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Hazardous Materials Transportation: Vulnerability to Terrorists, Federal Activities, and Options to Reduce Risks

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Summary

In the wrong hands, hazardous materials (hazmat) in transportation pose a major threat to national security, property, and life. There are over 800,000 shipments each day of these materials–over 90% of which occur via the highway mode. The sheer number and volume of shipments, the numerous routes used, and the logistics and infrastructure involved create many points of exposure. Although an array of measures can be taken to promote security, the vulnerabilities cannot be eliminated. The Department of Transportation (DOT) has taken numerous actions to increase the sensitivity of industry and the state enforcement community to the vulnerabilities associated with hazmat transportation. DOT is asking that additional safety precautions and inspections be conducted and that the hazmat industry should review its security measures and strengthen them as appropriate. Other options to reduce risk or to increase preparedness include: requiring additional background checks on drivers obtaining hazmat endorsements on their commercial drivers licenses; requiring DOT to issue regulations requiring high hazard hazmat carriers and shippers to develop and implement security plans and procedures; increasing funding for the Hazardous Materials Emergency Preparedness Grant Program; and amending the Hazardous Materials Transportation Act to clarify the role of the DOT in promoting the security of hazmat shipments.

Increasing attention is focused on various means that could be used by terrorists to attack the United States. In the wrong hands, hazmats in transportation pose a major threat to national security, property, and life. The Federal Bureau of Investigation has issued warnings about the potential misuse of trucks transporting hazmats by terrorists. According to DOT, it doesn't take a high degree of technical expertise, training, or sophisticated equipment to use hazmats to attack with devastating consequences.[1] This report considers: What is the scope and nature of the vulnerability of hazardous materials

[1] [http://hazmat.dot.gov/pubtrain/safe9-01.pdf]

(hazmats) transportation to terrorists attacks? What is the Department of Transportation (DOT) doing to reduce these risks? What other options might be pursued to increase the security of these shipments?

Vulnerabilities and Risks

There are over 800,000 shipments each day of hazmats, including gasoline, fertilizers, liquefied petroleum and natural gases, poisonous materials, radioactive substances, corrosives, infectious substances, and other toxics.[2] Over 90% of these shipments occur via the highway mode. Within the transportation system, there are many points of vulnerability, including drivers, vehicles, loading and unloading plants, tank farms, chemical plants, ports, bridges, tunnels, and hundreds of thousands of miles of rail and pipeline. The sheer number and volume of shipments, the numerous routes used, and the logistics and infrastructure involved create virtually unlimited exposure. In addition, different commodities, and combinations of chemicals, pose a wide array of potential safety and exposure risks, if these materials were released during transportation. Even the federally-mandated hazards communication system, including its placards on the sides of trucks, shipping papers carried by the drivers, and markings on packages, increases the vulnerability of shipments to attack. This system, which is designed to provide information to assist emergency responders regarding the nature of the materials being transported, also could signal an informed terrorist that a specific truck or railcar could be transporting a hazmat.

Although numerous measures can be taken to promote security, the vulnerabilities are simply too many to totally eliminate risks, notwithstanding the huge costs that would be required. Depending on the materials and the amounts released, the proximity to buildings and people, and other factors, the consequences from a terrorist attack could range from being relatively minor to catastrophic. On the other hand, hazmats are essential components of our modern society. These materials serve such diverse purposes as fuel, medical diagnostic agents, and agricultural aids.

Selected DOT Actions

DOT, including the Research and Special Programs Administration (RSPA) (which issues most of the hazmat regulations), the Federal Motor Carrier Safety Administration (FMCSA)(which focuses on highway carriers and shippers of hazmat), and the Federal Railroad Administration (which focuses on railroad carriers and shippers of hazmat), has taken numerous actions to increase the sensitivity of industry and the state enforcement community to the vulnerabilities associated with hazmat transportation. DOT is asking that additional safety precautions be taken and that the hazmat industry should review its security measures and strengthen them as appropriate. To reduce risks, DOT is providing some security-focused information to the industry and is requesting shippers and transporters of certain hazmats to consider using routes that would avoid populated areas whenever practicable. Furthermore, the Department has asked those in transportation to

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[2] The reader seeking a more detailed discussion on hazmat transportation, DOT's role, and selected key legislative issues other than security concerns is referred to CRS Report RS20580, *Hazardous Materials Transportation Safety–Federal Program and Legislative Issues*, by Paul F. Rothberg and Hussein D. Hassan.

be alert to and report any suspicious activities that they may see. DOT does not want hazmat vehicles to be left unattended and is asking that companies ensure that hazmats are in responsible and reliable hands.[3]

