packaging of chemicals, the operating condition of transportation vehicles, and the qualifications of vehicle drivers. Compliance with the transportation regulations is monitored by DOT officials, who inspect hazardous chemical shipments while they are in transit on U.S. highways.

Hazardous waste is regulated by the DOT as a subclass of hazardous materials. Hazardous waste is also regulated by the U.S. Environmental Protection Agency. In contrast to the DOT, the EPA primarily monitors waste shipments by examining shipment documents, not by performing highway inspections.

Significant deficiencies exist in both the DOT and EPA transportation regulatory programs. The DOT's program, in particular, has received a large amount of criticism over the last few years, primarily because rates of noncompliance with DOT regulations have remained consistently high across the entire nation, as has the annual number of highway accidents involving hazardous chemicals. Two primary reasons for this lack of highway safety are the disjointed, confusing character of the DOT regulations, and the Department's lax enforcement policies. Three additional major flaws in the U.S. DOT's regulatory program are the insufficient regulation of hazardous waste shipments, the ineffectiveness of the federal hazard communication (placarding) system, and the inadequacy of driver training requirements.

To address these federal program deficiencies, many state and local governments have developed special methods for regulating hazardous chemical shipments. Some of the primary methods currently in use are shown in Table 11. State enforcement programs, for example, are including the use of specially trained hazardous materials officers, units or coordinators, utilization of computerized transporter compliance profiles, issuance of injunctions or restraining orders for illegal transportation activities, confiscation or impoundment of noncompliant vehicles, assessment of fines or stiff penalties to transportation violators, and coordination of enforcement activities with other state agencies.

TABLE 11. STATE SOLUTIONS TO FEDERAL TRANSPORTATION PROGRAM DEFICIENCIES

Federal Program Deficiencies	State Regulatory Solutions
Weak Enforcement Policies	1. Hazardous Materials Officers, Units or Coordinators 2. Computerized Transporter Compliance Profiles 3. Injunctions or Restraining Orders 4. Confiscation or Impoundment of Noncompliant Vehicles 5. Fines and Stiff Penalties 6. Coordination of Enforcement Activities with Intrastate and Out-of-State Agencies
Insufficient Regulation of Hazardous Waste Shipments	1. Annual Hazardous Waste Vehicle Inspections and Vehicle Certifications 2. Inspection of Shipments Entering Hazardous Waste Disposal Sites 3. Coordination of Regulatory and Enforcement Activities with Intrastate Agencies
Inadequate Hazard Communication System	1. Vehicle Marking Requirements 2. Shipment Prenotification Requirements 3. Designation of Hazardous Chemical Shipping Routes 4. Permitting, Licensing, or Registration of Hazardous Chemical Transporters
Inadequate Regulation of Hazardous Material Drivers	1. Driver Training Requirements 2. Driver Certification Requirements 3. Codes or Endorsements on Drivers' Licenses

To improve the regulation of hazardous waste shipments, state agencies are conducting annual hazardous waste vehicle inspections, certifying hazardous waste transportation vehicles, inspecting hazardous waste shipments at entries to disposal sites, and coordinating hazardous waste regulatory and enforcement activities among intrastate agencies. Deficiencies in the federal placarding regulations are being addressed by state and local requirements regarding vehicle marking, hazardous chemical shipment prenotification, hazardous chemical shipping routes, and the permitting, licensing and/or registration of hazardous chemical transporters.

Training, licensing and certification requirements for hazardous chemical drivers have been developed by a number of states to ensure that drivers are knowledgeable about the hazards of chemicals they transport and emergency response procedures which they should follow in the event of a transportation accident. To reduce the burden of hazardous chemical accidents on local governments and emergency responders, states are also requiring transporters to post indemnity bonds or obtain special amounts of liability insurance coverage, requiring transporters to develop spill contingency plans, and mandating that emergency response equipment or information be carried on hazardous chemical vehicles.

The use of these regulatory and enforcement methods is limited, however, by budget constraints, by DOT policy attitudes and preemptive powers, by political pressure from the transportation industry lobby, and by legal limitations associated with the Hazardous Materials Transportation Act and the Commerce Clause of the U.S. Constitution. The DOT is at the heart of most of these constraints, for its regulatory and enforcement policies are influenced by the transportation lobby, and are then passed on to state governments through stipulations in state program funding. Also, the Hazardous Materials Transportation Act provides the DOT with nearly exclusive authority for managing hazardous materials shipments, including the power to preempt state and local activities if they are not consistent with DOT goals. So far, DOT has not shown any hesitation in exercising its preemptive authority, especially when local regulations were considered to be burdensome to transporters. By evaluating the degree of burden imposed by local regulations, the DOT measures restraints contained in the U.S. Constitution's Commerce Clause.

This Clause legally prohibits governmental activities which place an unreasonable burden on interstate commerce. Regulations which fit this description are thus deemed unacceptable to the DOT, and are frequently preempted. Some of the state and local transportation management options which have been determined unacceptable by the DOT are:

1). requirements for special shipping documents or for written incident reports,

2). requirements for hazard communication devices (including vehicle marking),

3). requirements for prenotification of hazardous shipments,

4). financial responsibility requirements,

5). restrictions on hours of travel on interstates, and

6). hazardous chemical shipment bans.

A number of management strategies currently being used by state governments, however, are permissible within the limitations of DOT goals and the Commerce Clause. Further, some of these options may be subject to funding by the U.S. DOT, may be designed to have minimal implementation costs, or may even be used as a source of funding. These management strategies include:

1). computerization of hazardous chemical transportation data,

2). interstate and intrastate coordination of transporter information and of enforcement activities,

3). permitting, licensing or registration of hazardous chemical transporters, with associated fees,

4). assessment of significant penalties to violators of the transportation regulations,

5). establishment of driver training, certification, and licensing programs, and

6). designation of hazardous chemical routes.

The advantages of each of these program options, as well as suggestions for their implementation, are discussed in the following chapter.

RECOMMENDATIONS

This report has described the federal framework for regulating hazardous chemical transportation, identified the main transportation problems left unaddressed by the federal program, surveyed state and local regulatory and enforcement programs designed to address these problems, and evaluated the federal government's and the federal courts' acceptance or rejection of state and local hazardous materials transportation regulations. Based on this review of transportation regulatory problems and the successes and failures of state and local regulatory efforts, a number of recommended program options are provided below. Because of the federal government's limited view of the role of city governments in regulating hazardous materials shipments, few recommendations are made for local governments; instead, recommendations are directed to state agencies. Although some states may already have implemented a number of these recommendations, other states may find the suggestions useful in the development or enhancement of their existing hazardous chemical transportation regulatory programs.

1. Each state should undertake an evaluation of hazardous materials and hazardous waste transportation patterns and problems in their state.

Protecting the public from the dangers of hazardous chemical transportation accidents cannot easily be achieved unless the true hazards of chemical shipments are identified. In order to delineate and resolve transportation safety problems in a state, it is important to first examine the characteristics of ongoing hazardous chemical shipments. Therefore, information should be collected on the type of hazardous chemicals travelling through the state and on shipment flow patterns, and predominant transportation companies should be identified. Also, survey data should be compiled to determine factors such as the percentage of total truck traffic represented by

hazardous chemical shipments, the proportion of intrastate to interstate hazardous chemical shipments, and the proportion of private hazardous chemical carriers to for-hire chemical carriers.

Each state's evaluation of hazardous chemical transportation characteristics should also include hazard assessments. These may be performed by analyzing hazardous chemical accidents. Accident analyses should identify routes, highways, or intersections with the most frequent accident rates, and transportation companies or types of carriers (private, common , or contract) which are involved in the largest number of accidents. Hazard assessments should also involve identification of specific areas which would be especially sensitive to spills, such as highways located near sole source drinking water supplies or environmentally sensitive lands. Information on the nature and routes of hazardous materials shipments should be provided state-wide to local emergency responders so that local governments can prepare for response to chemical spills.

Information may be collected through already existing government sources, such as accident records maintained by the U.S. Department of Transportation, local police departments, state highway patrols, or state departments of public safety. Records of hazardous chemical spills are also often kept by hazardous waste agencies. Systematic, coordinated truck checks should be conducted state-wide at vehicle inspection stations in order to obtain an up-to-date sampling of hazardous chemical survey information. State personnel typically used for vehicle inspections (such as weigh station inspectors, highway patrolmen, or officers from state departments of motor vehicles or departments of transportation) should be used to collect the data.

Conducting a state-wide hazardous chemical evaluation should both provide baseline data on hazardous chemical transportation activities and identify the most prevalent transportation problems in the state. Transportation problems may vary between states, and each state should set state-specific priorities so that resources may be committed to correcting the most pressing or important problems. This directing of effort should lead to an increase in the efficiency and effectiveness of regulatory programs. Further, survey data may be collected by states at a later date and compared to baseline data, resulting in evaluation of the effectiveness of an existing

regulatory program. Program modifications may be made in response to this information when it is deemed necessary.

The Office of Technology Assessment has identified additional beneficial features of conducting such state transportation studies. In a summary of its publication Transportation of Hazardous Materials [141], the Office "concludes that locally conducted data collection, such as hazardous materials . . . transportation surveys, is useful and has value beyond the data it produces. The process of gathering information provides data for planning and emergency response purposes and has the additional benefit of acquainting the concerned parties with each other and with the hazardous materials transportation in their areas."

State agencies and special study groups are known to have initiated transportation surveys in Illinois [17], New York [142], Oklahoma [143], Arizona, Massachusetts, and Washington. [144] Details on the design and implementation of hazardous materials transportation studies is thus available through these agencies and study groups, and also through two federal publications, Community Teamwork: Working Together to Promote Hazardous Materials Transportation Safety, A Guide for Local Officials [94], and Transportation of Hazardous Materials: Planning and Accident Analysis. [145]

2. Information on hazardous chemical transportation activities should be compiled by use of a computerized data management system.

As mentioned in Chapter Six, computerized data management systems are already being used in a number of states, either through the federal SAFETYNET system or through individual state information analysis programs. It is recommended that the state transportation survey and accident analysis information described in the previous recommendation be entered into such data management systems so that it may be easily processed and retrieved. Development of the data management system could be accomplished by integrating new hazard assessment information with an existing database, or by developing a comprehensive, multi-purpose system for processing and maintaining the hazardous chemical transportation information.

