Hazmat on the Railroad:
Will the New Rule Really Make Us Safer?

By Captain Herschel Flowers

"While commercial aviation remains a possible target, terrorists may turn their attention to other modes. Opportunities to do harm are as great, or greater, in maritime or surface transportation . . . Surface transportation systems such as railroads and mass transit remain hard to protect because they are so accessible and extensive."

—The 9/11 Commission Report[1]

When the National Commission on Terrorist Attacks Upon the United States (also known as the 9/11 Commission) published its report on U.S. vulnerabilities to possible terrorist attacks, many of us shifted our focus from the Middle East to the identification of possible targets within our own borders. Of particular concern was the large volume of hazmat (including toxic inhalation hazards [TIHs] and poison inhalation hazards [PIHs]) transported through the country by the rail industry. As a result, Congress sought to establish stricter control on the movement of certain hazmat by rail.

The latest regulation to affect the transportation of hazmat by rail—the Rail Transportation Security Rule—was put into place by the Department of Homeland Security (DHS), Transportation Security Administration (TSA), in November 2008.[2] This rule requires that hazmat shippers, carriers, and receivers maintain positive control[3] of all rail security-sensitive materials (RSSM)[4] that move to, from, or through high-threat, urban areas (HTUAs).[5] It also requires that inspections of these cars be conducted at every point where a change in custody occurs and that parties maintain a proper chain of custody for each car that is transferred. Although the Rail Transportation Security Rule represents a positive step toward increasing security, it falls short of accomplishing the goal of preventing terrorists from using RSSM as weapons of mass destruction.

Before the Rule

Before the Rail Transportation Security Rule was enacted, manufacturers placed cars containing chemicals such as chlorine or anhydrous ammonia on tracks outside their plants and left them there with limited or no security. The cars were later picked up by railroad carriers, who could transport them throughout the country with few security requirements. The cars were then dropped off anywhere the customer requested—regardless of existing security measures. The main restriction imposed on carriers at that time was the rarely enforced "48-Hour Rule," which technically required carriers to forward hazmat shipments within 48 hours.[6] Even with that rule in place, shippers and carriers devised innovative ways to bypass the "requirements" by leasing remote tracks or infrequently used rail yards to serve as the "destinations" of these products until the chemical companies could move them into their plants.[7]

After 11 September 2001, the federal government began looking at hazmat shipments as potential targets for terrorist attacks—and by 2004, DHS had developed scenarios for possible terrorist attacks within the United States. However, this attention did little to improve security among the many plants and yards that handled the production or movement of hazmat or along the 240,000 miles of track crisscrossing the country.

Chemical manufacturers and railroad companies insisted that they had adopted sufficient security measures for hazmat cars after 11 September 2001—including limited access to them and a reduction of the amount of time they spent in rail yards. However, the lack of strict rules and the failure to enforce existing ones still made these cars prime targets. It was not until Mr. Carl Prine, a *Pittsburg Tribune-Review* journalist, wrote an exposé in 2007 that things began to change. Mr. Prine traveled the country reviewing security measures for chemical plants, refineries, and railroad facilities. He was able to gain unchallenged access to most locations, climbing and riding on top of hazmat cars—even leaving his business card on some of them.[8] The article, which served as a reminder of the vulnerability of our country with regard to rail transportation, resulted in a public outcry. There was renewed interest in the federal government imposing stricter security regulations on manufacturers and carriers.

The Rule

The Rail Transportation Security Rule, which was implemented on 26 December 2008, sets standards and obligations for shippers, carriers, and receivers of cars loaded with RSSM that move to, from, or through HTUAs. Among other things, the rule requires parties to—

- Maintain "positive control" over the cars, ensuring that they are attended at all times.
- Employ chains of custody when transferring the cars.
- Conduct inspections of the cars when custody is transferred.
- Provide TSA with the location of any and all cars containing RSSM at any given time.
- Report suspicious activities occurring in and around facilities and yards where the cars are present.
- Allow TSA inspectors to conduct announced and unannounced facility inspections.

TSA has sought to enhance security by ensuring that cars loaded with RSSM are under surveillance at all times. Security has also been increased by establishing systems that allow authorities to locate and track the movement of RSSM cars at all times.

Problems With the Rule

Still, the rule has some shortcomings, and that results in the potential for a false sense of security regarding the rail transportation of hazmat. The limited scope and range of rule application actually allow for security gaps and leave many commodities unprotected and vulnerable to terrorist attacks.

Limitation of Protection and Security Measures to a Small Group of Hazmat

According to the *2002 Commodity Flow Survey*, Class 1 hazmat accounted for less than one percent of all hazmat rail freight that moved through the country that year,[9] while TIH/PIH and explosives cars combined for less than six percent of the total. Yet, TSA believes that these commodities are the only ones that require strict security, leaving out other hazmat that could also cause considerable damage or could be used as catalysts to release other toxic materials such as highly volatile, liquefied petroleum gas tank cars or flammable liquids.

Limitation of Enforcement to Loaded RSSM Cars

The enforcement of the Rail Transportation Security Rule is limited to loaded RSSM cars, whereas "residue"[10] cars and other cars containing smaller quantities of hazmat are excluded from the rule. Although TSA acknowledges that these cars pose a danger to the public, it "has [been] determined that residue quantities of PIH materials in bulk packaging shipments do not carry sufficient amounts of security-sensitive materials to warrant the enhanced security measures required in [Rail Transportation Security] rule making."[11] Therefore, TSA sets "limits of danger," implying that "real" danger occurs only when these cars are fully loaded. This leaves unloaded (residue) cars with no security.

