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Improvements Needed in FRA's Hazardous  
Materials Inspection and Safety Reporting  
Programs

Statement of  
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Before the  
Subcommittee on Government Activities  
and Transportation  
Committee on Government Operations  
House of Representatives



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Madam Chairwoman and Members of the Subcommittee:

We appreciate the opportunity to discuss issues about the transportation of hazardous materials by rail, and other rail matters. We share the Subcommittee's concerns about hazardous materials because, annually, railroads transport about 1.1 million carloads of poisons, chemicals, pesticides, and other hazardous substances. Our testimony discusses the following: safety risk indicators, causes of railroad accidents, the Federal Railroad Administration's (FRA) hazardous materials inspection program, and railroads' reporting of injuries and accidents.

Before proceeding, I want to point out that my testimony is based on reports we issued in November<sup>1</sup> and April<sup>2</sup> 1989 to the Chairman, House Committee on Energy and Commerce. We also obtained current data on hazardous material releases and rail accidents and their causes.

In summary, we found that

- Although FRA's hazardous materials safety program is directed at minimizing the risk of hazardous materials releases, railroad safety indicators showed that risks were increasing rather than decreasing. For example, from 1985 to 1989, hazardous materials releases increased 40 percent. Also, from 1984 to 1988, the number of safety defects found by FRA hazardous material inspectors increased 69 percent and violations (serious defects) increased 600 percent.

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<sup>1</sup>Railroad Safety: DOT Should Better Manage Its Hazardous Materials Inspection Program (GAO/RCED-90-43, Nov. 17, 1989).

<sup>2</sup>Railroad Safety: FRA Needs to Correct Deficiencies in Reporting Injuries and Accidents (GAO/RCED-89-109, Apr. 5, 1989).

- During the past 3 years, there were a total of about 8,500 accidents, including 144 with hazardous materials releases. Track and equipment defects caused 59 percent of the accidents, human errors accounted for 24 percent, and other causes 17 percent.
  
- FRA had no assurance that shippers and railroads were adhering to hazardous materials regulations. For example, FRA's 28 hazardous materials inspectors were not able to annually inspect 85 railroads, 15,000 shippers, and 1.1 million carloads of hazardous materials transported by rail nationwide. Inspection coverage was further reduced because FRA inspectors were primarily inspecting individual tank cars and not reviewing the adequacy of shippers' and railroads' safety procedures. Also, FRA did not systematically identify shippers transporting hazardous materials by rail because complete data on such shippers were not available. The Research and Special Programs Administration (RSPA), which issues Department of Transportation (DOT) hazardous materials regulations, could help FRA develop a systematic approach by establishing a shipper registration program.
  
- The five railroads we visited were not accurately or completely reporting injury and accident data. The primary reason for this was that the railroads did not update their reports before submitting them to FRA.

We made a series of recommendations to FRA on ways to improve its hazardous materials inspection program and the accuracy of railroad safety data. FRA agreed with these recommendations and is now taking corrective action. RSPA did not agree to establish a hazardous materials shipper registration program as we recommended. However, unless FRA has ready access to a complete

source of information on the universe of shippers, it will not be able to systematically plan its inspections.

#### HAZARDOUS MATERIALS RISK INDICATORS INCREASING

Although FRA's hazardous materials inspection program is directed at reducing the risk of hazardous materials releases, the occurrences of these releases have increased since 1985. In that year there were 842 rail-related releases. Preliminary RSPA figures showed that there were 1,178 hazardous materials releases in 1989, an increase of 40 percent since 1985. Also, the number of releases jumped 15 percent per year in each of the last 2 years.

Statistics from FRA's inspection data base indicate that the number of serious hazardous materials problems is also increasing. Between 1984 and 1988, the number of defects<sup>3</sup> identified by hazardous materials inspectors jumped 69 percent from 10,599 to 17,886. Hazardous materials violations rose even more dramatically, from 499 in 1984 to 3,575 in 1988---a 600 percent increase. These increases were not the result of additional inspections because inspections remained fairly constant or decreased during the 5-year period.

#### MAJOR CAUSES OF ACCIDENTS

You also asked that we discuss the major causes of railroad accidents. In the past 3 years railroads have reported about 8,500 accidents to FRA. FRA classifies four causes of accidents: track defects, human error, equipment failures, and other. FRA data show that human error and track defects were the two primary causes of

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<sup>3</sup>Defects and violations are essentially the same instances of regulatory noncompliance, except that violations are considered more severe on the basis of the type of material involved and the previous record for safety compliance. A violation is subject to civil penalties.

train accidents (see attachment I), causing about 66 percent. Equipment failure accounted for about 16 percent of the accidents. All other causes accounted for about 18 percent of the accidents. We have not verified these FRA data. However, our April 1989 report on accident and injury reporting showed that railroads were not always correctly reporting all accidents.