The transportation database should include carrier profiles developed for both intrastate and interstate hazardous chemical transporters; comprehensive compliance information should be maintained in each profile. The database could even be used to track mandatory compliance dates, to notify enforcement officers when compliance deadlines have been missed, and to generate follow-up compliance letters which would be sent to noncompliant companies. The computer system may also be used to rank transporters by compliance status so that problem companies may easily be identified and targeted for special enforcement efforts. Further, carrier profile data should be accessible to all state agencies which are involved in regulating hazardous chemical transporters. It would be beneficial for the profile information to be interfaced so that all transportation regulatory agencies could enter information on each carrier into a single file. (For example, state hazardous waste agencies may list the EPA identification number of a transporter and the types of wastes that the company carries; state public utilities commissions could provide information on the operating authority and routes of the carrier and on vehicle licensing and registration; and state departments of transportation, public safety, or motor vehicles may enter information on violations of federal highway transportation regulations.)

Data management systems may also be used to store information on hazardous materials drivers. This information could include special hazardous materials training, licensing or certification received by drivers, and drivers' records of compliance with transportation regulations. Provisions should be made in the system for inclusion of both driver and carrier information provided by out-of-state regulatory agencies or by the U.S. DOT.

Use of a computerized system for managing hazardous chemical transportation information would be expected to increase the efficiency of transportation compliance monitoring. This would allow state agencies to more easily identify the most unsafe transportation companies and drivers. Development of these data management systems, especially if based on SAFETYNET, would be consistent with the Department of Transportation's national goals, and should be suitable for funding from the Department.

3. Data collection, regulation, and enforcement activities associated with hazardous chemical shipments should be coordinated between intrastate and out-of-state agencies.

Hazardous materials transportation activities which should be coordinated between related agencies both within a state and in neighboring states are: data collection, information exchange, enforcement officer training, vehicle and facility inspections, and the permitting or registration of hazardous materials carriers. The exchange of information on problem transportation companies, illegal or permitted hazardous waste dump sites, and the types of hazardous chemical shipments which travel specific routes would be useful to a variety of state agencies in several neighboring states. Cross training hazardous materials and hazardous waste officers on each other's transportation regulations should improve the quality of enforcement activities in overlapping jurisdictional areas. Interstate training of transportation officers and the joint inspection of hazardous chemical vehicles and facilities should facilitate good interagency working relationships. Coordinated permitting or registration of hazardous materials carriers would reduce the redundancy of multiple programs and extend a program's range, both within and outside of the state.

Cities and local governments which are interested in regulating hazardous materials shipments should also coordinate their desired regulatory activities with state authorities. State governments can provide regulatory and enforcement training for local personnel, and may even be able to provide some funding for local activities. In addition, acceptance of local regulations by state governments may be crucial, for many state governments have the authority to overrule local requirements. Local activities may be further preempted by the federal DOT unless the actions dovetail with acceptable state regulatory and enforcement programs.

In regards to intrastate activities, some transportation regulations or enforcement activities may best be coordinated with other agencies by consolidation within a single department. The West Virginia Department of Highways, for example, has full authority for enforcing both the hazardous materials and hazardous waste transportation regulations. This merger of programs would be expected to reduce regulatory overlap, which usually results in conflicting or incomplete

problem management. The development of a state hazardous materials specialist or coordinator position, which would entail responsibility for coordinating hazardous chemical information received from intrastate agencies, out-of-state agencies, and the U.S. DOT and EPA, would be another advantageous state action. In addition to coordinating incoming information, the specialist should supervise hazardous material enforcement officer training and agency cross-training programs, serve as a liason to state and federal agencies, and serve as a resource person in answering state agency and legislative questions on hazardous chemical issues. Obtaining volunteer resource persons from industry who could provide more detailed chemical information to the state when needed, such as during emergency response situations, would also be helpful.

Coordination of transportation regulatory and enforcement programs between neighboring states would be very useful in increasing state regulatory and enforcement powers. State transportation agencies have typically been very limited in their ability to bring enforcement action on noncompliant, out-of-state transporters, but by working with officials of neighboring state agencies, state officials can expand their ability to curtail dangerous or illegal transportation activities. Further, many state agencies are already operating under cooperative agreements with other states, and have the authority to modify these agreements or to enter into new ones.

4. States should utilize permits, licenses, or registrations, with associated user fees, to enhance the monitoring of hazardous chemical carriers.

As was seen in Chapter Five, 33 states are known to require registration, licensing, or permitting of hazardous chemical transporters. User fees are frequently associated with these requirements. One probable reason for the abundance of these regulations is that permits have been accepted by the federal courts as an appropriate exercise of state police power, and user fees are considered appropriate if they reflect the cost of state services associated with the transportation of hazardous chemicals. The U.S. EPA has recommended the use of licenses for regulating hazardous waste transporters.[30]

In designing a permitting and fee assessment system for hazardous chemical carriers, state agencies should first calculate their present and expected future enforcement activity and emergency response costs. These costs should include figures for administrative functions, legal counsel, personnel salaries and training, enforcement and emergency response equipment, and spill clean-up. Permit user fees should reflect a proportionate amount of these combined costs, and all money collected should be used for enforcement and emergency response program operations (including improvements and expansions). To reduce permitting or licensing program costs, and to simplify program implementation, permits could be issued through the existing frameworks used to issue motor carrier operating authority (usually located in state public utilities or public service commissions).

Merging or developing a transporter permit or registration program with neighboring states should be beneficial to both state agencies and hazardous chemical carriers. If every state required carriers to obey different permitting rules and issued different permit or registration numbers to carriers, this would result in a paperwork nightmare and create an unreasonable burden on the transportation industry. However, if states were to work together to form regional or multi-state compacts for the purpose of hazardous chemical transporter licensing, the effect on transporters would be diminished while the thoroughness of the permitting or licensing program would be greatly increased. In addition, state agency efforts would not be duplicated. Frameworks for developing such interagency permitting systems already exist because most states participate in multi-state or regional registration and licensing programs for general commodity transporters. In these systems, fees are collected from motor carriers and distributed to state agencies according to the use of each state's roads. It seems feasible to extend the breadth of these programs to include the assignment of special permit numbers and fees to hazardous chemical transporters. Due to such advantageous uses of the multi-state permitting systems, they are recommended by a variety of governmental and industry groups, including the Western Interstate Energy Board.[146]

5. State agencies should greatly increase the frequency and amount of penalty assessments for hazardous chemical transportation violations.

No regulations will be a deterrent to undesireable activities if they are not enforced and if the penalties for violating them are not substantial. Because penalties typically have not been large nor frequently assessed, the cost of compliance with federal and state highway safety regulations has traditionally been higher than the cost of noncompliance. Higher penalties, however, could narrow the discrepancy between compliance and noncompliance costs, and would more accurately reflect the costs to society which result from hazardous chemical transportation accidents. A recommended goal for every state is to streamline and strengthen their penalty assessment system so that violators of hazardous chemical transportation requirements will face definitive and substantial fines, lawsuits, criminal convictions, and/or restraining orders for their actions.

In order for some states to strengthen their penalty system, local judges or the state attorney general's staff may need to be informed of the importance of prosecuting hazardous chemical transportation violators. In other states, authority for assessing penalties may need to be transferred to an administrative agency. It would also be beneficial to train enforcement personnel in the collection and presentation of legal evidence. These ideas are echoed by the Office of Technology Assessment, which states that "Penalties for regulatory violations . . . should be . . . sufficiently large to discourage future infractions. An effective enforcement program requires that legislatures, enforcement agencies, and courts be aware of the death, injury, property damage, and environmental harm that could result from accidental release of hazardous materials and set penalties accordingly." [157]

6. Training guidelines for hazardous chemical shipment drivers should be established; special hazardous chemical licenses or license classification codes should reflect specialized training.

Because two-thirds of highway accidents involving hazardous substances are attributed to driver error [33], much concern about the quality of driver training has been expressed by

governmental, public, and industry groups. As a result of increased pressure to develop national driver training requirements, the DOT published proposed rules in May of 1986 for more stringent qualifications and training of hazardous material drivers.[147] Under the proposed rules, prospective drivers would have to have 1 year of experience in driving the type of vehicle which they would use for transporting hazardous materials. Drivers who intend to transport hazardous materials in cargo tank trucks would also have to pass a special road test which involves demonstrating their ability to operate cargo tank emergency controls and vehicle fire extinguishers. Although these requirements would be an improvement to the federal driver training rules, many other important areas of driver training would still not be addressed. These areas include: emergency response notification procedures, elementary emergency response actions (such as spill containment and public and environmental protection), use of additional emergency response equipment (such as foam suppressants and chemical absorbent pads), personal protection for hazardous chemical handling, characteristics and dangers of chemical classes (including their potential harm to the environment), vehicle maintenance and inspection procedures, and penalty assessments for hazardous chemical transportation violations.

It is recommended that states develop hazardous chemical driver training guidelines which incorporate all of the above criteria. Training curricula based on the guidelines could be developed in individual states or on a multi-state, regional level. Regional training guidelines would ensure more adequate and consistent training of interstate drivers. Training programs could be implemented at existing truck driver training schools, possibly with state subsidies. If DOT's proposed driver training requirements become official, states would not legally be able to require hazardous materials drivers to receive more thorough training than the DOT prescribes, but there would be no restrictions on requiring state-based training programs to use more stringent standards.

A further recommendation is for states to provide recently trained drivers with special driving licenses (or a special classification code on their licenses) which certify that they have completed hazardous chemical training. Such licenses could be issued for an individual state or for a multi-state area which uses a single set of training guidelines. A national hazardous chemical

driver's license, for which the federal government would set driver training standards, has been recommended by numerous governmental and industry groups, including the Office of Technology Assessment. In the OTA's words, "Carrier associations, insurance industry representatives, and state motor vehicle administrators and enforcement personnel have voiced strong support for a national truck driver's license requiring special training.... Prerequisites for a license should include training and a clean record, and driver certification could be linked to specific types of vehicles. Uniform license requirements and training standards could be developed by DOT, but States would be responsible for issuing licenses and administering the training requirements. State license fees could be set to cover program costs." [148] The National Transportation Safety Board [149] and the National Hazardous Materials Transportation Advisory Committee of the American Trucking Associations, Inc. [150] have also recommended such a national training program. The DOT, however, believes that the idea is impractical and is probably not needed. [149]

Despite the DOT's negative attitude towards national driver licensing, major steps are already being taken to achieve this national goal. In 1986, Congress passed federal legislation which requires that minimum driver licensing standards be established by July 15, 1988. [151] The Secretary of Transportation, however, was given the right to waive any portion of the legislation.

7. State officials should designate routes for hazardous chemical shipments.

To maximize protection of the public from hazardous chemical accidents, each state should designate an agency to evaluate and specify hazardous chemical shipping routes. Route selection should incorporate hazardous material flow information collected from state transportation studies, and consider routes presently assigned to carriers through state issuance of operating authority. Local government concerns and needs, such as emergency response access and feasibility, should also be investigated and included. Neighboring states should be consulted in route designation, so that selected routes in adjacent states will meet. Further, industry representatives should be consulted about route options and feasibilities.

