

**NRT WSH Subcommittee
Graniteville Train Derailment
Conference call on 1-19-06
Background**

**Bruce Lippy, Ph.D., CIH, CSP
EPI Services, Inc.
410.744.0700
blippy@episervices.com**



Excellent ATSDR Review of Rail Events

(CDC, MMWR 1-28-05)

- **Based on 1,165 rail events (out of 49,450 total) reported to ATSDR's Hazardous Substance Emergency Events Surveillance (HSEES) system from 1999-2004**
- **Voluntary reports from 16 state health departments (SC isn't one)**

CDC Findings on Rail Events

Chemicals

- Rail events = 2% total hazmat releases
- 75% of releases were < 70 gallons
- 10% of releases were > 2,200 gallons
- 47% occurred in industrial areas, 27% commercial
- 93% involved only one chemical
- Most common releases:
 - Sulfuric acid
 - Sodium hydroxide
 - Hydrochloric acid



CDC Findings on Rail Hazards

Health effects

- Members of public were most frequently injured (55% of injuries)
- Employees of railroads and plants (28%)
- Most frequent injuries:
 - Respiratory irritation (40%)
 - Headache (11%)
 - Eye irritation (10%)



Derailment in Tamaroa, Illinois, February 9, 2003, released vinyl chloride, methanol, hydrochloric acid and formaldehyde

Railroads and Terrorism

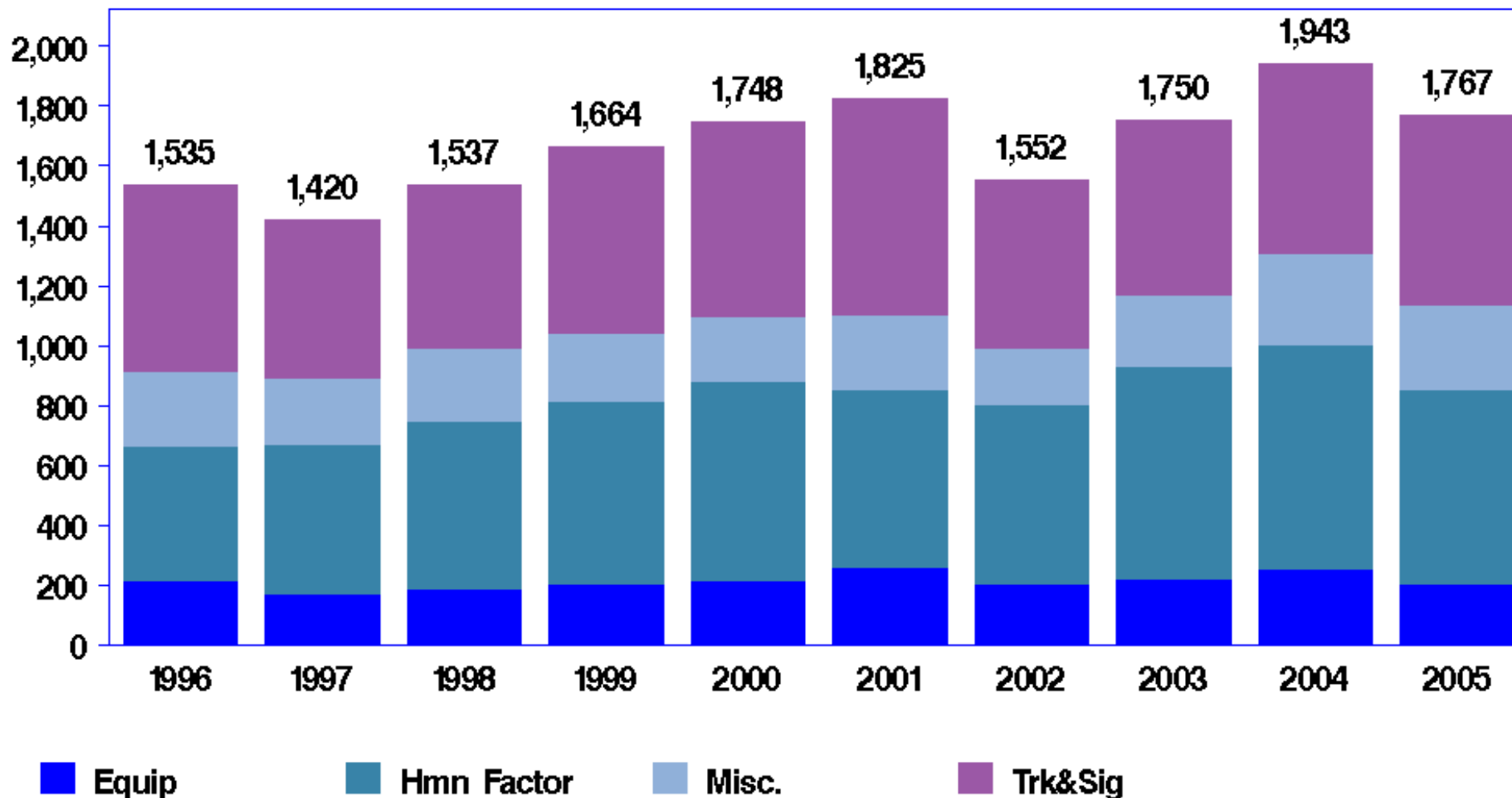
- **Surface transportation was target of 195 terrorist attacks from 1997-2000**
- **22% were subways and trains**
- **90% of the TSA budget goes to airline security**
- **FRA has 450 inspectors for 230,000 miles of track**

