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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 4, 1979

Forwarded to:

Honorable Neil Goldschmidt
Secretary
Department of Transportation
Washington, D.C. 20590

SAFETY RECOMMENDATION(S)

P-79-30

Since its establishment, the Safety Board has been concerned that certain safety problems of national significance have not been addressed as rapidly as possible, even though needed improvements were known, feasible, and timely. One of these safety problems is the risk of catastrophic accidents involving pipelines transporting highly volatile liquids. Therefore, in fiscal year 1979 the Safety Board adopted as a safety objective the improvement of safety standards for those pipelines. 1/

The Safety Board first formally identified the need to establish separate, more stringent safety standards for pipelines which transport highly volatile liquids in 1972 in its report on a propane gas explosion and fire in Franklin County, Missouri. Four recommendations were directed to the Federal Railroad Administration which then had administrative responsibility for the safety standards governing those pipelines.

Since the Safety Board's report on the Franklin County, Missouri, accident, we have investigated and reported on seven additional serious pipeline accidents involving the release of propane, natural gas liquids, anhydrous ammonia, and other highly volatile liquids. Analysis of these accidents has resulted in the Safety Board issuing 14 additional recommendations for improvement of the liquid pipeline safety standards. The recommendations were directed to the Federal Railroad Administration, the Office of Pipeline Safety, the Materials Transportation Bureau, and other offices within the Department of Transportation as the administrative responsibility for liquid pipeline safety has been reassigned over the years. Another recommendation was made for the Materials Transportation Bureau to expedite its rulemaking schedule in the Safety Board's Special Study, "Safe Service Life for Liquid Petroleum Pipelines."

1/ For more information read, "Safety Report on the Progress of Improvements in Pipeline Transportation of Highly Volatile Liquids." (NTSB-SR-79-3)

Only 2 of the 19 recommendations have been fully implemented, and there is rulemaking currently in progress which addresses 14 Safety Board recommendations. In respect to the latter, it should be noted, however, that the Safety Board was advised on several occasions as early as the first quarter of 1975 that proposals for the regulatory changes would be issued by a specific date; subsequent deadlines for the proposed rulemaking notices have also slipped.

Following Safety Board testimony before committees of the U.S. Congress and staff meetings with the Materials Transportation Bureau, the first proposed rulemaking for the transportation of highly volatile liquids by pipeline was issued on August 3, 1978. A second proposed rulemaking was issued on August 28, 1978, twenty-three days after a major highly volatile liquid pipeline accident in Donnellson, Iowa, which killed three persons and critically injured two others.

During the Safety Board hearing on the Donnellson, Iowa, accident, witnesses for the Materials Transportation Bureau acknowledged delays in the development of safety standards and later, the MTB made a written commitment to the Safety Board that the development of strengthened safety standards for highly volatile liquid pipelines would be the Bureau's number one priority and that all previous Safety Board recommendations would be reevaluated for possible inclusion in the ongoing rulemaking activities.

The Safety Board has followed closely the increased activity in Materials Transportation Bureau for the development of these safety standards. We commented on the three notices of proposed rulemaking making suggestions for improvements in the proposed standards and for consideration of safety concerns not included within the proposals. While we are pleased with the present increased activity to correct the longstanding identified problems, we would like to see the pending rulemaking completed at an early date. Further, our review of the three proposals and past accident data in the context of this report has identified two major areas where additional action is needed.

First, the Materials Transportation Bureau has not proposed a requirement that existing pipelines meet the same minimum safety standards as those proposed for new pipelines. That will result in a double standard of safety for new and for existing highly volatile liquid pipelines. Many of those pipelines were constructed in areas that were originally rural, but which have become more densely populated as urban centers have expanded. This same population growth pattern affects the growth in exposure to hazards associated with natural gas pipelines. In its "Minimum Federal Safety Standards for Gas Lines," the Materials Transportation Bureau recognized the need to at least maintain the level of safety afforded by its regulations as exposure of the public to pipeline hazards has increased. The Materials Transportation Bureau specifies a minimum level of safety for gas pipelines dependent upon the public exposure and requires that established safety levels be maintained even if this may require substantial modifications to the pipeline or even its discontinuance. Currently, for highly volatile liquid pipelines there are no equivalent provisions for maintaining the level of safety as population exposure increases beyond the design considerations employed when the pipelines were constructed. Failure to similarly extend the safety standards for highly volatile liquid pipelines commensurate with increasing exposure could result in catastrophic accidents.

Second, the Materials Transportation Bureau has not proposed any performance standards for the prompt detection and rapid isolation of failed sections of highly volatile liquid pipelines, although the response time for detection of product release and the timely isolation of the release point is critical to effectively limiting the severity of the accident. We recognize that standards have been proposed for leak detection equipment, valve spacing, and remotely operable valves. However, without the establishment of standards by which to judge the effectiveness of these control devices, there will be no assurance that equipment installed will be sufficiently responsive to reduce to a minimum the losses resulting from releases of highly volatile liquids.

While recent MTB rulemaking initiatives have been generally responsive to Safety Board recommendations, some of the proposed safety standards have not yet been adopted, and actual safety improvements will not be realized until the regulations become effective. The Safety Board reiterates its recommendations that the MTB expedite present rulemaking actions and establish population-based requirements to minimize losses due to inadvertent releases of product from highly volatile liquid pipelines. In addition, evaluation of current rulemaking actions and past accident data indicates the need for additional safety standards to minimize remaining risks to the public.

Therefore, the National Transportation Safety Board recommends that the Secretary of Transportation:

Establish minimum performance standards for the prompt detection and rapid isolation of failed sections of highly volatile liquid pipelines. (Class II, Priority Action) (P-79-30)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, GOLDMAN, and BURSLEY, Members, concurred in this recommendation.

By:  James B. King
Chairman