Technical guidance in choosing and weighing route selection criteria is available from DOT guidebooks, such as Guidelines for Applying Criteria to Designate Routes for Transporting Hazardous Materials [124], and from a number of other publications. [152, 153] Numerous articles are also available on assessing the hazards of hazardous chemical transportation; [154, 155] these may assist state governments in making some public safety decisions. Additionally, computerized routing models such as Oak Ridge National Lab's HIGHWAY program [152] and ALK Associate's "Princeton Transportation Network Model" [156] may provide valuable assistance in route designation. State and city governments which have already established hazardous chemical routes may also be contacted for advice. Federal approval of a statewide hazardous chemical shipping route will depend upon technical and political support for the selections made, so it is in a state's best interest to consider both technical issues and the concerns of industry, local governments and multiple state agencies when designating routes.

8. State governments should petition the DOT and Congress to provide guidance and funding for key hazardous chemical transportation programs.

Because most areas of hazardous chemical transportation regulation are under the federal DOT's control, states have a limited amount of power for protecting the public from hazardous chemical accidents. When the DOT claims exclusive command over a particular transportation area, few avenues exist for state or local governments to address problems which arise locally as a result of the federal regulations. Instead, these governments must wait for improvements to occur in the federal program. Also, when the DOT designs federal regulations which must be enforced by states, little guidance and too little funding are usually provided for effective program implementation. This often results in ineffective and inefficient regulatory and enforcement programs.

In the past, Congress and the federal court system have seemed to support DOT's activities, but recent awareness of the federal programs' ineffectiveness in improving motor carrier safety has resulted in increased pressure on the DOT to improve its regulatory and enforcement performance. This public and political pressure may provide opportunities for state and local

governments to correct the public safety problems which they have previously been unable to address. It is thus recommended that state and local governments petition both the DOT and Congress about pressing transportation problems so that advances in public safety can be made while the political climate is favorable. Title 49 of the Code of Federal Regulations, Section 106.31, provides that "Any interested person may petition the Director [of the Office of Hazardous Materials Transportation, U.S. DOT] to establish, amend, or repeal a regulation." Thus, an avenue already exists for states to request changes in the federal DOT program. Also, during rulemaking, the DOT must publish a notice of proposed rulemaking in the Federal Register, and collect and consider comments regarding the desireability, feasibility, and acceptability of the proposed rules. This procedure also provides an avenue for state imput on the federal transportation regulations.

Areas of hazardous chemical transportation regulation for which federal support should be petitioned include: a national training program for emergency responders; comprehensive, national training and licensing standards for truck drivers; increased training opportunities for state and local enforcement personnel; simplification of the federal transportation regulations; improvement of the federal hazard classification system; and funding for local emergency response programs, state highway route designation, and state data management systems. A strongly recommended method for gaining DOT and Congressional support for these programs is to establish cooperative relationships with other state agencies and with industry groups. Joint state or state/industry groups such as the Association of American Motor Vehicle Administrators and the Commercial Vehicle Safety Alliance are examples of existing opportunities for working with other officials in furthering common hazardous chemical transportation goals.

CONCLUSION

The foremost goal in designing and enforcing hazardous chemical transportation regulatory programs should be to protect the public. The federal regulatory system, unfortunately, contains many loopholes and problems which do not ensure public safety. Some of these deficiencies are being corrected by the development of state and local transportation regulatory programs.

When designing transportation programs, it is crucial for state and local governments to not unreasonably burden the transportation industry. A balance must be achieved between industrial freedom and regulation, resulting in regulatory programs which are efficient in both correcting safety problems and in minimizing the expense to transporters.

One method for achieving such efficiency is to perform a study of the most pressing problems in a state, then concentrate resources on resolving the most important issues. Another method for improving efficiency is to coordinate regulatory and enforcement activities with intrastate and out-of-state agencies. This coordination of programs should reduce regulatory redundancy and extend the range of enforcement activities. As shown in this report, such a coordinated approach has been recommended by a number of governmental and industry groups.

Consideration of industry concerns during the development of state and local regulatory and enforcement programs may additionally improve program efficiency, since this approach should foster industry's compliance with the regulations. By addressing transporter's concerns, federal support should also be gained, resulting in potential federal funding of state or local projects. Federal approval would additionally reduce the threat of federal preemption of state or local regulations. A comprehensive regulatory and enforcement program which combines the interests of federal, interstate, and intrastate agencies, as well as the concerns of transporters, should thus result in the most effective and safe management of hazardous chemical shipments.

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APPENDIX A

U.S. DOT HAZARD CLASSIFICATION SYSTEM FOR HAZARDOUS MATERIALS MEETING THE DEFINITION OF MORE THAN ONE HAZARD CLASS

(Reference: Title 49, Code of Federal Regulations, Section 173.2)

A hazardous material having more than one hazard must be classed according to the following hazard priority:

1). Radioactive Material

2). Poison A (extremely dangerous)

3). Flammable Gas

4). Nonflammable Gas

5). Flammable Liquid

6). Oxidizer

7). Flammable Solid

8). Corrosive Material

9). Poison B (toxic)

APPENDIX B

STATE REGULATIONS FOR THE TRANSPORTATION OF HAZARDOUS MATERIALS AND HAZARDOUS WASTE

Legend

BI – Bodily injury
CVSA – Commercial Vehicle Safety Alliance
D. – Department of
Div. – Division of
DOT – Department of Transportation
EPA – Environmental Protection Agency
HM – Hazardous Material(s)
HW – Hazardous Waste(s)
ID – Identification
L – License
LLRW – Low-level radioactive waste
MCSAP – Motor Carrier Safety Assistance Program
P – Permit
PD – Property damage
R – Registration
RM – Radioactive material(s)
(Agency name) – Entry is undocumented information

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
ALAB	City of Chickasaw	HW		$10,000 bond must be posted if leaks are found in vehicle	HW going to the town port is restricted to one bridge which has a gross weight limit of 30,000 lbs HW shipments prohibited during bad weather	Prenotification: Required for HW shipments; Police escort and vehicle inspection are also required before HW shipments may enter the city HW shipment regulations challenged in court (1984) by Waste Management, Inc
	City of Mobile	HW			HW shipments banned within city limits	
	D. Environmental Management	HW	P: HW	Surety bond or demonstration of net worth required		A spill contingency plan must be submitted to the Dept before transporter

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
				before permit can be issued; amount depends on transportation activities		license can be issued
	D. Public Safety	HM				Adoption of U.S. DOT regs to be voted on in 1986
	Public Service Commission	HM				U.S. DOT regs are the only HM rules used; regs are applied to intrastate carriers but not to private carriers
ALAS	D. Environmental Conservation	HW				Cooperative agreemt with federal EPA; currently drafting state HW regs
						Prenotification: Required for HW shipments as of 7-1-86; Copies of HW manifests must be sent to the Dept before shipments are made; Dept distributes copies to safety agencies and local officials
	Highway Patrol, D. Public Safety	HM				Prenotification: 24 hour notice and permission of nearest state trooper office is required before HW can be shipped

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
	(Public Service Commission)	HM				
ARIZ	City of Phoenix	HM, HW				Prenotification: Required for HW and HM shipments
	City of Tempe	HM				Prenotification: Required for HM shipments
	D. Health Services	HW: EPA				Copy of HW manifests must be submitted to the Dept
	D. Public Safety	HM				
	D. Transportation	HM		Requirements equal those of the U.S. DOT	Has designated 4 safe havens for parking unattended vehicles containing explosives; more stringent legislation regarding safe havens is proposed Reviewing federal criteria for designation of HM routes	Conducting statewide study of HM & HW transportation; Phase I: Identify routes, class, and quantity of HM transported Phase II: Risk assessment of HM transportation Phase III: Data compilation of HM truck accidents Proposing legislation on special drivers license for HM drivers

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
ARK	D. Pollution Control and Ecology	HW: EPA	P: HW: $100 (5 yrs)			Requires copies of HW manifests from transporters and disposal facilities Prenotification: Shippers must notify the Dept before shipping HW into or out of the state and must receive written approval before shipping HW into the state for disposal HW Driver Training: Employer must inform HW drivers of hazardous characteristics of each shipment and action to be taken in the event of a discharge; Appropriate emergency response eqpmt must also be supplied to drivers
	Transportation Commission	HM, HW	P: HW: $50			Responsible for issuing HW regs in consultation with the D. Pollution Control and Ecology Assists local govmt in high risk tranportation corriders develop emergency response capabilities

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
	Unidentified Agency					Prenotification: Required for HM shipments
CA	Toxic Substances Control Division, D. Health Services	HW: EPA	L: HW: $200 Registration info is maintained by the D. Highway Patrol Each HW vehicle and container must be inspected & certified by the D. Hwy Patrol before license can be issued	Public Utility Commission insurance requirements must be met before registration can be issued		HW Driver Training: Employers must provide training on HW handling; Documentation of training is required before registration can be issued or renewed HW Driver Certification: Fee: $12 HW: Copy of each completed manifest must be submitted to D. Health Services HW carriers must comply with Dept's Waste Hauler Transportation Safety Plan Marking: HW vehicles and containers must display the company name on both sides
	D. Highway Patrol	HM, HW	R: HM Cargo tanks (bulk liquids): $50; L: HM: $100 Renewal: $75 R: HW:		HM shipments must use the most direct route except through cities; only access roads within one-half mile of highway route may be used	HM Driver Training: Training standards are being developed Requires inspection of each HW Vehicle and Container; Fees: $50 & $25

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
			$50/company plus $5 - $15/vehicle, depending on the number of vehicles		HM: Publish list of restricted highways; Hwy 154 restricted to protect Santa Barbara's drinking water supply	
	D. Motor Vehicles	HM				HM Driver Training: Special HM drivers license proposed; Drivers will have to be trained in HM regs and receive certification of training or pass a HM test
	D. Transportation	HM			Certain HM prohibited in Caldecott Tunnel except from 3 a.m. to 5 a.m.	Marking: Registration identification sticker must be on registered vehicles
	Public Utilities Commission	HM		Public liability requirements equal federal limits except for petroleum, petrolem products, waste petroleum, and waste petroleum products transported in tank or vacuum-type trucks or trailers: $1,200,000		

