



**U.S. Department of
Transportation**

Office of the Secretary
of Transportation

Office of Inspector General

Memorandum

Subject: ACTION: Safety-Related Findings and
Recommendations

Date: February 16, 2005

From: Kenneth M. Mead
Inspector General

Reply to
Attn of: J-1

To: Robert D. Jamison
Acting Federal Railroad Administrator

Over the past several years we have issued a series of reports identifying improvements needed in the Federal Railroad Administration's (FRA) inspection and enforcement activities, oversight of highway-rail grade crossings, and other safety issues. The purpose of this memorandum is to formally apprise you of these reports and their recommendations.

Most recently, in our December 10, 2004 memorandum¹ to the Secretary concerning an allegation of relaxed enforcement, we recommended that FRA submit to the Secretary a comprehensive plan for implementing a fully functioning program that makes meaningful use of analysis of available safety, inspection, and enforcement data. We recommended that the plan: (1) focus field inspection activities; (2) assess when a partnership approach is no longer effective and more traditional enforcement (i.e., fines) is warranted; and (3) determine appropriate numbers and amounts of fines, by factoring in prior safety/enforcement history and trends. Our report called for the plan to be submitted by March 10, 2005; be fully operational in no more than 6 months after the plan's submission; and include specific milestones for measuring progress.

The December 10, 2004 memorandum is discussed in more detail below, along with other findings and recommendations concerning: (a) data analysis showing that safety problems persist, (b) analyses of different approaches that FRA has taken toward railroads in its inspection and enforcement program, and (c) safety implications from other audits.

¹ OIG Memorandum, "Review of Allegations that FRA Deputy Administrator Attempted to Relax Safety Enforcement Against Union Pacific," December 10, 2004.

Data Analyses Show That Safety Problems Persist

Our most recent analysis of inspection and enforcement data was performed prior to your appointment as Acting Administrator. It was the result of an allegation that FRA had relaxed safety enforcement of railroads, which we found to be unsubstantiated. But our review of safety and enforcement data showed that serious safety problems have long persisted for all four major railroads, despite a significant increase in civil penalties FRA has assessed the railroads. We looked at five metrics on railroad safety performance and FRA enforcement efforts² for Fiscal Year (FY) 1998 through FY 2003.

As shown in Figure 1, the dollar amounts of both the proposed and final civil penalties against each of the four major railroads were significantly higher from FY 2001 through FY 2003 than from FY 1998 through FY 2000. As illustrated in Figure 2, average FRA civil penalty settlement amounts (weighted-per million train miles) also increased significantly.

Figure 1: FRA Civil Penalties - Proposed and Settled

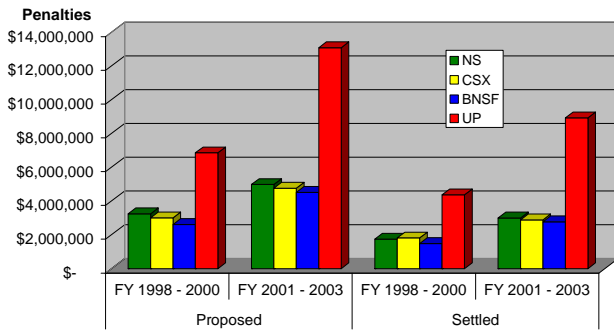
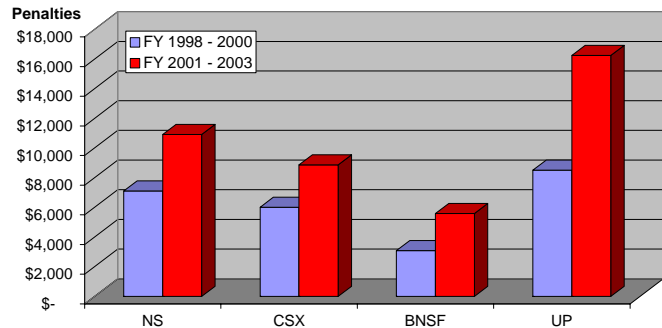


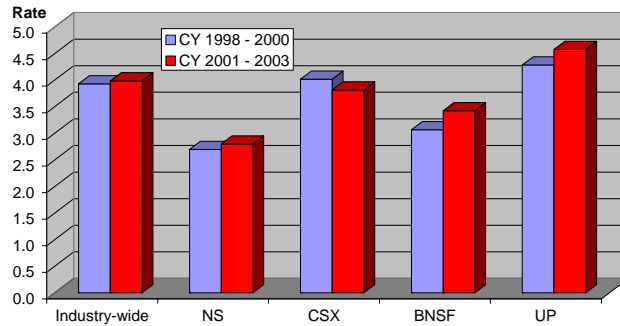
Figure 2: Average FRA Civil Penalty Settlement Amounts (Weighted-Per Million Train Miles)



Despite this increase in penalties, the average number of train accidents per million train miles increased for three of the four major railroads from FY 1998 through FY 2000 and from FY 2001 through FY 2003 (see Figure 3). Union Pacific's average number of train accidents per million train miles was highest and increased the most—7 percent, compared to a 1 percent increase industry-wide.