In the past 3 years, 144 train accidents have resulted in hazardous materials releases. The 144 accidents were caused by track defects in 56 cases, followed by human error in 34 cases. Equipment failures caused 30 accidents and other factors, 24 (see attachment II). The major causes of accidents involving hazardous materials releases are the focus of FRA's track, equipment, and operating practices safety inspection programs rather than its hazardous materials inspection program. It is important to note that the vast majority of hazardous materials releases were not the result of train accidents, but of loose or defective fittings on tank cars which is the focus of FRA's hazardous materials inspection program. Specifically, the Association of American Railroads (AAR) stated that 94 percent of the releases in 1988 were due to these defects and not train accidents.

#### INSPECTION PROGRAM INEFFECTIVE

The primary objective of FRA's hazardous materials safety program is to minimize the risk of a catastrophic release of dangerous chemicals stemming from accidents or releases involving a rail car carrying hazardous materials. To achieve this objective, FRA has established a nationwide inspection program designed to promote the safe rail transportation of hazardous materials by ensuring that railroads, shippers, and container manufacturers adhere to RSPA's hazardous materials regulations.

We found that FRA was not effectively implementing its

hazardous materials inspection program. This occurred primarily because

- there were not enough hazardous materials inspectors to effectively implement the program,
- guidance provided to hazardous materials inspectors was outdated and vague,
- inspectors were not targeting high-risk shippers and railroads for inspection,
- inspectors concentrated on inspecting individual tank cars rather than evaluating safety procedures at shippers and railroads, and
- data were not available to systematically identify shippers transporting hazardous materials by rail.

#### Staff Resources Inadequate

FRA did not have enough hazardous materials inspectors to ensure that shippers and railroads were complying with safety regulations. As of May 1989, FRA had a nationwide staff of 28 hazardous materials inspectors out of an authorized 34 positions to inspect an estimated 85 railroads, 15,000 shippers, and the over 1 million carloads of hazardous materials that are carried by 100,000 tank cars and 40,000 intermodal tanks (tanks that can be shipped by rail, truck or water). While regional goals stipulated that these inspectors annually visit all shipper and railroad facilities on their inspection point lists, FRA inspectors in the four regions we reviewed visited 699, or about 30 percent, of the 2,312 inspection

points in those regions. In Region 2,<sup>4</sup> for example, inspectors visited 31 percent of the inspection points on their lists in 1987 and 27 percent in 1988.

Based on our report, the Secretary of Transportation reported the lack of an adequate number of hazardous materials inspectors as a material weakness under the Federal Managers' Financial Integrity Act. The Secretary reported that the insufficient number of inspectors prevents FRA from providing adequate coverage of shippers and railroads. Additionally, he stated that FRA's lack of sufficient inspector training and program guidance prevents inspectors from focusing on facilities with the greatest potential danger.

In response to our recommendations, FRA is adding 18 staff to its hazardous materials inspection program and modifying the FRA staffing model to better project resource needs and allocate resources to locations of greatest risk.

Currently, FRA does not have statutory authority to allow states to assist it in performing hazardous materials inspections as they do in other rail safety inspection areas. Twenty-one states have adopted the federal hazardous materials regulations, and 12 states have their own hazardous materials inspection programs. Officials in four states said that they would be interested in assisting FRA.

In response to our recommendations, FRA said it would survey the states to determine which ones were interested in participating in its hazardous materials inspection program and would provide training to state inspectors.

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<sup>4</sup>Region 2 includes Delaware, Maryland, Ohio, Pennsylvania, Virginia, West Virginia, and the District of Columbia.

### Inspection Guidance Inadequate

FRA's guidance to hazardous materials inspectors is outdated, vague, and does not describe any specific approach to conducting inspections. The guidance does not define how to identify hazardous materials shippers or how to consider risk in scheduling inspections, nor does it clearly state inspectors' authority to issue violations at shippers' facilities. Most inspectors we talked to believed they could issue violations only after a tank car was turned over to a railroad, which would preclude enforcement of loading regulations.