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
CO	City of Denver	HM, RM	P: HM: $50 - $600/ company, depending on number of vehicles; applies only to vehicles required to be placarded under U.S. DOT regs Permit includes info on type of HM hauled; permit may be denied if adequate emergency response for HM does not exist Vehicles must carry a copy of permit	Proof of liability coverage at the DOT minimum level is required before permit can be issued	Certain HM and RM prohibited on elevated section of I-70; other HM prohibited during rush hrs Designated pick-up and delivery routes for HM HM routing applies only to shipments which require placards	HM vehicles must operate headlights at all times
	D. Health	HW: EPA				
	Interagency Hazardous Materials Working Group	HM				Coordinates HM regulation with Depts of Local Affairs, Health, Hwys, Public Safety, & regulatory agencies; Legislation on routing, driver training, permits, etc has been introduced but not passed for 2 years
	Public Utilities	HM				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
	Commission					
	Unidentified Agency					Prenotification: Required for HW shipments
CONN	D. Environmental Protection	HW: EPA HM	P: HW & certain HM: $500/yr initial fee, $350/yr renewal Permit specifies all registered vehicles and type of waste to be hauled; copy of permit must be in each vehicle	Requires U.S. DOT minimum level of insurance before permit can be issued		Marking: Company permit number must be on sides and rear of vehicle trailer
	D. Motor Vehicles	HM				
	D. Public Safety	HM				
	D. Public Utility Control	HM				
	Unidentified Agency					Driver certification
DEL	D. Natrl Resources & Envmtl Control	HW: EPA	P: HW: $50			
	D. Public Safety	HM				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
DC	Council of the District of Columbia	HM				Bill 6-348: Proposes creation of HM Study Commission to do risk assessment of HM use, storage, and transport in DC area; Specifically interested in driver certification and licensing; also HM routing
	D. Consumer and Regulatory Affairs	HW: EPA				
	(D. Environmental Services)	HW	L: HW: Must be obtained from the Dept of Licenses	Bond: $50,000 required before license can be issued		
FLA	D. Environmental Regulation	HW: EPA		$1 million/occurrence of sudden & accidental insurance or bond is required; must cover BI, PD, spill clean-up & environmental damage State & fedrl govrnt shipments are exempt from reqmts		Require manifesting of PCB shipments
	(D. Insurance)	HM				
	D. Transportation	HM				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
	Highway Patrol	HM				
GA	D. Natural Resources	HW: EPA				
	Public Service Commission	HM: Regs apply only to PCBs, RM, & liquified natrl gas	P: Liquified natural gas, PCBs & RM: $100/yr or $25/ trip; Permit must be carried in vehicle Letter of intent must be submitted to Dept by transporters of small quantities of above HM; they must also submit annual report of activity	Proof of insurance must be submitted before permit can be issued	Shipments may only travel on routes designated by the carrier on permit application Only pick-up and delivery shipments may be made into Atlanta past the I-285 loop; these shipments are prohibited in Atlanta from 7-9 a.m. and 4-6 p.m.	Prenotification: Required for liquid petroleum gas, RM, and PCB shipments moving into and out of the state; Authorization code is given to drivers when shipment is approved by Dept Emergency Action Plan must be submitted with permit application
HI	D. Health	HW	P: HW: $20			D. Health operates under a cooperative agreement with the U.S. EPA
	D. Transportation	HM				In the process of adopting U.S. DOT's regs; present regs are simplified version of DOT's
IDAHO	(D. Transportation)	HM				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
	Hazardous Materials Bureau	HW				Bureau operates under a cooperative agreement with the U.S. EPA
	Public Utilities Commission	HM				
	Unidentified Agency		P: HW: $25/trip			Stricter HW/HM legislation recently introduced
ILL	D. Transportation	HM				HM shipments not requiring placards under U.S. DOT regs are exempt from state regulation
	Environmental Protection Agency	HW: EPA	P: HW: For transportation of waste generated in or being disposed of in Illinois			Marking: Each HW vehicle must be marked "Licensed Special Waste Hauler"
	Unidentified Agency					Prenotification: Required for HW shipments
IND	Board of Health/ Environmental Management Board	HW: EPA				
	State Police	HM				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
	(Public Service Commission)	HM				
	Unidentified Agency		P: Liquid Industrial Waste: $100 + $10 per vehicle			Marking: "Licensed Industrial Waste Hauling Vehicle" and a Dept seal must be displayed on HW vehicle
IOWA	D. Transportation	HM				Fedrl DOT program only- no separate state reqmts
	D. Water, Air, and Waste Management	HW				HW program is administered by the U.S. EPA
KS	Corporation Commission	HM	R: All motor carriers: $10/vehicle	Insurance for Genrl Motor Carriers: $100,000 BI/ person and $50,000 PD		
	D. Health and Environment	HW: EPA	R: HW: Transporter Monitoring Fee: $250		HW shipments must select routes which minimize risk to public health and safety; Must consider accident rates, transit time, population density, and transportation day and time; May only use "preferred routes"	

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
					(major highways) & must use bypasses around cities when they exist	
	D. Transportation	HM				
KY	City of Covington	HM, HW				Prenotification: Required for HM and HW shipments
	Natural Resources & Environmental Protection Cabinet	HW: EPA				
	Transportation Cabinet	HM, HW	P: Intrastate HW: $25 Copy of permit must be carried in each vehicle	Bond or insurance of $1 million each BI & PD required before permit can be issued		
	Unidentified Agency		P: HM: $250			
LA	City of Kenner	HM				Prenotification: Required for HM shipments
	D. Environmental Quality	HW: EPA	R: HW: For waste shipments which originate or end in LA; info on type & qnty	Insurance coverage required/vehicle: BI: $300,000 PD: $200,000		Spill contingency plan required of each transporter Training: Employer must

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
			of waste must be supplied			have a personnel training program
						All trucks must be cleaned before leaving disposal sites
	D. Public Safety	HM				
	(D. Transportation)	HM				
	Unidentified Agency					Prenotification: Required for HW shipments
MAINE	Board of Environmental Protection	HW				Identifies & regulates additional substances as HW which are not HW under EPA regs (ie: waste oil & PCBs)
	D. Environmental Protection	HW: EPA	L: HW: $100 - 1st vehicle $50 each additional vehicle, driver or operating location License includes info on type of waste hauled, shipment destination, drivers, and vehicle ID License must be	A minimum of $500,000 liability insurance is required before license can be issued		Transporters must have a HW discharge clean-up plan HW Driver Training: Drivers must know clean-up plan and type of HW carried A copy of each HW manifest must be sent to HW agencies in state of HW generation and disposal

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
			carried in each ve-			
			hicle & a copy must			
			be displayed at each			
			business office			
	Labor Relations	HM				Employee Right to Know
	Board					Law pertains to HM drivers
	State Fire Marshal	HM	P: Explosives			
	State Police	HM				
	Unidentified Agency					Driver certification or
						registration: Fee: $50
						Prenotification:
						Required for HW shipments
MD	(Transportation	HM				
	Authority)					
	Waste Management	HW: EPA,	CHS Vehicle Certifi-	$50,000 surety		CHS haulers must provide
	Administration,	"CHS" -	cation: $50/vehicle	bond required for		periodic reports on
	D. Health and	Controlled		hauler certification		shipments to the Dept
	Mental Hygiene	Hazardous	Companies shipping			
		Substances	CHS into or from MD			Driver Certification:
		(includes	must obtain a CHS			CHS vehicle drivers must
		HW)	Hauler Certificate;			obtain a Driver Certificate;
			must provide info on			Fee: $20 (good for 3 yrs);
			expected activities			Certificate must be carried
						in cab of vehicle; Dept is
			Interstate Carrier			developing a written exam

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
			Certificate is available for carriers operating more than 10 CHS trucks in and out of MD			for driver certification Driver Training: For certification, HW drivers must be trained by a certified instructor who uses an approved program Marking: CHS Hauler Certificate and Vehicle Certificate Decal must be displayed on each vehicle
MASS	City of Boston	HM	P: HM		Restriction of hrs for HM delivery & pick-up within the city	
	D. Environmental Quality and Engineering	HW: EPA	L: HW: $100 Requires: plan for cleaning vehicles, info on type and qnty of HW carried, list of vehicles, proof of employee training, and spill equipment must be on vehicles Info on past fines, suits, etc must be submitted in order to get license; Public notice of	$1 million/occurrence of sudden & accidental insurance is required; must cover BI & PD $10,000 surety bond is required before license can be issued		Driver Training: HW Drivers must be trained in: Safe vehicle operation, HW handling, DOT HM rules, Emergency procedures, and use of the DOT Emergency Response Guidebook Marking: Vehicle identification device must be displayed on each HW vehicle Cost: $200/yr/vehicle Employees handling HW must be bondable

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
			license application must be made			Two specific guides on emergency response procedures must accompany HW transport drivers Monthly reports of HW shipments must be submitted to the Dept
	D. Public Utilities	HM				Transporters must submit a certification of compliance with state transportation regulations Marking: Vehicle identification plates and/or decals; Fee: $15/vehicle
	State Police	HM				
	Unidentified Agency		P: HW: $100/company plus $200/vehicle			Prenotification: Required for HW shipments
	Water Quality Resource Study Group	HM				Conducted assessment of HM shipments thru Worcester, Mass., emergency response capabilities, and impact of a HM spill on the watershed

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
MICH	D. Natural Resources	HW: EPA	L: HW: $500/company & $200/vehicle L: Liquid industrial waste: $100/company & $10/vehicle Inspection of transportation facility is required before license can be issued	$500,000/occurrence sudden and accidental insurance required for HW transportation Bond requirement for Liquid Industrial Waste transportation: Non Residents: $30,000 Residents: $15,000		Marking: " Hazardous Waste Hauling Vehicle " & a state seal must be displayed on the vehicle trailer
	State Fire Marshal	HM	Certification: All companies and vehicles transporting HM			Marking: Certification identification must appear on all HM vehicles
	State Fire Safety Board, D. State Police	HM			Specific routes and transport times (midnight - 6 am) required for flammable liquid shipments travelling in counties with a population of 600,000 or more	Drivers of tank trucks carrying flammable or combustible liquids must: 1) meet driver qualification standards, 2) be trained in the hazards of the product carried and the use of safety equipment on board the vehicle, and 3) carry a list of emergency response phone numbers Vehicle stabilizing eqpmt which has been certified by the state fire marshal

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
						must be used for shipments of flammable and combustible liquids
MINN	(D. Transportation)	HM				
	Pollution Control Agency	HW: EPA				
MISS	D. Natural Resources	HW: EPA				
	(D. Public Safety)	HM				
	Public Service Commission	HM				
MO	D. Natural Resources	HW: EPA	L: HW: Requires: 1. certification that eqptmt & operating procedures meet the standards of the U.S. DOT & state Public Service Commission 2. info on previous HW mngmt involvement by any stockholders or corporate officers 3. certificate of cor-	Bond or Insurance: $100,000 BI, $250,000 PD, & $500,000/occurrence		Requires maintenance of files on vehicle inspections, vehicle maintenance, and employee training; No specific training requirements