² These metrics are: civil penalties, civil penalties weighted by train miles, average train accident rate, average defect ratios, and average inspections. They were derived from FRA databases, which present the safety data by calendar year and the enforcement data by fiscal year.

**Figure 3: Average Train Accidents
(Weighted-Per Million Train Miles)**



Another indicator of a railroad's safety condition is its defect ratio.³ As illustrated in Figure 4, defect ratios for three of the four top railroads increased from FY 1998 through FY 2000 and from FY 2001 through FY 2003. Union Pacific had the greatest increase.

Despite this increase, Union Pacific had been inspected proportionally less than the other railroads. It ranked third in FRA inspections per million train miles in calendar years (CY) 1998 through 2000 and CYs 2001 through 2003, as shown in Figure 5. It seems counterintuitive to us that the railroad with the most track miles and the worst accident rate and defect ratio would be inspected at a lower rate than two of the three other major railroads that had fewer miles and better rates.

Figure 4: Average Defect Ratios (Instances of Non-Compliance with FRA Standards Per Units Inspected)

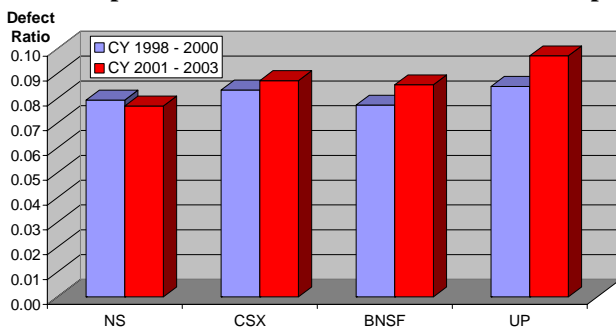
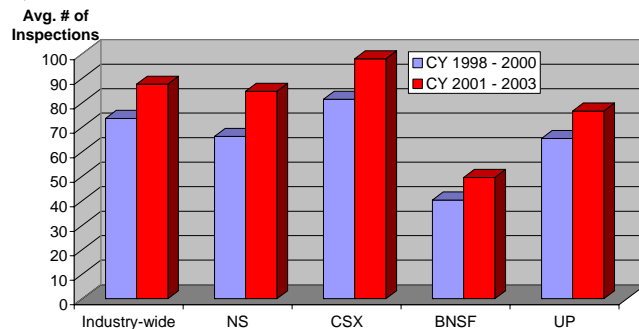


Figure 5: Average Inspections (Per Million Train Miles)



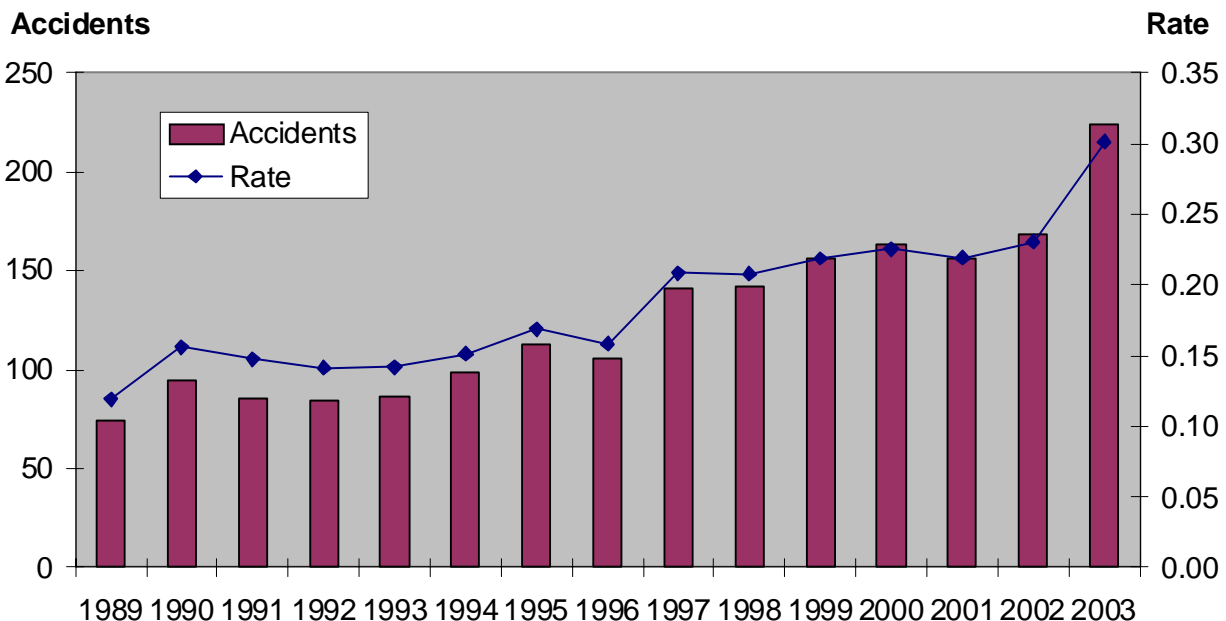
This safety trend is compounded by Union Pacific's spate of incidents and accidents in 2004, some of which involved fatalities. In 2004, FRA conducted a series of on-site inspections to determine the extent of Union Pacific compliance with safety regulations. Based on the results of these inspections, and in order to improve Union Pacific's level of compliance, FRA and Union Pacific entered into two Safety Compliance Agreements in November 2004.