FMCSA is in the process of visiting most of the nation's hazmat highway carriers to: increase their level of awareness to terrorist threats, offer specific recommendations to improve security, and remind them of relevant regulatory requirements. That agency is generally recommending to hazmat carriers that they implement a security plan that includes efforts to: review driver lists, paying particular attention to drivers "... whose names can be linked to one of the countries that have been identified that support terrorist activities" and conduct "...more detailed background checks for suspicious individuals"; ensure that the safety-oriented background checks have been performed on individuals as required by the Federal Motor Carrier Safety Regulations; improve hazmat package and control systems; strengthen en-route security mechanisms; improve communication systems; and assess and, if necessary, increase security around facilities involved in the transportation of hazardous materials.[4] The task of visiting thousands of hazmat carriers primarily to address security concerns is indeed formidable and will reduce the ability of the agency to focus, in the near-term, on carriers that have been selected for audits because of safety concerns. In addition, concerns about profiling certain drivers may be raised. Also, FMCSA has requested the states to significantly increase their roadside inspections of drivers transporting hazmat, paying particular attention to check the commercial licenses of those drivers who have received their hazmat endorsement during the last two years.[5] Other DOT activities, including some Coast Guard efforts, intended to promote security are discussed at: http://www.congress.gov/brbk/html/ebter151.html.

Additional Options to Reduce Risk or to Improve Preparedness and Responses to Hazmat Releases

Despite the measures that have been taken, the transportation system, including vehicles and infrastructure, continues to provide numerous potential "soft" targets.[6] It is, therefore, not surprising that other options are under discussion to increase security regarding hazmat shipments or to increase response capabilities should unexpected releases occur. Some of those options include:

1. Requiring criminal and security-related background checks on drivers obtaining hazmat endorsements on their commercial drivers licenses;

2. Requiring DOT to issue regulations requiring high hazard hazmat carriers and shippers to develop and implement security plans and procedures;

3. Increasing funding for DOT's Hazardous Materials Emergency Preparedness Grant Program; and

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[3] [http://hazmat.dot.gov/pubtrain/safe9-01.pdf]

[4] [http://www.fmcsa.dot.gov/hazmatsecure.htm]

[5] The hazmat endorsement on a commercial drivers license indicates that the operator has passed a written test pertaining to hazmat transportation.

[6] [http://hazmat.dot.gov/pubtrain/safe9-01.pdf]

4. Revising the Hazardous Materials Transportation Act, as amended, to clarify the role of the Secretary of Transportation regarding the security of hazmat shipments.

Improved Background and Security Checks on Hazmat Drivers. The current background check conducted on commercial drivers pertains primarily to the employment and safety record of the prospective driver. As now specified in 49 CFR 391.23, a criminal record check is not required by FMCSA. (It should be noted that the Federal Aviation Administration regulations specify a detailed criminal history record check of a broad range of airline and certain airport employees or contractor employees to promote security, see 14 CFR 108.33.)

Several groups, including some enforcement officials and motor carriers, want increased background checks of drivers, especially operators of hazmat trucks. For example, the American Trucking Associations, Inc., seeks authorization from Congress to allow motor carriers access to national crime information data bases in order to conduct criminal background checks of employees and potential employees.[7] If a motor carrier were required to conduct a more extensive background check, including a criminal history or security-related record check, the workload on the state and federal law enforcement community, including the Federal Bureau of Investigation, may need to be considered. According to FMCSA, almost 2.5 million commercial drivers have an endorsement on their license that allows them to transport hazmat.[8] Alternatively, state licensing agencies could be required to conduct such a check before granting a hazmat endorsement on a driver's license or before renewing such a license. Again workload considerations would be raised. In either case, there would also be the issue of specifying the standards that would need to be met before a driver would be disqualified from transporting hazmat. Should any felony conviction disqualify someone from driving? Should a driver be automatically disqualified from driving hazmat vehicles if that driver is not a U.S. citizen and originates from a country thought to support terrorists?[9] Another issue is: Should security and other background checks be conducted on those seeking training to drive hazmat vehicles?

Require DOT to Issue Regulations Requiring High Hazard Hazmat Shippers and Carriers to Develop and Implement Security Plans and Procedures. Except for regulatory requirements, the response to DOT's warnings, consultations, and suggestions regarding transportation security that were previously discussed are essentially voluntary in nature. DOT does not specifically require each hazmat carrier or shipper dealing with high hazard materials to develop a security plan and to follow the procedures and recommendations that are sought during the consultations previously referenced. The costs to industry of a regulation requiring their implementation of new security provisions and the expected impact on reducing terrorist attacks may need

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[7] [http://commerce.senate.gov/hearings/101001Acklie.pdf]

[8] [http://commerce.senate.gov/hearings/101001Clapp.pdf]

[9] This question raises a different set of issues than the strategy recommended by FMCSA which was previously described, namely identifying any driver with a foreign surname that can be linked to certain countries and conducting more detailed background checks on suspicious individuals.

to be considered. The vulnerability of hazmat carriers, however, to hijacking and other attacks by terrorists could pose serious risks of a potentially catastrophic nature, with even greater costs to the carrier and society at large.