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
			porate good standing from the Secretary of State 4. license certificate must be carried in each vehicle License fee depends on qnty and weight of vehicles & equals $25 - $100/vehicle			
	Highway Patrol	HM				
	(Public Service Commission)	HM				
MONT	D. Health and Environmental Sciences	HW: EPA				
	(Public Service Commission)	HM				
NEBR	D. Environmental Control	HW: EPA				
	State Patrol	HM				In the process of adopting the federal DOT regulations
	(Public Service Commission)	HM				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
NV	City of Las Vegas	HM	L: HM		HM routing ordinance currently in litigation	
	D. Conservation & Natural Resources	HW: EPA	P: PCBs			
	D. Human Resources	LLRW	P: LLRW: For shipments to Beatty disposal site			
	Highway Patrol, D. Motor Vehicles and Public Safety	HM				
NH	D. Health and Human Services	HW: EPA	P: HW: $100 Copy of permit must be carried in each vehicle; Required info includes type of waste hauled, list of customers, and vehicle ID numbers Must have introductory and continuing training programs for personnel, a contingency plan, and an emergency procedures plan before	Insurance: $1 million of coverage each for BI & PD Proof of insurance is required before permit can be issued		Marking: Company name, location, & permit number must be on both sides of vehicle tractor and must be visible for 50 feet Only HW shipments which require manifests and are made into or within the state are subject to regs Annual report of activities must be submitted to the Dept Driver Training:

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
			permit can be issued			Employer must provide introductory & continuing training for HW drivers which includes properties of wastes and implementation of the company's contingency plan
	D. Safety, State Police Division	HM, HW	L: HM & HW: $25/ vehicle; government vehicles are exempt Copy of license must be carried in each vehicle Temporary HM License & Single Trip Authorization: $15 also available			Marking: License decal must be displayed on each vehicle
	Unidentified Agency					Prenotification: Required for HM shipments
NJ	D. Environmental Protection	HW: EPA	HW Vehicle Registration: $50/vehicle; applies to shipments originating or ending in NJ Vehicle registration certificate must be	Insurance requirements are equal to the U.S. DOT's; requirements must be met before hauler license can be issued		Training: HW transportation companies must provide training for employees on waste handling, vehicle operation, emergency procedures, and uses of emergency response eqpmt

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
			carried in vehicle			Haulers must maintain a list of federal and state agencies to be notified in the event of a HW discharge and must submit an annual report of wastes handled
			HW Hauler License: Company must disclose previous convictions for HW mismanagement, provide an employee training program, register all vehicles, & pay vehicle registration fees before license can be issued			
	(D. Labor and Industry)	HM				
	Port Authority	RM, HM			Specific routes (ie: bridges) for RM and HM shipments entering port area	
	D. Transportation	HM				
NM	Health and Environment Dept	HW: EPA				
	Transportation Department	HM				Legislation to adopt the U.S. DOT regs, inspect HM motor vehicles, require HM permits & shipment prenotification, designate routes,

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
						hours, & procedures for HM
						shipments & to provide for
						civil & criminal penalties
						was introduced in 1985
						but not passed
NY	D. Environmental Conservation	HW	P: HW: $25/1st vehicle, $5/others	$5 million bond or insurance required		Marking: Vehicle registration number must be displayed on both sides and rear of each vehicle trailer and company name must be on both sides of vehicle
			R: HW: $250/1st vehicle, $100/other	for manifested HW shipments which are carried in trucks > 10,000 lbs gross weight		
			1st fee is to cover cost of permit processing; 2nd fee goes to enforcement	$1 million bond or insurance required for HW shipments not requiring manifests or hauled in trucks not > 10,000 lbs gross weight		Manifest reqmts apply only to HW shipments originating or terminating in NY
			Permit is valid only for vehicles, disposal sites and type of waste listed;			Permit must be carried in each vehicle
			Written permission to use disposal sites must accompany application	Bond or insurance must cover BI, PD, and environmental restoration costs		Registered transporters must submit an annual report of HW shipments
			Vehicles may be inspected as a condition for permit renewal			
	D. Motor Vehicles	HM	L: Flammable liquid tank trucks			

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
	D. Transportation	HM				Establishes regulations for intrastate HM carriers
	Jefferson County	HM				Prenotification: Required for HM shipments
	NY City Fire Dept	HM	P: Flammable and explosive materials		Designates routes for shipments of flammable and explosive materials	
	NY City Port Authority, Thruway Authority, and Triborough Bridge Authority	HM	Require permits for certain HM shipments		Designate routes and prohibit certain HM shipments from travelling through their jurisdictions	
NC	D. Human Resources	HW: EPA				
	Div. Motor Vehicles, D. Transportation	HM				
	Utilities Commission	HM				Issues operating authority
ND	D. Health	HW: EPA				
	(Public Service Commission)	HM				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
OHIO	City of Berea	HM	P: HM; For shipments thru the city			
	City of Cincinnati	HM			HM "thru" shipments must use beltway instead of interstate	
	City of Columbus	HM			HM "thru" shipments must use I-270 bypass; downtown HM deliveries require special permits and hours are restricted	
	City of Gahanna	HM			HM prohibited on city streets; shipments restricted to I-270	
	City of Lyndhurst	HM	P: Certain types of HM			Prenotification: Required for HW shipments
	Environmental Protection Agency	HW: EPA				
	Public Utilities Commission	HW, HM	R: HW: $25/company plus $3/vehicle Applies to shipments originating or terminating in Ohio which require manifests			Marking: Each HW vehicle must display a registration sticker

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
OKL	D. Public Safety	HM				Adoption of DOT regulations to be effective 11/1/86
						Vehicles and vehicle cleaning facilities may be inspected by the Dept
	D. Health	HW: EPA	R: HW: No fee; Information must be provided on bulk shipping containers			All HW vehicles must be inspected by the D. Health and must be equipped with first aid, fire protection, & personal safety equipment
						Driver Training: HW drivers must be educated in handling procedures & emergency precautions
						HW manifests must contain info on emergency procedures for spills
OR	City of Portland	HM			Routing requirements for HM shipments include banning of HM thru one city tunnel and over 2 rail crossings	
	D. Environmental Quality	HW: EPA				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
	Public Utilities Commission	HM, HW	P: HW: No fee, but type of waste, record of previous violations, and route & schedule info must be provided Intrastate carrier vehicles must be inspected before permit can be issued	Proof of general motor carrier insurance is required before HW permit can be issued		Prenotification: Required 48 hrs prior to shipping certain HW; The Commission may inspect vehicles and cargoes and check driver qualifications before shipments are allowed on state highways
PENN	D. Environmental Resources	HW	L: HW: $200 (2 yrs) Applies to shipments originating or terminating in the state A collateral bond, certificate of insurance, spill contingency plan, and a 5 year compliance history must be submitted before license can be issued	$1 million insurance required to cover HW accidents; must cover BI, PD, and clean-up costs $10,000 indemnity bond required for event of any HW violation; Liability must extend 1 year past termination of license		Training: HW companies must provide personnel training to ensure that shipments are made safely & in compliance with regs Copies of manifests must be kept for 20 years HW transporters must carry on the vehicle a contingency plan for spills which has been approved by the Dept Personnel protection, first aid, and HW handling eqpmt must be kept on vehicles; Communication eqpmt (ie: 2-way radio) must also be

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
						on vehicle if acute HW is transported If liquid HW is carried in containers of 110 gallons or less, absorbent material for absorbing at least 5 percent of the volume must be on board
	D. Transportation / Hazardous Substance Transportation Board	HM	R: HM: Applies to intra and interstate transporters carrying shipments which require placards			
RI	D. Environmental Management	HW: EPA	P: HW: $25/vehicle Must include vehicle identification numbers, license info, & type of waste hauled Transporter must submit emergency response plan and each vehicle must be inspected before permit can be issued	$1 million of insurance is required; must cover envmtl damage (clean-up & restoration costs), BI, and PD	"Extra toxic" HW (ie: PCBs, known & suspect carcinogens, & pesticides) are not allowed on roads surrounding drinking water supplies, nor on certain roads designated by the Dept Every motor carrier operating in RI must post the extra toxics list in each vehicle	Training: Required for HW drivers; industry programs are approved by the Dept; Programs should include waste handling, emergency response, spill notification & manifesting procedures Marking: HW vehicles must be marked on both sides and back with the transporter's name and permit number Each HW vehicle must be equipped with first aid & personal safety equipment

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
						and with a 2-way radio
	State Police	HM				
SC	D. Health and Environmental Control	HW: EPA	P: HW: No fee (3 yrs); For shipments originating or ending in SC Must submit info on type of waste hauled, previous spills and accidents, and training courses completed by drivers	$1 million/occurrence of insurance is required for HW shipments (must include BI, PD, & clean-up coverage) Waste Oil: Requires $300,000 BI & $300,000 PD of liability insurance per occurrence Proof of insurance is required before HW permit can be issued		Training: Personnel must complete a training program approved by the Dept; Training must include manifesting and emergency response procedures; Records of training must be maintained Shipments of Waste Oil require a special manifest
	Public Service Commission	HM				
SD	D. Water and Natural Resources	HW: EPA				
	Highway Patrol	HM				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
TN	D. Health and Environment	HW: EPA	P: HW: $575 Equals: $100 - 1st time application fee $200 - annual fee $275 - goes to the state superfund; Renewal fee: $200 Permit applies only if HW originates or terminates in TN	None required in connection with permit		Regs apply only if shipment requires manifests Transporter permit must be carried in vehicle
	Public Service Commission	HM				Considering a requirement for HM driving licenses
TX	City of Dallas	HM			Designated routes for HM shipments	
	City of Houston	HM			HM restricted to certain interstate highways	
	D. Highway & Public Transportation	HM			Reviews preferred routes selected by cities	
	D. Public Safety	HM				
	Water Commission	HW: EPA				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
UTAH	D. Health	HW: EPA				
	(D. Transportation)	HM				
VT	Agency of Environmental Conservation	HW: EPA	HW Transportation Certification: (L) Fees depend on size of company			
	Agency of Transportation	HM, HW	P: HW: $10/truck tractor & $10/ truck trailer			Copy of vehicle permit must be carried with vehicle
VA	D. Health	HW: EPA	L: HW: (10 yrs) For shipments originating or ending in Virginia	Out of state HW transporters must provide proof of insurance which meets U.S. DOT minimum reqmts		HW transporters must submit an annual report of transportation activity
	State Police	HM				Special regs for intrastate carriers and vehicles under 10,001 lbs gross weight
WA	Cities				Cities have their own routing regulations	
	D. Ecology	HW: EPA				
	D. Social and	HW				