Mineta Institute, quoted in
Teamster report, 9-2005

Madrid bombing



Train Accidents by Primary Cause 1996 – 2005 (FRA data)



Position of Association of American Railroads (www.aar.org)

- Hazardous materials are 5% of total U.S. freight rail carloads.
- Upon request, railroads provide local ER with list of top 25 hazmat transported through their communities
- Bans on Hazmat through cities not good idea:
 - shift risk among communities
 - increases travel time for loads
 - would lead to more truck hauling (16X more releases).
- Hazmat pre-notification is problematic

Teamster Rail Conference Survey

- **Surveyed Brotherhood of Locomotive Engineers and Trainmen and Brotherhood of Maintenance of Way Employees Division**
- **Members from 46 states, 34 railroads**
- **4,034 surveys**
- **Only known worker-generated study**
- **Self-administered**
- **Questions were about last workday**
- **Released Sept. 29, 2005**

Teamster Rail Conference Survey

- **Was there another certified engineer available to assist or relieve you in case of emergency or hijacking?**
No, 87%
- **Did you see any trespassers in the yard or along the right of way today?**
Yes, 24%
- **Can you secure the cab against unauthorized access while occupied?**
No, 56%

Teamster Rail Conference Survey (2)

- Have you been trained regarding your role in the railroad's ER plan?

No, 62%

- Have you been trained by the railroad in the DOT's hazmat placard system?

No, 37%

- How many hours did you work today?

10.2 average

Work hours as a S&H Issue

- **Hours of Service Act, 1907**
- **Employees may not remain on duty more than 12 consecutive hours (16 in emergency)**
- **Must get at least 8 consecutive hours off after 12**
- **Time back to terminal is “limbo”**

Dark Territory as a S&H Issue

- **Non-monitored manual switches cover 40% of the nation's track**
- **This was type in the Graniteville incident**
- **Is this necessarily a *human factor*?**



NTSB Report on Graniteville

Adopted November 29, 2005

Collision of Norfolk Southern Freight Train 192 With
Standing Norfolk Southern Local Train P22 With
Subsequent Hazardous Materials Release at
Graniteville, South Carolina
January 6, 2005



Railroad Accident Report
NTSB/RAR-05104

PB2005-916304
Notation 7710A



National
Transportation
Safety Board
Washington, D.C.

www.nts.gov

NTSB Accident Report quotes FRA

category of train accident causes, accounting for 38 percent of all train accidents over the last 5 years.. The data show that the leading cause [of human factor accidents] for 2004 was improperly lined switches, which alone accounted for 16 percent of human factor accidents in the last 4 years.”

NTSB Accident Report Conclusions

- The execution of the emergency response to this accident was timely, appropriate, and effective.
- The crew of train P22 failed to reline a main line switch after using it, leading to the diversion of train 192 into an industry track where it struck train P22 and derailed.

NTSB Accident Report

Key Safety Recommendation

FRA should require railroads to install automatically activated device to visually or electronically alert employees and convey status of the switch in daylight or darkness

There are issues with cars, too



Questions?