

IV. RECOMMENDATIONS

(The number after each recommendation relates that recommendation to the conclusions which led to it.)

1. The Safety Board recommends that the Federal Railroad Administration take the necessary steps to impose regulations requiring all mainline trains to be equipped with devices to record the speed of trains. (Conclusion 1) **R-69-18**
2. The Safety Board reiterates the recommendation made in its Dunreith report issued December 18, 1968, that "... the American Railway Engineering Association revise their track inspection and maintenance standards or recommended practices for track construction and maintenance so that they provide objective measures of conditions and definite criteria for correction." (Conclusion 2) **R-69-19** (R-69-5)
3. The Safety Board recommends that employees required by carriers to observe passing trains for defects be provided with means of rapid direct communications with personnel on the train. (Conclusion 3) **R-69-20**
4. The Safety Board reiterates the recommendation made in its report covering the derailment and collision of Pennsylvania Railroad train PR-11A and SW-6 in Dunreith, Indiana, on January 1, 1968, "... that the Department of Transportation study means of improving the training methods available to local fire departments so that they can upgrade their skills in their handling of emergencies created by the increasing transportation of hazardous materials. The problems of controlling such accidents are especially troublesome because of the daily introduction into commerce of numerous new kinds of hazardous materials. The Board believes that local emergency organizations cannot be expected to be conversant with necessary procedures to handle situations involving the many possible emergencies involving the transportation of hazardous materials unless some form of assistance in training is provided, such as a model type training course." (Conclusion 6) **R-69-21** (R-69-12)
5. The Safety Board recommends that the Association of American Railroads and the American Short Line Railroad Association develop plans that will result in the fire chief of each community through which the track of a member road passes knowing where immediate information can be obtained, describing the location and characteristics of all hazardous materials in any train involved in **R-69-22**

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a train accident that affects a community. This recommendation can be accomplished in a relatively short time regardless of the level of training which may be achieved later by fire departments. (Conclusion 6)

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6. The Safety Board recommends that the A. A. R. make a study of the stresses developed in freight car wheels with hollow-worn treads while moving over frogs, switches, and crossings. If increased impact stresses are being developed as a result of the wear and the stresses under the worst possible combination of dimensional and material variations approach the design stress, consideration should be given to changing the wear limits or the wheel design. Further, if new wear limits are determined, beyond-limit wheels should be removed from service as quickly as practicable. (Conclusions 10 and 11) **R-69-23**

7. The Safety Board recommends that the A. A. R. conduct physical tests on specimens of wheel steel having a range of surface finishes to determine the best surface finish for a wrought steel wheel and, further, that the resultant surface finish be incorporated in the specification for wheel finish as a specified surface texture measured in microinches. (Conclusion 12) **R-69-24**

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8. The Safety Board recommends that the American Railway Engineering Association study the design of railroad crossings to produce a crossing design that will lessen impact to wheels and require less maintenance. (Conclusion 17) **R-69-25**

9. The Safety Board recommends that the A. A. R. take the necessary steps to give proper notice to the purchases of wheels when inadequacies in manufacturing practices are found, thereby improving enforcement of the specifications to the degree possible under industry self-regulation. (Conclusion 18) **R-69-26**

10. The Safety Board recommends that the A. A. R. review the function of the Bureau of Explosives regarding its performance in protecting the public from danger resulting from railroad accidents involving hazardous materials and take the necessary action to develop an effective, cooperative program with the carriers to accomplish the intended purpose of the responsibility delegated to the Bureau of Explosives by Title 49, Code of Federal Regulations, Section 174.506. The Board endorses the FRA's proposed amendment of the regulations which will provide that reports of incidents and accidents involving hazardous materials presently

made to the Bureau of Explosives by rail carriers will also be filed with the FRA. (Conclusion 19) R-69-27

11. The Safety Board reiterates and emphasizes the recommendation made in its report of the railroad accident which occurred on the Pennsylvania Railroad at Dunreith, Indiana, on January 1, 1968, which reads as follows: "... that the Federal Railroad Administration include in its current study of an improved coupler design, the problem of keeping cars coupled and in line with the track and with each other after a derailment occurs. In order to attain an integrated organization of track and rolling stock features that could limit the aftereffects which can now follow a simple derailment, the Federal Railroad Administration should also study related technical approaches to control interference with traffic on adjacent tracks and wayside structures during derailments, such as means of limiting the lateral excursion of wheels, and separation of trucks from cars." (Conclusion 26) R-69-28

12. The Safety Board recommends that the Department of Transportation develop a cooperative program with the A. A. R. , manufacturers of tank cars, and producers and shippers of hazardous materials aimed at determining a full range of technical improvements for railroad transportation of liquefied petroleum gas and other hazardous liquids. This program should include a comprehensive study of the causes of the tank rocketing phenomenon, causes and weakening effects of accident damages to tanks, and means of guarding against explosive ruptures of tanks under the types of conditions actually encountered in accidents. The study should be supplemented by engineering development work and full-scale testing under conditions known to exist in service. The Board also recommends that the FRA develop and impose suitable regulations to correct any identified deficiencies. The Board further recommends that regulations for hazardous materials tank cars require, in all cases, a demonstration of satisfactory performance under test conditions which reflect the full scope of accident conditions known to be encountered in service. (Conclusions 9, 23, 24, 25, 26, 27, 28, and 29)

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