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
	Health Services					
	Puget Sound Council of Governments	HM				Conducted assessment of HM transported thru Puget Sound area & of emergency response capabilities
	State Patrol	HM				
WVA	D. Highways	HW: EPA				Regulations apply only to HW shipments which require manifests
WISC	D. Natural Resources	HW: EPA	L: For HW transportation terminals: $400 (2 yrs); Transporters from out of state must obtain a license for the area within the state where most of their transportation activity occurs			Training: Each company must provide training for all HW handlers & drivers; Training must include problems and potential hazards of HW transportation and techniques of equipment inspection; Training records must be maintained for 3 years Transporters must have a vehicle inspection program and must maintain records of inspections for 3 years Packaging, labelling, marking, & placarding regs

State	Agency	Authority	License/Permit/ Registration	Financial Responsibility	Routing	Other
						apply to intra and interstate transporters
						PCB shipments: Absorbent material or eqpmt must be carried for event of spill
	(Public Service Commission)	HM				
WY	D. Environmental Quality	HW				HW program is operated by the U.S. EPA
	Public Service Commission	HM				

Appendix C

FEDERAL FINANCIAL RESPONSIBILITY REQUIREMENTS FOR HIGHWAY MOTOR CARRIERS [1]

TYPE OF CARRIER/ COMMERCE [2]	COMMODITY TRANSPORTED	MINIMUM LEVEL [3]
For-hire (interstate or foreign)	Nonhazardous materials	$ 750,000
For-hire and private (interstate, intrastate, foreign)	Hazardous substances, as defined in 49 CFR 171.8, transported in cargo tanks, portable tanks, or hopper-type vehicles with capabilities in excess of 3,500 gallons; or in bulk Class A or B explosives, poison gas (Poison A), liquefied compressed gas or compressed gas; or highway route controlled quantity radioactive materials as defined in 49 CFR 173.455.	$ 5,000,000
For-hire and private (interstate or foreign: any quantity) or (intrastate: in bulk only)	Oil listed in 49 CFR 172.101; hazardous waste, hazardous materials and hazardous substances defined in 49 CFR 171.8 and listed in 49 CFR 172.101, but not mentioned in the category above or below.	$ 1,000,000
For-hire and private (interstate or foreign)	Any quantity of Class A or B explosives; any quantity of poison gas (Poison A); or highway route controlled quantity radioactive materials as defined in 49 CFR 173.455.	$ 5,000,000

1 These requirements are found in Part 387.9 of Title 49, Code of Federal Regulations (CFR)

2 The first three carrier categories apply to vehicles with a gross vehicle weight rating of 10,000 pounds or more. The last carrier category applies to vehicles with a gross vehicle weight rating of less than 10,000 pounds. The type of commerce, ie: the jurisdiction of the transporter, appears in parentheses.

3 Financial responsibility requirements may be met by insurance or surety bond and must cover bodily injury or property damage, and environmental restoration costs, at the level specified

APPENDIX D

STATE ENFORCEMENT PROGRAMS FOR THE TRANSPORTATION OF HAZARDOUS MATERIALS AND HAZARDOUS WASTE

Legend

BI - Bodily injury
CVSA - Commercial Vehicle Safety Alliance
D. - Department of
Div. - Division of
DOT - Department of Transportation
EPA - Environmental Protection Agency
HM - Hazardous Material(s)
HW - Hazardous Waste(s)
ID - Identification
L - License
LLRW - Low level radioactive waste
MCSAP - Motor Carrier Safety Assistance Program
P - Permit
PD - Property damage
R - Registration
RM - Radioactive material(s)
(Agency name) - Entry is undocumented information

State	Agency	Authority / Methods	Penalties	Coordination	Funding
ALAB	D. Environmental Management	HW	Revocation of transporter permit		
	D. Public Safety	HM: Vehicle inspections			MCSAP
	Public Service Commission	HM: Vehicle inspections		CVSA	
ALAS	Unidentified Agency			CVSA	
ARIZ	D. Health Services	HW	Criminal and civil penalties		
	D. Public Safety	HM: Vehicle, record, container & facility inspections	Driver's license suspended or motor vehicle registra-	CVSA	MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
			tion may be cancelled if motor carrier refuses to comply with regs or to implement corrective measures		
			Legislation proposed for initiation of civil sanctions for HM violations		
			Convictions for violations of the HM regulations: 1st HM offense: Class 3 misdemeanor; 2nd offense: Class 2 misdemeanor; 3rd & up: Class 1 misdemeanor		
ARK	D. Pollution Control and Ecology	HW	Misdemeanor conviction for violation of HW regulations Criminal penalty: ≤ 1 yr jail &/or fine of ≤ $10,000/offense/day Civil penalty: ≤ $25,000/offense/day plus reimbursement to state of expenses relating to offense investigation and correction		
	D. Public Safety	HM: Vehicle inspections		CVSA	
	Transportation	HM			MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
	Commission				
CA	D. Health Services	HW: Vehicles and containers used to haul HW must display a certificate of compliance which shows that the item has been inspected by the California Hwy Patrol within the last 12 months Informants of illegal HW activity receive awards equal to 10% of civil penalty or criminal fine assessed to violators Orders: Compliance Order, Court Order, Restraining Order, or injunction	Suspends or revokes waste hauler registration or vehicle/container certification for: 1. Misrepresentation on applications 2. Unpaid registration fee 3. Violation of HW regs 4. Refusal to allow vehicles or containers to be inspected or failure of these items to pass inspection 5. Lack of insurance Misdemeanor Conviction: 1 yr in county jail or 2 yrs in state prison &/or fine: $5,000 - $25,000 Civil Actions: Recover state corrective action costs plus 10% of incurred administrative costs, or $500, whichever is greater Noncompliance with compliance order, violation of regs, or false statements in required documents:	Dept regs may also be enforced by peace officers, traffic officers, or local health officers The Department funds local health enforcement programs Notification of HW violations and associated legal proceedings is made to local health officers	Money collected from HW registration fees, & civil & criminal penalties is used for administration of the HW program

State	Agency	Authority / Methods	Penalties	Coordination	Funding
			$25,000/offense/day		
			Transportation of HW to an unauthorized facility or illegal HW disposal: $5,000 - $50,000		
	D. Highway Patrol	HM: Annual inspections of vehicles, cargo tanks, facilities, and records Explosive shipments mandatorily inspected every 4 hrs or 150 travelled miles and at specific state-wide check points Officers meet with industry associations to promote voluntary compliance, and Dept offers 12 hr seminars on industry vehicle self-inspection	HM Fines: 1st offense: $ 500 &/or 60 days jail 2nd offense: $1000 &/or 60 days jail 3rd offense: $2500 &/or 120 days jail Maximum Fine for No HM License: $2000	CVSA Officers train other state agency personnel and industry reps in inspection procedures	Inspection fees are used to pay for inspection and licensing programs: HW Vehicle Inspection Fee: $50 HW Container Inspection Fee: $25 MCSAP
	Unidentified Agency	HM: Registration Data Management System: contains records of licenses, inspections, citations, and spills; maintains carrier profiles		Sends copies of carrier profiles to D. Hwy Patrol	
CO	City of Denver	HM	HM transporter permit may be revoked or suspended		Permit fees are used to fund en-

State	Agency	Authority / Methods	Penalties	Coordination	Funding
					forcement program
	Denver Police Dept	HM, RM Six police officers monitor compliance with Denver routing ordinances thru truck spot checks	Maximum Fine: $999		
	D. Highways	HM		Consults with other states to gather information on specific topics	
	Port of Entry	HM: 32 officers conduct HM vehicle inspections thru a mobile unit & at a fixed site	Fines for "out of service" violations used to be $5 & $10; is now $300	Considering cross-training with the State Patrol	State Patrol provides funding from MCSAP money
		A video program is used in initial officer training; some officers are U.S. DOT certified enforcement trainers; Quarterly meetings are used to update and evaluate inspectors on enforcement of the HM regs		CVSA	
		Data Mngmt: A compliance profile is maintained on all motor carriers			
	Public Utilities Commission	HM: Vehicle inspections		CVSA	
	State Patrol	HM: Vehicle inspections		CVSA;	MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
				SAFETYNET Project	
CONN	D. Environmental Protection	HW: Copies of manifests must be sent to Dept	Uses EPA Penalty Matrix to assess penalties	Intrastate agency info exchange	
		Data Mngmt: Manifest info is entered into a computer; Dept can determine if transporter is permitted and hauling approved HW	Civil or Criminal penalties are assessed for No Permit or for unauthorized waste or unauthorized vehicle shipments; Fine for use of unauthorized vehicle,		
		Warning letters	1st offense: $1000/day		
	D. Motor Vehicles	HM: Vehicle inspections; No special HM unit or coordinator	If no response to compliance letter, operating "privilege" is revoked	Inspects all HW vehicles before they are permitted by the Dept of Environmental Protection	MCSAP
		Compliance letters			
	(Local Fire Marshals)	HM			
DEL	D. Public Safety	HM			MCSAP
DC	D. Public Works	HM			MCSAP
FLA	D. Transportation	HM			
	Highway Patrol	HM			

State	Agency	Authority / Methods	Penalties	Coordination	Funding
	(State Fire Marshal)	HM			
GA	(D. Transportation)	HM: Regs enforced by law enforcement officers			
	Public Service Commission	HM: Vehicle inspections	Cancellation of transporter permit if insurance is cancelled or for HM violations	CVSA	MCSAP
			Misdemeanor conviction for HM violations		
HI	Island Agencies	HM		Participate in a Vehicle Eqpmt Safety Compact	
	D. Transportation	HM: Vehicle inspections			MCSAP
IDAHO	D. Transportation	HM			
	Port of Entry	HM			
	Public Utilities Commission	HM: Vehicle inspections and terminal audits		CVSA	
	State Police	HM: Vehicle inspections and Data management system		CVSA	MCSAP
ILL	D. Law Enforcement	HM: Vehicle inspections		CVSA	

State	Agency	Authority / Methods	Penalties	Coordination	Funding
	D. State Police	HM: Vehicle inspections; 45 HM Officers	Civil Penalty for HM violations: $10,000/offense/day		
		Meet with industry associations to promote voluntary compliance	Matrix system used for assessing fines: amount depends on carrier history, severity of violation, and ability of carrier to pay fine		
			Felony conviction for HM violations: $25,000/offense		
	D. Transportation	HM: Issues interstate operating authority	Maximum Fine: $10,000	Conducts basic HM training & refresher courses for state police officers	MCSAP
		Warning letters; Over 5 Notices of HM Violations: Court Order to stop transportation			
IND	Environmental Management Board	HW			
	State Police	HM: Vehicle inspections			MCSAP
IOWA	D. Transportation	HM: Vehicle inspections			MCSAP
KS	Corporation Commission	HM	General motor carrier penalties: Maximum amt of $500		