Inspectors do not routinely address the effectiveness of safety procedures at shipper and railroad facilities, instead they concentrate their efforts on physically inspecting tank cars. Inspecting tank cars will ensure only that the inspected cars are safe, while adequate safety procedures will ensure that all cars handled by shippers and railroads are safe. We believe the emphasis on inspecting individual cars rather than reviewing safety procedures has reduced the efficiency and effectiveness of the inspection program.

In response to our recommendations, FRA said that it was revising the hazardous materials enforcement manual to correct the deficiencies we found including emphasizing the need for inspectors to review shipper and railroad safety procedures.

### High-Risk Shippers and Railroads Not Targeted

In our 1987 report on enhancing DOT's policy and program effectiveness<sup>5</sup>, we emphasized the importance of targeting inspection resources at high-risk conditions as a way to strengthen

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<sup>5</sup>Department of Transportation: Enhancing Policy and Program Effectiveness Through Improved Management (GAO/RCED-87-3, Apr. 13, 1987).

the management of safety programs and resources. FRA has attempted to target its inspection resources on the basis of risk measures, such as large numbers of accidental releases of hazardous materials, or defects and violations found during previous inspections. FRA headquarters annually sends its regions a list of past inspections conducted at shipper locations and a list of all rail-related reports of hazardous materials releases from RSPA. However, inspectors do not regularly receive or effectively use the reports to update inspection-point lists and schedule inspections at high-risk facilities.

FRA recognized that the risk of a hazardous materials release is greater at shipper facilities and verbally instructed its inspectors to spend about 80 percent of their time inspecting these facilities. According to AAR, over 90 percent of all hazardous materials releases can be traced to safety problems at shipper facilities. However, inspectors do almost the opposite, spending an average of 69 percent of their time primarily inspecting tank cars at railroad facilities.

In response to our recommendations, FRA said it would take action to ensure that hazardous materials inspectors target high-risk shippers and railroads.

#### Need to Identify Shippers

RSPA collects information on hazardous materials releases for all transportation modes, including rail. FRA uses RSPA's data base as well as its own hazardous materials reporting system for planning and implementing its inspection program. However, neither FRA nor RSPA systematically identifies rail shippers of hazardous materials. RSPA has the authority to require the registration of all hazardous materials shippers, but thus far has declined to do so. As a result, transportation administrations, such as FRA, do not have access to a definitive source of shipper information to

focus their hazardous materials inspection and enforcement activities.

RSPA officials said that they have reservations about establishing a hazardous materials shipper registration program because the costs might outweigh the potential benefits. The officials further stated that FRA's hazardous materials inspection program was not being impeded because of the lack of a registration program because the DOT has access to a broad range of data sources kept by other federal agencies that identify shippers.

We disagree with RSPA's assessment. While we agree that there are other federal agencies that may have information on hazardous materials shippers, as we pointed out in our November 1989 report, RSPA does not obtain complete information from these other agencies. Therefore, RSPA has incomplete knowledge of the universe of hazardous materials shippers that are subject to its regulations. As a result, RSPA is unable to provide FRA and other transportation administrations that enforce RSPA's hazardous materials regulations with complete information on those shippers that are being regulated. This hampers FRA in its efforts to develop a systematic approach to identifying shippers for inspection.

#### INJURIES AND ACCIDENTS NOT ALWAYS REPORTED ACCURATELY

We also found problems with railroads reporting injuries and accidents to FRA. Railroads are required to submit monthly reports to FRA on accidents and injuries. FRA defines accidents as a collision or derailment causing more than \$5,700 in damages to railroad equipment and track. Railroads are also required to report all deaths and injuries other than those requiring one-time first-aid treatment for minor cuts, burns, and splinters.

The injury and accident data FRA receives from the railroads are stored in its accident and injury data base. FRA's data base is used for publishing annual national statistics on railroad safety, establishing its safety inspection and enforcement program strategy, determining the number and types of railroad safety inspectors needed, and calculating the costs and benefits of proposed safety rule changes.

Our work focused on selected divisions of five railroads: two of the nation's largest freight railroads, CSX Transportation (CSX) and Union Pacific (UP); the nation's intercity rail passenger carrier, Amtrak; and two regional carriers, Chicago and North Western Transportation Company (CNW), and Chicago, Central and Pacific Railroad (CCP).

#### Injuries and Accidents Underreported

Three of the railroads we visited---Amtrak, CSX, and UP---did not comply with all of FRA's injury and accident reporting requirements in 1987. Another, CCP, could not locate sufficient information for us to independently verify the accuracy of its reporting. CNW generally complied with FRA's reporting requirements except for reporting accident damages and lost work days.

