

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

FOR RELEASE: 6:30 A.M., E.D.T., JUNE 21, 1976

(202) 426-8787

ISSUED: June 21, 1976

Forwarded to:

Honorable Norbert T. Tiemann
Administrator
Federal Highway Administration
Washington, D. C. 20590

SAFETY RECOMMENDATION(S)

H-76-19

At 4:20 p.m. on April 29, 1975, a Surtigas, S.A., tractor-tank-semitrailer westbound on U.S. Route 277 near Eagle Pass, Texas, swerved to avoid an automobile ahead which was slowing for a turn. The tank-semitrailer separated from the tractor, struck a concrete headwall, and ruptured; vaporized LPG was released. The ensuing fire and explosion destroyed a building and 51 vehicles. The 51 persons who were in the area were burned and 16 persons, including the truckdriver, were killed.

The National Transportation Safety Board determines that the probable cause of this accident was the evasive action taken by the truckdriver to avoid a slowing vehicle in his path of travel. The cause of the fatalities and injuries to persons in the vicinity was the explosive force and fire, from which they had no time to escape. The rapid development of the explosive force and fire was caused by the gross rupture of the tank.

The accident occurred near an irrigation canal which ran through a culvert under U. S. Route 277. The headwall at the south end of the culvert was located 29 feet from the roadway. It was 17.5 feet long, 12 inches thick, and 23 inches high. There was an identical headwall located 28 feet from the north edge of the roadway. Until the tank-semitrailer struck this raised concrete headwall, this accident had involved no injury. The tank's calculated velocity at impact with the headwall was 34 mph.

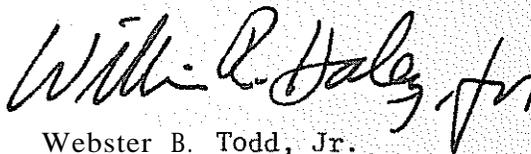
Both the American Association of State Highway and Transportation Officials' (AASHTO) Standard Specifications for Highway Bridges and the Federal Highway Administration's (FHWA) Handbook of Highway Safety Design and Operating Practices call for culvert headwalls and endwalls to be flush with the ground so they will not be fixed objects. The FHWA Highway Safety Program Standard No. 12, "Highway Design, Construction and Maintenance," requires devices to protect vehicle occupants wherever fixed objects cannot be removed or designed to yield.

The Safety Board recognizes that U.S. Route 277 and the culvert were built before the above criteria were established. Also, it recognizes that this is the first accident in which a vehicle has run off the road and struck this headwall. If a standard barrier had been installed, it probably would have been penetrated by the tank-semitrailer. However, the barrier might have absorbed sufficient energy to reduce the impact forces with the headwall or redirected the tank so that it would not have ruptured.

Therefore, the National Transportation Safety Board recommends that the Federal Highway Administration:

Promulgate a regulation making the criteria established in the Handbook of Highway Safety Design and Operating Practices (E2 Culverts and Bridge Structures) mandatory for all modified and new designs. (H-76-19) (Class II, Priority Followup)

TODD, Chairman, McADAMS, HOGUE, BURGESS, and HALEY, Members, concurred in the above recommendation,



BY: Webster B. Todd, Jr.
Chairman

THESE RECOMMENDATIONS WILL BE RELEASED TO THE PUBLIC ON THE ISSUE DATE SHOWN ABOVE. NO PUBLIC DISSEMINATION OF THIS DOCUMENT SHOULD BE MADE PRIOR TO THAT DATE.