State	Agency	Authority / Methods	Penalties	Coordination	Funding
	D. Health and the Environment	HW	Misdemeanor or felony conviction for illegal HW transportation: Civil penalty: $25,000/offense/day; Administrative penalty: $10,000/offense/day		
	Highway Patrol	HM: Vehicle inspections		CVSA	
	Unidentified Agency				MCSAP
KY	Natural Resources & Environmental Protection Cabinet	HW	Legal proceedings	Responsible for training & providing support for Transportation Cabinet representatives; Joint field investigations with Transportation Cabinet reps	
	(State Fire Marshal)	HM			
	Transportation Cabinet, Division of Motor Vehicle Enforcement	HW, HM HM vehicle inspections	Civil penalty per HM offense (not applicable to HW): minimum: $250/day maximum: $25,000/day	Reports HW spills and incidents to Disaster & Emergency Services agency Joint field investigations with representatives from D. Natrl Resources & Envmtl Protection	HW permit fees are used for enforcement program MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
				Quarterly report of HW transportation violations sent to D. Natural Resources & Environmental Protection CVSA	
LA	D. Environmental Quality	HW		Regs for HW transporters coordinated with D. Public Safety; Adopted portions of D. Public Safety regs	
	D. Public Safety	HM: A special 12 man enforcement unit and 300 state troopers enforce the HM regulations	Fines assessed thru civil hearings; hearing examiner can assess up to $25,000/ violation/day; amount depends on company operating record, severity of violation, and ability of company to pay the fine	CVSA	MCSAP
	(D. Transportation)	HM			
MAINE	Board of Environmental Protection	HW		Provides grants to D. Environmental Protection	State bonds
	D. Environmental Protection	HW	Suspension or revocation of transporter license	Copies of transporter licenses are sent to municipalities	Grants from the Board of Environmental Protection

State	Agency	Authority / Methods	Penalties	Coordination	Funding
	State Police	HM: Specially trained HM officers and a HM Coordinator enforce HM regs		CVSA	MCSAP
	Unidentified Agency		For HM discharges: Civil and Criminal penalties plus reimbursement to state of clean-up costs		
MD	D. Transportation	HM: Vehicle inspections		CVSA	
	State Police	HM: Officers conduct terminal inspections and daily statewide vehicle inspections Meet with industry associations to promote voluntary compliance and offer a training program for commercial carriers			MCSAP
MASS	Criminal Justice Training Council			Trains local police officers in enforcement of truck regs & in HM recognition & identification	
	State Police	HM: Vehicle inspections conducted by special HM unit			MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
MICH	D. Natural Resources	HW: Regs enforced by Conservation Officers and Environmental Peace Officers Letters of Warning and Orders of Compliance	Citations	SAFETYNET Project Notifies states in which transporters plan to operate about issuance of transporter license Orders of Compliance are sent to EPA after being drafted; EPA sends them to the noncompliant motor carrier	
	D. State Police	HM: Special HM unit conducts vehicle inspections		CVSA; SAFETYNET Project	MCSAP
	State Fire Marshal	HM, HW HM vehicle inspections; When vehicle safety violations are found, vehicles are impounded &/or condemned for use until repairs are made and vehicle is reinspected by Fire Marshal's representative		Inspects HW vehicles before transportation license is issued by D. Natural Resources	Entire inspection & certification program must be funded by program fees
MINN	D. Transportation	HM: Vehicle inspections			MCSAP
	State Patrol	HM: Vehicle inspections		CVSA	

State	Agency	Authority / Methods	Penalties	Coordination	Funding
MISS	Unidentified Agency				MCSAP
MO	Division of Transportation	HM: Vehicle inspections		CVSA	
	Highway Patrol	HM: 83 commercial vehicle inspectors and approximately 83 state troopers enforce regs	Penalties are assessed in county courts; no minimum or maximum amounts	Relies on U.S. DOT for most enforcement; sends copies of vehicle inspection reports to DOT for action	MCSAP
				CVSA	
MONT	Highway Patrol	HM: Vehicle inspections		CVSA	MCSAP
NEBR	State Patrol	HM: Start general motor carrier safety inspections 10-86; HM emphasis will be in 1987; troopers have to be trained for HM inspections		CVSA	MCSAP
NV	D. Conservation and Natural Resources	HW			
	D. Human Resources	LLRW: One full time inspector inspects all LLRW shipments entering Beatty	Penalties: $5,000/violation; Maximum of $20,000/ shipment		

State	Agency	Authority / Methods	Penalties	Coordination	Funding
		disposal site			
		Third party inspections made of LLRW packaging process at shipment facilities			
	Highway Patrol, D. Motor Vehicles and Public Safety	HM: Highway and terminal inspections of HM shipments		CVSA	MCSAP
	(Public Service Commission)	HM			
NH	D. Health and Human Services	HW	Revocation or suspension of permit	Enforces public health regs made by local health officers	
	State Police, D. Safety	HM: Troopers, state police, and motor vehicle safety inspectors enforce HM regs Compliance instruction provided to the trucking industry	2 HM violations within 1 yr: License revocation Misdemeanor conviction for HM violations	Safety inspectors are responsible for training other peace officers (sheriffs, police, state troopers) about HM regs HM Transporter License is revoked if HW Transporter Permit (from D. Health & Human Services) is revoked CVSA	MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
NJ	D. Environmental Protection	HW	Revocation of hauler license		
			Falsification of any HW document: 1st offense: $25,000 &/or jail; 2nd offense: $50,000 &/or jail		
	State Police	HM: Vehicle inspections		Adopted NJ Dept of Transportation regs	
	Unidentified Agency				MCSAP
NM	Transportation Dept	HM: Vehicle inspections		CVSA	
	Unidentified Agency		For transport of HW to an unauthorized facility, illegal HW disposal, or false statement on HW document: $10,000 &/or less than 1 year in jail		
			2nd conviction: $25,000/ offense/day &/or 2 yrs jail		
NY	D. Environmental Conservation	HW: Regs enforced by law enforcement officers: 1) 250 uniformed conservation officers	Civil and criminal penalties	Names of transporters who are applying for permits are sent to states in which trans-	Transporter registration fees

State	Agency	Authority / Methods	Penalties	Coordination	Funding
		2) 40-50 special investigators		porters want to operate; state comment desired	
	D. Transportation	HM: Vehicle inspections		Trains state police and environmental conservation officers on enforcement of HM regs	
	State Police	HM: Vehicle inspections			
	Unidentified Agency				MCSAP
NC	D. Human Resources	HW: Transporter facility inspections	Up to $10,000/offense/day Use scaled down version of EPA Penalty Matrix	Memorandum of Understanding with the NC Utilities Commission	Authority to collect up to $600 annual fees from HW transporters
	Div. Motor Vehicles, D. Transportation	HM: Vehicle inspections conducted by 24 law enforcement officers	No fines or penalties currently being assessed	CVSA; SAFETYNET Project Sends copies of HM violations to the U.S. DOT	MCSAP
ND	Highway Patrol	HM: Vehicle inspections		CVSA	MCSAP
OHIO	Public Utilities Commission	HM: Vehicle inspections	Suspends or revokes HW registration; transporter must notify all customers of registration suspension or revocation	CVSA	MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
OKL	D. Health	HW: Injunctions	Misdemeanor offense: Criminal penalties: $200 - $10,000/offense/day and/or 6 months jail for transport of HW to an unpermitted facility or for false statements on any HW document Civil penalty: $10,000/offense/day		
	Highway Patrol, D. Public Safety	HM: Enforcement program to be started 11-86		CVSA	MCSAP
OR	(D. Transportation)	HM: Vehicle inspections		CVSA	
	Multnomah County Sheriffs Department	HM: Vehicle inspections			
	Portland Police Bureau	HM: Vehicle inspections			
	Public Utilities Commission	RM, HM, HW HM vehicle inspections and terminal audits Inspect HW shipments at a HW disposal facility	Suspends or revokes transporter permit HM Criminal penalties: $10-$1000 &/or 3 months jail HW violations: Civil penalty	CVSA SAFETYNET Project Provides motor vehicle inspection training for Oregon state agencies,	Money collected from fees is used for investigations MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
			issued after a hearing:	local government, and	
		Inspect RM shipments from	$10,000/offense/day in	other states	
		a state nuclear plant and at	addition to HM fines		
		ports of entry into the state		Subcontracts MCSAP	
			Improper HW disposal,	money and provides	
			violation of permit, false	technical support for	
			written statement, or	vehicle inspections to	
			withholding of information:	sheriffs, city police,	
			Criminal penalty:	and one state agency	
			$10,000 &/or 6 months jail		
				City and county input is	
				solicited prior to issuing	
				HW permits	
				HW regulations are	
				coordinated with the D.	
				Environmental Quality	
				Copies of inspection re-	
				ports are made available	
				to the U.S. EPA	
	State Police	HM: Vehicle inspections		CVSA;	
				Enforce Public Utilities	
				Commission regulations	
	State Weighmasters	HM: Vehicle inspections			
	Washington County	HM: Vehicle inspections			
	Sheriffs Department				
PENN	D. Environmental	HW: Enforcement Orders	Suspends or revokes trans-		

State	Agency	Authority / Methods	Penalties	Coordination	Funding
	Resources		porter license for: 1). violating or aiding or abetting a violation of a HW regulation 2). misrepresenting any info requested or required by the Dept 3). failure to comply with the terms of the license or with any order issued by the Dept 4). failure to maintain required bond or insurance Forfeiture of bond for any uncorrected violation of the HW regulations Civil penalty: $25,000/offense/day Transport of HW to nonpermitted facility or falsification of any HW document: Criminal penalty: $1,000 - $25,000/offense/day &/or 1 yr jail 2nd conviction within 2 yrs: $2,500 - $50,000/offense/day &/or 2 - 20 yrs jail Felony conviction for viola-		

