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NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: March 9, 1978

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Forwarded to:

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SAFETY RECOMMENDATION(S)

I-78-2 through -4

The National Transportation Safety Board conducted a special investigation into selected safeguards against bulk gasoline delivery risks at automotive service stations. This investigation was based on a critical review of a fire and explosion near Gadsden, Alabama, on August 31, 1976, which killed 3 firemen and injured 28 persons. The Safety Board's findings are reported in its Special Investigation Report, "An Overview of a Bulk Gasoline Delivery Fire and Explosion."

The investigation disclosed three areas in which risks of fire and explosions at service stations with aboveground storage tanks may be reduced -- by establishing guidelines for "recognized hazards;" developing procedures for identifying "recognized hazards" at facilities where deviations from safety codes are authorized; and communicating the risks of such deviations to the local public safety officials who would respond to emergencies at those facilities.

The safety code most widely used by States to prescribe State safety requirements for hazardous materials handling and storage at service stations is the National Fire Protection Association's "Flammable and Combustible Liquids Code," NFPA No. 30. The code requirements address many hazards. However, both the probability of an accident and its severity can increase if a "recognized hazard" continues to exist at a facility. This was demonstrated by the accident and casualties at Gadsden, Alabama.

One practical difficulty arises when a specific facility is considered for inspection or is inspected under the code. What conditions should be considered a "recognized hazard?" There is no list of "recognized hazards" nor are there other published criteria to guide the code inspector. Without such guidance, the inspectors' decisions reflect only their level of skill and individual experience. Inspectors'

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skills and experiences vary widely, so the code cannot be uniformly administered, either within a jurisdiction or between jurisdictions. The effects of relaxed safeguards cannot be assessed adequately by truck drivers during deliveries, so the probability of delivery accidents at such facilities increases. In addition, the behavior of the flammable and combustible liquids becomes increasingly uncertain during emergencies, which increases the probability of injury to firefighters and bystanders. In Gadsden, the firefighters expected the code requirements to protect against explosions. However, code deviations negated this protection and resulted in the unexpected explosion, fragmentation, and intense fireball during the emergency. There is no practical way for the firefighters to identify deviations and evaluate their effects while they fight a fire. Clearly, the effects should be known beforehand.

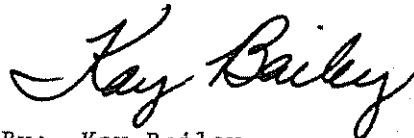
The Safety Board recognizes there may be reasons for relaxing safety codes at specific service station facilities. However, inspection guidelines based on the combined experience of State fire marshals would minimize the risks that deviations introduce. Therefore, the National Transportation Safety Board recommends that the Fire Marshals Association of North America:

Establish a program with the National Fire Protection Association to provide officials acting under Sections 1050 and 1060 of NFPA Code No. 30 with guidelines for identifying "recognized hazards" at service station facilities, so that this code is applied more uniformly within the States. (Class II - Priority Action) (I-78-2)

Develop a procedure for identifying and reviewing the "recognized hazards" at all gasoline service stations in which variances from NFPA Code No. 30 have been authorized to determine which service stations in a State constitute an unusual safety risk. (Class II - Priority Action) (I-78-3)

Develop a program to inform local firefighters of the unusual risks that exist at service stations where the code has been relaxed, so that firefighters may respond in the safest possible way to emergencies at such facilities. (Class II - Priority Action) (I-78-4)

BAILEY, Acting Chairman, McADAMS, HOGUE, and KING, Members, concurred in the above recommendations.



By: Kay Bailey  
Acting Chairman