I believe that residue cars also pose a high degree of imminent danger to the public simply because of the way they are excluded by definition under the rule—as cars that have been "unloaded to the maximum extent practicable." Under this definition, a car that has had only half of its contents unloaded due to storage space restrictions is a residue car and is, therefore, not subject to the rule. The car, which might contain tens of thousands of gallons of a chemical such as chlorine, could be parked on side tracks, would not require security, and would not need to be inspected before or during movement. If targeted, the car could release chemicals, causing massive damage. Likewise, the detonation of a residue car carrying less than 5,000 pounds of explosives in a populated area could still be catastrophic and would likely cause a mass chain reaction with other hazmat. Unless they have been completely emptied, cleaned, and purged, all cars containing RSSM should be considered dangerous; and the appropriate security standards should apply.

Limitation of the Scope to Cars That Move To, From, or Through Large Urban Areas

The Rail Transportation Security Rule specifies that RSSM-loaded cars moving to, from, or through certain cities are subject to the new security standards. The rule governs forty-five urban areas encompassing more than fifty cities; it also applies to an extended ten-mile buffer zone surrounding each of the specified areas.[12] However, there are major U.S. cities that are not considered HTUAs and, consequently, are not included on the list. RSSM-loaded cars traveling to, from, or through these cities are not required to be under positive control, do not need to be inspected, and do not require proper chains of custody. These small- and medium-size cities that are excluded from the "protection grid" are unnecessarily exposed to danger.

Conclusion

It is difficult to analyze all possible scenarios for terrorist attacks on trains carrying hazmat. Locomotives could be

disabled, tracks could be destroyed, and trains could be commandeered. All of these viable scenarios are capable of producing mass casualties and spreading terror throughout our country. Still, I would like to point out that DHS has missed an opportunity to make all hazmat shipments—not just those involving railcars loaded with RSSM—more secure. We can only hope that the existing security gaps will eventually be narrowed, rendering trains that run through the United States less viable targets for terrorist attacks.

Endnotes:

[1]*The 9/11 Commission Report*, National Commission on Terrorist Attacks Upon the United States, 22 July 2004.

[2]Rail Transportation Security Rule, *Federal Register*, Vol. 73, No. 229, 26 November 2008.

[3]Ibid. As used in §1580.107, when the rail hazmat receiver and freight railroad carrier communicate and cooperate with each other to ensure the security of the railcar during the physical transfer of custody, they are ''maintaining positive control'' of the car.

[4]RSSM is defined as a railcar containing more than 2,268 kilograms (5,000 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material as defined in 49 Code of Federal Regulations (CFR) 173.50, a tank car containing a material poisonous by inhalation as defined in 49 CFR 171.8 (including anhydrous ammonia), Division 2.3 gases poisonous by inhalation as set forth in 49 CFR 173.115(c), or Division 6.1 liquids meeting the defining criteria in 49 CFR 173.132(a)(1)(iii) and assigned to Hazard Zone A or B in accordance with 49 CFR 173.133(a) (excluding residue quantities of these materials), or a railcar containing a highway route-controlled quantity of a Class 7 (radioactive) material as defined in 49 CFR 173.403.

[5]A list of HTUAs is contained in the *Federal Register*, Vol. 73, No. 229, Appendix A, 26 November 2008.

[6]49 CFR 174.14, Chapter I, "Movements To Be Expedited." This so-called "48-Hour Rule" does not specify that a hazmat shipment must arrive at its destination within 48 hours—just that it be forwarded from one location to another within 48 hours.

[7]Carl Prine, "No Consensus on Rail Shipment Regulations," *Pittsburg Tribune-Review*, 15 January 2007.

[8]Carl Prine, "Terror on the Tracks," *Pittsburg Tribune-Review*, 14 January 2007.

[9]*2002 Economic Census: Transportation, 2002 Commodity Flow Survey*, U.S. Department of Transportation and U.S. Department of Commerce, December 2004.

[10]*Federal Register*, 26 November 2008. "Residue" refers to the hazmat remaining in a tank car after its contents have been unloaded to the maximum extent practicable and before the tank car is refilled or cleaned of hazmat and purged to remove any hazardous vapors.

[11]Ibid.

[12]Ibid.

References:

49 CFR, *Transportation*, revised 1 October 2008.

Mandatory Hazmat Rerouting, Association of American Railroads, February 2008.

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Managing Editor Receives Award

Mrs. Diane E. Eidson, managing editor of *Army Chemical Review*, received the 2008 Secretary of the Army Award for Publications Improvements (Departmental) during an 18 March 2009 ceremony at the Women in Military Service for America Memorial at the gates of Arlington National Cemetery, Arlington, Virginia. Lieutenant General David H. Huntoon Jr. (director of the Army Staff) and Dr. Lynn Heirakuji (Deputy Assistant Secretary of the Army for Personnel Oversight) assisted Secretary of the Army Pete Geren in presenting the award.

Under Mrs. Eidson's leadership, *Army Chemical Review* has seen a total revision in its operation. She and her staff—Mrs. Diana K. Dean (editor) and Mrs. Denise F. Sphar (visual information specialist)—have significantly improved the content, layout, and design of the publication to enhance visual appeal and increase readership. Mrs. Eidson developed production schedules and continually monitored progress for a more efficient, effective operation; and she established a new print contract that upgraded the paper quality and improved the appearance of the bulletin. She procured a new desktop publishing system and graphics programs to ensure that the bulletin was developed using the latest software available. The transformation (which included a new interactive Web site) also incorporated procedural changes, training, and education to develop the production staff.

Mrs. Eidson was nominated for the award by the U.S. Army Chemical, Biological, Radiological, and Nuclear School, Fort Leonard Wood, Missouri.