³ The defect ratio is the number of instances of noncompliance with FRA standards, found as a percentage of units inspected.

Further, circumstances related to the January 6, 2005 Norfolk Southern Railway accident in Graniteville, South Carolina, underscore the value of trend analysis. Following the accident, FRA issued to all railroads a safety advisory to all railroads concerning improperly lined switches.⁴ An FRA statement about the advisory says, in part, “An improperly lined switch invites disaster and can be easily avoided. All railroads need to adopt the safety measures outlined in this advisory.”

Trend analysis of rail safety data identifies improperly lined switches as the second-largest cause of railroad accidents,⁵ and the leading cause of accidents resulting from human error. As depicted in Figure 6, there has been a clear upward trend from 1989 through 2003 in the number and rate of accidents attributed to improperly lined switches.

Figure 6: Number and Rate (Per Million Train Miles) of Railroad Accidents Caused by Improperly Lined Switches



Source: FRA database

We found that FRA’s inspection program can function in a manner that is (a) discretionary to individual inspectors with respect to routine inspections, and (b) reactive in terms of how it conducts focused inspections. With fewer than 450 inspectors responsible for overseeing the nation’s vast network of 230,000 miles of rail, it is critical that FRA’s inspection and

⁴ Although still under investigation by NTSB and FRA, this accident reportedly resulted from the failure of the crew of a train that had entered a siding to switch the track back to the main line.

⁵ The leading cause of railroad accidents is railroad tracks that have spread due to defective or missing ties, a condition known as “wide gage.”

enforcement efforts be carefully targeted to address those safety problems that are most likely to result in accidents and injuries.

We recommended that this be done through systematic use of trend analysis, along with other data analysis tools, to examine key indicators of a railroad's safety condition (e.g., its accident rate, defect ratio, and employee injury statistics). FRA would benefit from a data-driven inspection program that makes substantially greater use of objective analysis of empirical data and metrics to target its inspection and enforcement activities. Using this approach would enable FRA to better articulate its rationale for how it allocates its inspection resources and decides upon appropriate levels of enforcement.

FRA Must Balance Cooperation with Traditional Enforcement, Analysis Shows

In our December 10, 2004 memorandum on the investigation of whether FRA had relaxed safety enforcement, we also reviewed three components of FRA safety and enforcement efforts: traditional enforcement, the Safety Assurance and Compliance Program (SACP), and the Responsibility-Based Enforcement (RBE) policy. As part of the SACP program, railroad managers and union officials with FRA at the regional level discuss safety problems and develop proposals to eliminate them. The RBE policy fosters safety discussions among the highest level FRA officials and railroad executives.

We noted that both the SACP and the RBE are partnership approaches to compliance and enforcement, and that such approaches need to be sensitive to the point in time when the partnership has gone far enough and traditional enforcement is most appropriate. Our December 2004 memorandum also noted that audits of the SACP in 1998 and 2002 revealed weaknesses in the program.

Safety-Related Results and Recommendations of Other Audits

A number of audits and reviews yielded other findings and recommendations to FRA. Specifically, they recommended:

- completing safety-related rulemakings.
- creating new methods for reducing highway-rail grade crossing accidents.
- establishing a task force to improve CSXT track safety.
- improving oversight of track ballast replacement practices and following up on ballast deficiencies in roadway investments.
- ensuring that partnering in enforcement efforts does not lead to overlooking violations.

Over the next several months, we will review FRA's implementation of our recommendations. The attachment lists prior audit report recommendations by audit report number.

If I can answer any questions, please feel free to contact me at (202) 366-1959, or my Deputy, Todd Zinser, at (202) 366-6767.