We analyzed 521 unreported injuries at Amtrak, CSX, CNW, and UP and found that 61, or about 12 percent, at three of the railroads should have been reported to FRA. CNW correctly reported all injuries. Additionally, lost work days associated with these injuries, an FRA measure of injury severity, were underestimated a total of about 269 percent by the four railroads.

Of 532 unreported accidents we reviewed 52, or about 10 percent, should have been reported by three railroads. CNW correctly reported all accidents. The total amount of damages was

understated by all four railroads by about \$3.5 million. Again, CNW reported more accurately than the other railroads.

#### Railroads Lacked Internal Control Procedures

The railroads did not report accurately because they did not have internal control procedures requiring that the most current data available on injuries and accidents be obtained before reporting to FRA. CNW had internal control procedures which permitted it to report more accurately than the other railroads.

Organizations within the railroads we visited had injury and accident information necessary to document reporting decisions and to report accurately. For example, safety office accident files contained preliminary data on dollar damages from accidents. More detailed and accurate damage estimates were available at repair shops soon after the preliminary estimate had been made at the accident scene. Repair shop estimates provide more accurate information on actual railroad equipment damages caused by an accident.

FRA's oversight of railroads' self-reporting was not sufficient to obtain accurate injury and accident reports. FRA inspectors generally focused their attention on identifying individual injury reporting errors rather than concentrating on the causes of the errors. This occurred because FRA's reporting regulations do not require railroads to establish internal control procedures for reporting.

To improve reporting accuracy, we recommended that FRA require the railroads to establish internal control procedures for reporting and that inspectors be required to analyze these procedures. FRA stated that a rulemaking would be initiated requiring the railroads to establish internal control procedures over reporting. FRA also stated that inspectors would double their

records inspections and allocate additional time to railroads' reporting systems.

CONCLUSIONS

In conclusion Madam Chairwoman, I want to point out that we made a number of recommendations on actions FRA needed to take to correct deficiencies we noted in its hazardous materials safety inspection program and in railroads reporting injuries and accidents. The actions FRA said it plans to take in response to our recommendations, if fully implemented, will significantly increase the effectiveness of the FRA hazardous materials inspection and safety reporting programs. Particularly noteworthy is FRA's efforts to hire additional hazardous materials inspectors and to change its mode of operations to a systematic approach for identifying high-risk shippers and railroads for inspections. This should result in the safer transportation of hazardous materials and greater protection of the public. However, unless RSPA establishes a shipper registration program, FRA may not have the information it needs to identify and target shippers for inspection in a systematic manner. .

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Madam Chairwoman, this concludes my prepared statement. I would be happy to answer any questions you may have.

TRAIN ACCIDENTS BY CAUSE1987 TO 1989

<u>CAUSE</u>	<u>1987</u>		<u>1988</u>		<u>1989*</u>		<u>Totals</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Human error	856	32	1,031	34	897	32	2,784	33
Track defects	938	36	952	31	923	33	2,813	33
Equipment failures	430	16	512	17	455	16	1,397	16
Other	<u>423</u>	<u>16</u>	<u>556</u>	<u>18</u>	<u>531</u>	<u>19</u>	<u>1,510</u>	<u>18</u>
Total	<u>2,647</u>	<u>100</u>	<u>3,051</u>	<u>100</u>	<u>2,806</u>	<u>100</u>	<u>8,504</u>	<u>100</u>

\*Through November 1989.

Source: FRA Accident/Incident Bulletin, No. 157, Calendar Year 1988 (June 1989) and FRA Accident/Incident Data Base.

TRAIN ACCIDENTS INVOLVING HAZARDOUS MATERIAL RELEASES BY CAUSE1987 TO 1989

<u>CAUSE</u>	<u>1987</u>		<u>1988</u>		<u>1989*</u>		<u>Totals</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Human error	11	22	13	30	10	20	34	24
Track defects	20	40	18	41	18	36	56	39
Equipment failures	13	26	5	11	12	24	30	20
Other	<u>6</u>	<u>12</u>	<u>8</u>	<u>18</u>	<u>10</u>	<u>20</u>	<u>24</u>	<u>17</u>
Total	<u>50</u>	<u>100</u>	<u>44</u>	<u>100</u>	<u>50</u>	<u>100</u>	<u>144</u>	<u>100</u>

\*Through November 1989.

Source: FRA Accident/Incident Data Base.