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V. PROBABLE CAUSE

The National Transportation Safety Board determines that the probable cause of this accident was that the operator drove the gasoline-laden truck, without stopping onto the tracks immediately in front of the approaching train, while the crossing warning device was indicating the train's approach.

The cause of fatalities to engine crewmembers and the official was the entrance of burning gasoline into the control compartment and engine compartments which burned the occupants of the control compartment, made escape into the engine compartment useless, and forced the occupants to jump from the control compartment while the train was still moving at a speed too high to insure survival.

VI. RECOMMENDATIONS

National Transportation Safety Board recommends that:

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1. The Department of Transportation, in the grade-crossing study required by the Federal Railroad Safety Act of 1970, consider the problems of existing ineffective warning devices and poorly maintained grade crossings and take corrective action.

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2. Law enforcement officers of Loda and the State of Illinois enforce more vigorously the requirement that trucks carrying hazardous materials stop at railroad crossings and not proceed until they can do so safely as required by "State of Illinois Laws Relating to Motor Vehicles - 1967, Section 84."

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3. The Federal Railroad Administration consider possible changes in the design of locomotive control compartments, such as the shielding of the compartment against direct penetration of fire, the use of fire resistant materials, protection of air inlets and vents, and strengthening of doors, that would provide greater protection to the occupants of the locomotive when a tank truck carrying flam-

mable material is struck by the train. Such studies should include the development of escape plans and the assurance of their performance by tests. Until such regulatory changes can be implemented, the Association of American Railroads and the Federal Railroad Administration should consider interim changes to locomotives exposed to truck traffic at grade crossings that would improve the chances of fire survival of the occupants of the locomotive.

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4. The Illinois Central Railroad and the town of Loda, Illinois, improve the grade crossing involved in this accident. Improvements should include an effective warning device capable of drawing the attention of highway drivers and conveying a warning of the approaching train, improved condition of crossing surface, and improved vision of track to approaching drivers.

The Safety Board reiterates and emphasizes the following recommendations made in previous accident reports:

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Railroad Accident Report, Southern Pacific Railroad Company, Fruitridge Road Grade Crossing, Sacramento, California, February 22, 1967,

"3. The Board recommends that agencies for law enforcement at grade crossings consider adequate enforcement at grade crossings to be as important as enforcement at signals governing highway intersections;

"5. The Board recommends that the Department of Transportation proceed apace to prepare broadly acceptable grade crossing hazard ratings or other objective criteria of grade crossing protection needs so as to formalize comparisons of grade crossing values on a broader basis than local judgements and local surveys. The existence of such broadly recognized criteria would speed the consideration of optimum use of funds on a statewide or nationwide basis."

"6. The Board recommends that the Congress and the Department of Transportation consider the minimal use of

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Federal funds for grade crossing safety protection by the States. Investigation should determine the degree to which these funds are not being employed because they are limited to the Federal Highway System; and also the degree to which these funds are not being employed because States prefer to use the funds for general highway expansion or improvements. Since these funds are intended to reduce grade crossing fatalities as a safety benefit to all motorists, it would therefore be appropriate to consider whether legislation should extend the use of these funds beyond the Federal Highway System."

Highway-Railroad Accident Report, Waterloo, Nebraska Public School Bus, Union Pacific Railroad Company Freight Train Accident, Waterloo, Nebraska, October 2, 1967.

"10. The Safety Board recommends that the Federal Railroad Administration study the visual effectiveness of the white, fixed, sealed-beam headlights on locomotives in contrast with the bright daylight as compared with an oscillating or gyrating headlight unit, a flashing strobe light or other high-intensity type light, possibly of a more contrasting color."

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

/s/ JOHN H. REED
Chairman

/s/ OSCAR M. LAUREL
Member

/s/ FRANCIS H. McADAMS
Member

/s/ LOUIS M. THAYER
Member

/s/ ISABEL A. BURGESS
Member