Increased Funding for the Hazardous Materials Emergency Preparedness Grant Program. Given the numerous safety and security risks inherent in the transportation of hazmats, there is substantial interest in reviewing the RSPA-administered Hazardous Materials Emergency Preparedness Grants Program, which provides funds to state and local governments to help these entities plan and train for responding to hazmat spills, seeks to improve the overall quality of hazmat response training, and offers technical assistance in these areas. For FY2002, DOT is requesting the authority to award $5.0 million for planning grants and $7.8 million for training grants, plus other expenses. In the House and Senate version of H.R. 2299, the FY2002 annual DOT appropriations act, an obligation limitation on expenses associated with this program and related expenses has been set at $14.3 million for FY2002. When the grant funds are allocated among all of the participating states, the amount of each grant for most states ranges between $100,000 and $300,000 per year, with five states receiving grants of around $500,000 to $970,000 per year. RSPA states that each year the program helps train 120,000 to 130,000 responders. The results of a survey reported by RSPA indicates that 3.2 million emergency responders need training.[10]

The activities conducted under this program serve many public purposes and affect several modes of transportation. In particular, many of the same police and emergency medical responders who receive training under this program would also be called upon to respond to pipeline spills, a railroad derailment, or terrorist attacks on other transportation infrastructures.

As Congress considers the reauthorization of federal hazardous materials law, 49 U.S.C 5101 et. seq., or as new security and preparedness measures are evaluated in light of the events of September 11, 2001, it might be worthwhile to consider the funding base for this program, whether additional funds are needed, and the source of such funds. Many in industry, which now finances this grant program, would be reluctant to bear the sole burden of paying for increased grants. This raises the issue: What other source of funds is available? Another relevant policy issue is: Should the reserve (about $15 million) that has been built up to fund this program be obligated? If so, when?

Amending the Hazardous Materials Transportation Act (HMTA). In addition to clarifying the federal/state regulatory role in hazmat transportation safety, the HMTA, as amended, is primarily focused on promoting the safety, but not necessarily the security, of hazmat shipments. In general, the more than 1000 pages of the Federal Hazardous Materials Transportation Regulations, which were issued to implement the HMTA, and subsequent amendments to that act, were designed primarily to promote safety during transportation, not to ensure security and reduce risks from possible terrorists attacks. Parking, attendance of the vehicle (observational requirements), and routing regulations are illustrative exceptions that have both safety and some security implications.

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[10] [http://hazmat.dot.gov/hmep/hmepcong.pdf]

Given the recent tragic events, the issue has been raised as to whether the Secretary's role in promoting the security of hazmat shipments should be detailed in statute, perhaps with congressional guidance regarding the relative balance or priority of safety versus security tradeoffs. In particular, Congress could authorize or direct the DOT Secretary to become much more proactively involved in reducing security risks. Several approaches might be considered, including additional requirements for security-focused training for various transportation personnel dealing with hazmat; improved measures to protect all transportation assets (including physical security systems associated with the vehicle or railcar) as well as security-sensitive information; ensuring that increased attention is paid to aspects of hazmat regulation with definite security implications; mandatory security plans pertaining to all components of the hazmat system (from the shipper, transporter, to the receivor/conseignee); increased use of technology to monitor and track shipments, communicate with operators, and promote cargo securement; development of "best practices" information packages to assist industry, and applied research to develop improved security-oriented strategies and to underpin these approaches.

Increased attention to security concerns would require a fundamental change in the DOT's regulatory regimen and enforcement posture, which has historically focused on reducing the likelihood of "accidental" releases of hazmats. A program with both strong safety and comprehensive security dimensions might begin to more effectively address hijackings and other forms of terrorism that can be used against hazmat transportation. Such a program also could begin to accommodate the interests of those who are willing to work within the regulatory system, and begin to address risks posed by those who seek to avoid regulatory involvement. This option, however, raises questions regarding: the costs of new requirements that might be issued as a result of increased DOT involvement in security concerns, the effectiveness of such measures on reducing the frequency and severity of terrorist actions, and whether a new administrative structure is needed within DOT to implement new security responsibilities stemming from a change in the HMTA, as amended, or other transportation safety statutes.