State	Agency	Authority / Methods	Penalties	Coordination	Funding
			ting Departmental Order or "Section 401" regs: $2,500 - $100,000/offense /day &/or 2 - 10 yrs jail or $10,000 - $500,000/ offense/day &/or 2 - 20 years of jail if such activity was intentional, known, or reckless, and resulted in pollution, public nuisance, or bodily injury		
	D. Transportation/ Hazardous Substance Transportation Board	HM: Vehicle inspections and terminal audits Restraining orders (ie: injunctions) Seizure and confiscation of vehicles and HM HM Information System maintains info on carriers, accidents, and state and federal HM regs violations	Fine: $50 - $1000/ offense/day; Default of fine: 90 days jail Driver violation of vehicle operating regs (ie: routing and parking): $100 -$500 &/or 30 days jail; 2nd conviction: $100 - $500 &/or 60 days - 1 yr jail Violation of Dept regs by shippers or motor carriers: $500 - $5000 &/or 60 days jail; 2nd conviction: $500 - $5000 &/or 60 days - 1 yr jail Willful violation of regs, Departmental order, or	Coordinates activities with the Public Utilities Commission, State Police, and U.S. DOT	MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
			permit: Misdemeanor conviction: $1000 - $25,000/offense/day &/or 1 yr jail; 2nd conviction within 2 yrs: $2500 - $50,000/offense/day &/or 2 yrs jail		
	Public Utilities Commission	HM			
RI	D. Environmental Management	HW	Administrative fines: Up to $10,000/offense/day; EPA Penalty Matrix is used to assess the amount Criminal penalties: Up to $10,000/offense/day &/or jail	Reports spills & incidents to Emergency Response group which is under the same Dept	
	State Police	HM: Vehicle inspections			
	Unidentified Agency				MCSAP
SC	Public Service Commission	HW, HM; 40 certified safety officers conduct HM vehicle inspections Full-time inspector at Pinewood disposal facility inspects LLRW shipments		CVSA	MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
SD	Highway Patrol	HM: 4 motor carrier commanders, each in a separate district, are in charge of HM enforcement			
TN	D. Health and the Environment	HW: Tracks HW shipments from info on annual reports submitted by HW generators and treatment/storage/disposal facilities	Fine for hauling HW without a permit: $250 Termination of transporter permit for HW violations		
	Public Service Commission	HM: Vehicle inspections		CVSA	MCSAP
TX	D. Public Safety	HM: Vehicle inspections; No HM coordinator	Criminal misdemeanor conviction for HM violations: Maximum fine: $200; Penalties assessed by Justices of the Peace	CVSA Sends records of HW transporter violations to the Water Commission	
	Water Commission	HW: Field inspectors and enforcement coordinators enforce HW regs		Trains state troopers about HW regs Sends list of registered HW transporters to D. Public Safety	EPA
UTAH	Highway Patrol	HM: 20 inspectors conduct		CVSA	

State	Agency	Authority / Methods	Penalties	Coordination	Funding
		HM vehicle inspections			
	Unidentified Agency	Data management system			MCSAP
VT	Agency of Transportation	HM, HW; HM vehicle inspections	Revocation of HW permit		MCSAP
	State Police	HM: Vehicle inspections			
VA	State Police	HM: Vehicle inspections; 27 full-time HM inspectors		Public Awareness Program	MCSAP
		Information mngmt system: Maintains records on HM violations and accidents		Coordinate HW enforcement activities with the D. Health	
WA	D. Ecology	HW			
	D. Social and Health Services	HW		Works with other agencies to ensure that U.S. DOT regulations are complied with	
	State Patrol	HM, LLRW; HM vehicle inspections		CVSA	MCSAP
		Accident data and carrier profile data management system: "Critical Safety Management Breakdown		Coordinate enforcement with the D. Ecology & the D. Social & Health Services	

State	Agency	Authority / Methods	Penalties	Coordination	Funding
		Analysis			
		LLRW shipments are inspected at intrastate loading sites and before entering Hanford disposal site			
WVA	D. Highways	HW: Vehicle and container inspections	Civil penalties		
		Annual audits of HW generators, transporters and shippers			
		Audits of HW manifests			
		Data management system keeps track of all HW shipments and transportation violations			
		Conducts seminars for educating HW companies			
	Public Service Commission	HM: Vehicle inspections		CVSA	
	Unidentified Agency				MCSAP
WISC	Unidentified Agency				MCSAP

State	Agency	Authority / Methods	Penalties	Coordination	Funding
WY	Highway Patrol	HM: Vehicle Inspections		CVSA	

APPENDIX E

U.S. DEPARTMENT OF TRANSPORTATION RULINGS
ON STATE REGULATIONS FOR HAZARDOUS MATERIALS TRANSPORTATION

INCONSISTENCY RULINGS (IR)

IR-1: New York City Health Code (43 FR 16954, April 20, 1978)

IR-2: State of Rhode Island Rules and Regulations Governing the Transportation of Liquified Natural Gas and Liquified Propane Gas Intended to Be Used By a Public Utility (44 FR 75566, December 20, 1979; Appeal: 45 FR 71881, October 30, 1980)

IR-3: City of Boston Rules Governing Transportation of Certain Hazardous Materials by Highway Within the City (46 FR 18918, March 26, 1981; Appeal: 47 FR 18457, April 29, 1982)

IR-4: State of Washington House Bill No. 1870 Governing Requirements for Red or Red Bordered Shipping Papers for Hazardous Materials (47 FR 1231, January 11, 1982)

IR-5: City of New York Administrative Code Governing Definitions of Certain Hazardous Materials (47 FR 51991, November 18, 1982)

IR-6: City of Covington Ordinance Governing Transportation of Hazardous Materials by Rail, Barge, and Highway Within the City (48 FR 760, January 6, 1983)

IR-7: State of New York; Letter from Governor's Designated Representative Advising Suspension of Spent Fuel Shipments (49 FR 46635, November 27, 1984)

IR-8: State of Michigan; Radioactive Materials Transportation Regulations of the State Fire Safety Board and the Department of Public Health (49 FR 46632, November 27, 1984)

IR-9: State of Vermont; Letter form Governor Concerning Highway Shipment of Spent Fuel through Vermont (49 FR 46632, November 27, 1984)

IR-10: State of New York; New York State Thruway Authority Restrictions on the Transportation of Radioactive Materials (49 FR 46632, November 27, 1984)

IR-11: State of New York; Ogdensburg Bridge and Port Authority, Radioactive Materials Transportation Rules (49 FR 46632, November 27, 1984)

IR-12: State of New York; St. Lawrence County Local Law Regulating the Transportation of Radioactive Materials Through the County (49 FR 46632, November 27, 1984)

IR-13: State of New York; Thousand Islands Bridge Authority Restrictions on the Transport of Radioactive Materials (49 FR 46632, November 27, 1984)

IR-14: State of New York; Jefferson County Local Legislative Stipulation Regulating Radioactive Materials Transportation Through the County (49 FR 46632, November 27, 1984)

IR-15: State of Vermont; Rules for the Transportation of Irradiated Reactor Fuel and Nuclear Waste (49 FR 46632, November 27, 1984)

IR-16: Tucson City Code Governing Transportation of Radioactive Materials (50 FR 20872, May 20, 1985)

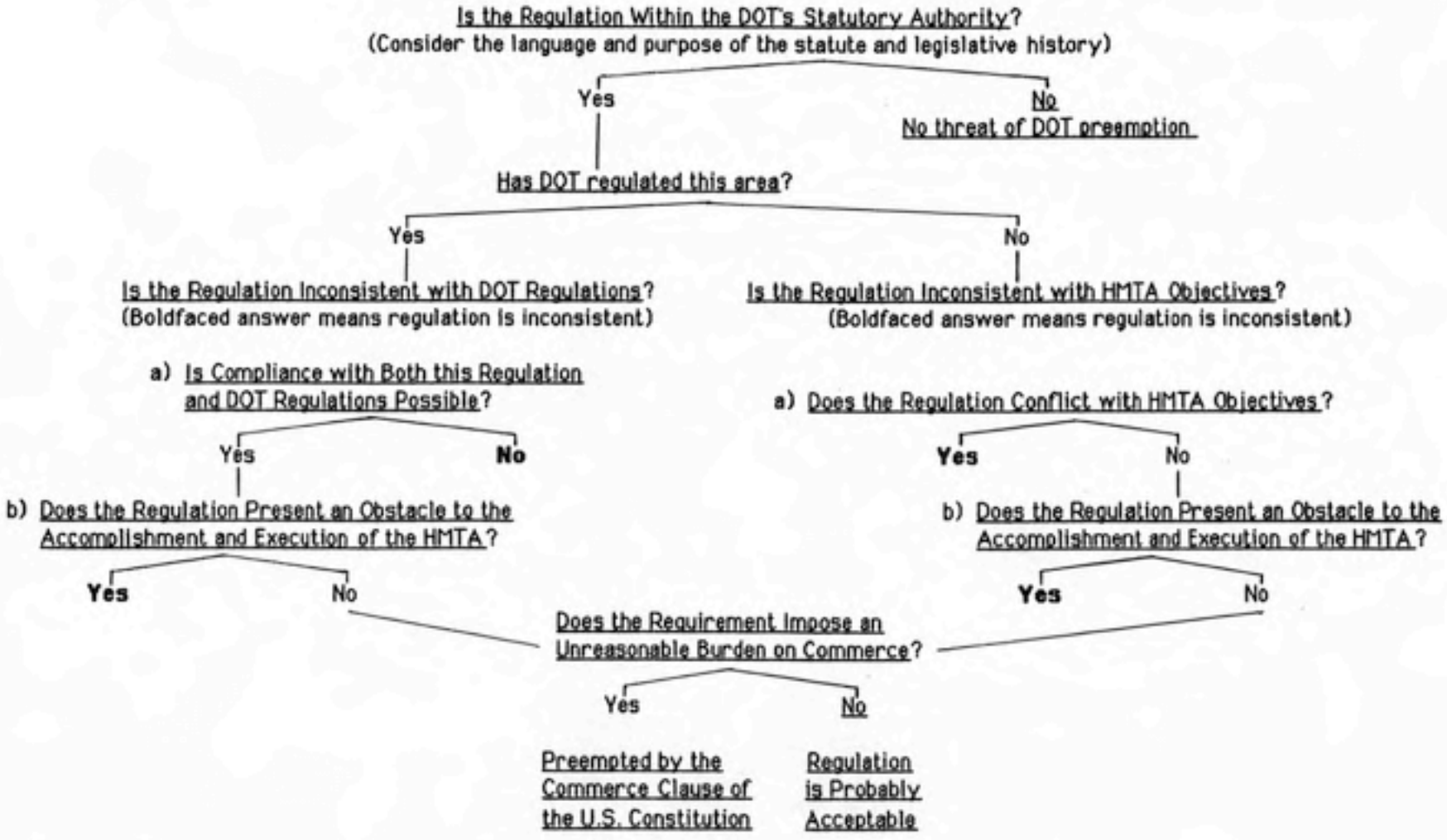
IR-17: Illinois Fee on Transportation of Spent Nuclear Fuel; Application for Inconsistency Ruling by Wisconsin Electric Power Company (51 FR 20926, June 9, 1986)

NON-PREEMPTION DETERMINATIONS (NPD)

NPD-1: City of New York; Hazardous Materials Transportation (50 FR 37308, September 12, 1985)

APPENDIX F

FLOW SHEET FOR TESTING ACCEPTABILITY OF STATE OR LOCAL HAZARDOUS MATERIALS TRANSPORTATION REGULATIONS



APPENDIX G

CRITERIA FOR DETERMINING IF PREEMPTION OF AN INCONSISTENT REGULATION MAY BE WAIVED BY A NON-PREEMPTIVE DETERMINATION