

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: March 20, 1979

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Forwarded to:

Honorable John M. Sullivan  
Administrator  
Federal Railroad Administration  
Washington, D.C. 20590

SAFETY RECOMMENDATION(S)

R-79-14 through-28

In June 1978, the Conferees of the House and Senate Appropriation Committees directed the National Transportation Safety Board to conduct a thorough review of hazardous materials rail shipments and the applicable track standards as well as determine how the Federal Railroad Administration can more effectively prevent the occurrence and reduce the severity of derailments of hazardous materials. 1/

The Safety Board believes that, in spite of the facts that the involvement of tank cars in derailments with release of any of their contents is low, every reasonable effort should be made to prevent derailments which involve tank cars and to reduce the severity of those derailments which do occur. The potential for disaster each time a tank car of compressed flammable gas or other toxic gas is involved in a derailment requires additional efforts not indicated by normal statistical trend analyses based on occurrence of derailments.

In spite of the dedication and ability of the staff, the absence of a full-time railroad safety expert at the head of the Office of Safety has resulted in a loss of confidence in the ability of FRA to develop, implement, and administer an effective safety program. Interviewees from railroad management and labor and from the Office of Safety professional staff were unanimous in their opinion that the continuing absence of a full-time Associate Administrator for Safety had affected the safety program adversely, and were convinced that a head of the Office of Safety which has the respect of all "safety shareholders" is needed if the improvements are going to be accomplished.

1/ For more detailed information read "Safety Effectiveness Evaluation-Review of The Federal Railroad Administration's Hazardous Materials Program and the Applicable Track Safety Standards." (NTSB-SEE-79-2.)

None of the documents purported to be program plans identified the problems or ranked them as to priorities. FRA's hazardous materials and track safety program is a fragmented, task-oriented, ad hoc one without established goals and objectives based on acceptable risks. Goals and objectives must be the result of scientific safety analyses and they must be measurable, attainable, and worthy of support. FRA is handicapped in its hazardous materials program by deficiencies in the accident/incident data systems which were designed primarily for trend analysis. The reported damage figures are not adequate to determine the level of loss to the public. Furthermore, since little data have been gathered about the accident processes which produce the harm, identifying and evaluating new safeguards will also suffer from data deficiencies.

The success of the track safety program is based upon finding, through inspection, those track conditions which do not comply with the Federal track safety standards and initiating an enforcement action. There is no documented program which identifies the problems and ranks them as to priorities. FRA uses the number of inspections, the number of enforcement actions, and the amount of fines collected as measures of effectiveness. However, there is no demonstrated negative correlation between the level of inspections and fines and the incidence of track-caused accidents. An enforcement system which does not insure correction of the defect fails to accomplish a primary goal of regulation -- adequate protection against risk.

The goal of track safety standards should be to insure safety of the entire pathway, the vehicles, the human operators, and the environment. The only known method by which compatible track standards can be developed is the systems approach. This approach implies a positive search to find the full range of conditions possible to insure that they are controlled. To be effective, the standards must be compatible within their own framework as well as other aspects of the railroad environment. The existing standards do not meet these requirements. In addition, the standards do not address adequately combinations of conditions that can cause derailments.

Until there are some fundamental changes to improve the financial health of the railroad industry, derailments of hazardous materials will continue to pose a threat to the communities through which they are transported. Government economic policy should be coordinated with the safety policy to be sure that underlying operating and economic factors which affect safety are considered. Recently, the Interstate Commerce Commission has been attempting to address this question in its railroad ratemaking by recognizing the deferred track maintenance issue.

The field inspection program is not well coordinated and managed with respect to authority, response, and accountability. If the Regional Directors of Railroad Safety reported directly to the Associate Administrator for Safety, the operational and technical lines of communication and authority would be more compatible with the functional activities of the various organizational elements of the Office of Safety. The normal field inspection program is the responsibility of the Regional Directors, but the Automated Track Inspection Program (ATIP) is directed by the Chief of the Maintenance of Way Division of the Office of Standards and Procedures. The ATIP appears to be more of a research and development program than a supplement to the track inspection program. If the ATIP is going to be cost-effective, it must be oriented to practical goals and objectives, and its effectiveness measured by criteria other than miles of track tested.