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Attachment

Attachment. Prior Office of Inspector General
Audit Findings/Recommendations to FRA

Audit of DOT's Rulemaking Process and Tracking System

Report No. SC-2004-035, March 2, 2004

Findings. FRA missed the milestone dates for two of three safety rulemakings that had milestone dates between January 1 and June 30, 2003. As of July 2003, FRA had four safety rulemakings open (two of which had been open for 5 years or more). These four safety rulemakings were:

- Whistle Bans at Highway-Rail Grade Crossings—P.L. 103-440 requires the Secretary to prohibit local whistle bans, except where there is insignificant risk of accidents, alternative safety measures are adequate, or use of a horn as a warning is impractical.
- Standards for Development and Use of Processor-Based Signal and Train Control Systems—seeks to facilitate the introduction of positive train control technology by providing performance-based standards for new signal and training control systems.
- Application of Random Testing and Other Alcohol and Drug Regulations to Employees of Foreign Railroads—would apply FRA's random testing and other alcohol and drug requirements to employees of a foreign railroad whose primary reporting point is outside the United States, and who perform train service or dispatching service in the United States.
- Minimum Standards for Temperature in the Locomotive Cab—would have amended current minimum temperature requirements and established maximum cab temperature requirements.

Follow-up Audit of DOT's Rulemaking Process and Tracking System

Report No. SC-2005-031, December 21, 2004

Findings. This audit updated the March 2, 2004 audit (summarized above). As of June 30, 2004, FRA had five rulemakings open, all over 5 years old. They were:

- Whistle Bans at Highway-Rail Grade Crossings—cited above.
- Standards for Development and Use of Processor-Based Signal and Train Control Systems—cited above.
- Locomotive Crashworthiness—would address the crashworthiness of locomotives pursuant to the Rail Safety Enforcement and Review Act of 1992.

- Locomotive Event Recorders—would improve the crashworthiness of railroad locomotive event recorders and would enhance the quality of information available for post-accident investigation.
- Occupational Noise Exposure for Railroad Operating Employees—would amend FRA occupational noise standards for railroad employees whose predominant noise exposure occurs in the locomotive cab.

All five of these rules had milestones from July 1, 2003 through June 30, 2004. The FRA met the milestones for two of rules and missed the milestones for three.

Audit of the Highway-Rail Grade Crossing Safety Program

Report No. MH-2004-065, June 16, 2004

Recommendations. We recommended that the Department, in implementing its new action plan for grade crossing safety:

1. Require the states that have the most grade crossing accidents year after year, particularly at crossings that have experienced multiple accidents to develop an action plan that identifies specific solutions for improving safety at those crossings that continue to have accidents.
2. Encourage states to enhance educational programs to increase safety awareness, develop legislation to modify risky driver behavior through photo enforcement, and increase traffic enforcement strategies, including imposing stricter penalties, to target motor vehicle drivers who violate grade crossing safety laws and warnings.
3. Encourage states to set annual goals for closing grade crossings and strengthen their financial incentives to local governments for closures.
4. Identify a method for including FTA's data on light and heavy rail transit grade crossing accidents and fatalities in the new action plan's goals and statistics.
5. Promote mandatory reporting requirements for railroads and states through rulemaking or legislation to improve the accuracy and completeness of FRA's national grade crossing inventory data, to identify high-risk crossings and strategies to mitigate risks. The data should also be used to monitor the effectiveness of the new action plan's strategies, identify needed changes, and make adjustments, as necessary. FRA and FHWA should work cooperatively to accomplish mandatory inventory reporting.
6. Ensure that states comply with the annual requirement to submit evaluation reports to FHWA on expenditures of Federal safety improvement funds, including the cost and safety benefits of crossing improvements

Memorandum on the Follow-up Audit of Safety Assurance and Compliance Program

April 18, 2002

Findings

FRA should make greater use of inspection results developed in the SACP process to better focus inspection and enforcement efforts on safety concerns that are most likely to result in accidents and injuries.

FRA should increase program guidance to all field personnel that stresses greater standardization and more consistent use of formal Safety Action Plans to address safety concerns that have been identified through SACP.

FRA should ensure that partnering under SACP does not detract from reporting violation defects, issuing violations, and assessing and collecting penalties.

Memorandum on the CSXT Track Safety, October 3, 2002

Recommendations

1. FRA should establish a task force of track discipline specialists and inspectors from regions outside CSXT territory to work closely with FRA Headquarters and CSXT senior management to perform a system-wide review of compliance with Federal track safety standards.
2. If warranted by the results of the system-wide review, FRA should enter into another compliance agreement with CSXT to ensure track safety.

Report on Review of Slow Orders and Track Reclassification

Report No. MH-2004-007, December 10, 2003

Recommendations

1. Review CSXT ballast replacement practices, and follow-up on ballast deficiencies noted during previous FRA safety audits and inspections.
2. Monitor railroad R-1 reports on a continuous basis to identify potential problems in roadway investment, such as ballast, and use the information to target safety inspections on individual railroads.