The FRA has not implemented an effective State Participation Program. The Office of Safety's insistence that the States must inspect at the direction of the Regional Directors rather than allow the States the freedom of inspecting where they believe the need is greatest causes inefficiencies. The monitoring which takes the form of duplicate inspections by FRA tends to degrade the State inspectors in the sight of the railroads. In addition, the railroads do not understand the necessity of dealing with two sets of inspectors in a given State.

Based on its safety effectiveness evaluation and findings, the National Transportation Safety Board recommends that the Federal Railroad Administration:

Select and install a railroad safety expert as Associate Administrator for Safety. Assure that he has the authority commensurate with his responsibility for the railroad safety program. (Class I, Urgent Action) (R-79-14)

Change the organization so that the lines of authority are compatible with the functional requirements of the various organizational elements of the Office of Safety. (Class II, Priority Action) (R-79-15)

Develop a data base that will allow the definition and rating of railroad safety problems, particularly those problems related to the derailment of hazardous materials. (Class II, Priority Action) (R-79-16)

Develop and document a track safety program based on risk as indicated by a comprehensive safety analysis which will include: desired level of safety (risk) to be achieved; program goals and objectives based on that level; and criteria by which the success of the program will be measured. (Class II, Priority Action) (R-79-17)

Insure the selective upgrading of those sections of track with the worst derailment records to a condition which will not cause derailments. (Class II, Priority Action) (R-79-18)

Immediately revise the track safety standards to eliminate the subjectivity, incompatibility, vagueness, and unenforceability. The requirements should be made more explicit so as to insure the detection and correction of all combinations of track conditions which cause derailments. (Class I, Urgent Action) (R-79-19)

Insure that the Automated Track Inspection Program includes goals and objectives and measurable criteria for program evaluation. (Class II, Priority Action) (R-79-20)

Determine through an independent study why some States have been unable or unwilling to join in the existing State Participation Program and implement a productive program as contemplated by the FRSA of 1970 in which the States are true partners. (Class II, Priority Action) (R-79-21)

Determine in cooperation with the ICC the feasibility of establishing hazardous materials routes to bypass populous areas. If hazardous materials routing is operationally feasible, require that the track on those routes be maintained at a minimum of Class 4 condition. (Class II, Priority Action) (R-79-22)

Maintain the schedule for owners to complete the head shield and insulation program. (Class I, Urgent Action) (R-79-23)

In cooperation with the Inter-Industry Task Force, determine what additional cost-effective steps, based on risk-ranking results, can be taken to make tank cars more resistant to hazardous materials releases in derailments. (Class II, Priority Action)(R-79-24)

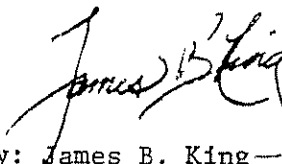
Determine the ultimate safety effect of allowing the indiscriminate lowering of main track classifications instead of maintaining the track at original intended class. (Class II, Priority Action)(R-79-25)

In cooperation with ICC develop railroad economic and safety policies which are compatible. (Class II, Priority Action)(R-79-26)

Revise the policies at the Transportation Test Center to insure that the data which is developed is analyzed systematically and published. (Class II, Priority Action)(R-79-27)

Require that all trains with placarded loaded tank cars of the 112A and 114A types not equipped with the required shelf couplers and tank head protection, which are loaded with liquefied flammable gases and other liquids or toxic compressed gases, operate at a speed 10 mph less than the maximum speeds authorized for those trains on classes 3, 4, 5, and 6 track. (Class I, Urgent Action)(R-79-28)

KING, Chairman, DRIVER, Vice Chairman, McADAMS and HOGUE, Members, concurred in the above recommendations.

  
By: James B. King  
Chairman