

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: February 24, 1976

Forwarded to:

Mr. Oliver Peden  
President  
Nebraska Natural Gas Company  
340 East Military  
Fremont, Nebraska 68025

SAFETY RECOMMENDATION(S)

P-76-3 and 4

At 9:30 a.m. on January 10, 1976, the six-story Pathfinder Hotel in Fremont, Nebraska, exploded and burned. Eighteen persons died and 41 persons were hospitalized; the hotel was destroyed and glass was broken in other buildings within a one-block radius.

The National Transportation Safety Board's investigation disclosed that a 2-inch plastic gas main had pulled out of its compression coupling at the intersection of Sixth and Broad Streets, about 15 feet from the northwest corner of the hotel basement. The pipe had pulled out of its 6-inch-long compression coupling after the pipe had contracted in length 2 1/2 inches. Natural gas, leaking from the pipe at 13-psig pressure and capped above by frozen earth and the concrete road surface, seeped into the hotel basement.

The plastic main had been installed on June 26, 1974. The 348-foot-long segment was inserted into an existing 4-inch steel main and a 5-inch-long, steel internal stiffener was used inside the plastic pipe at the compression couplings. From June 26, 1974, when it was installed, to January 10, 1976, when it pulled out of its coupling, the pipe could have contracted in length from 3 inches to 9 1/2 inches, given a 25°F temperature differential.

In its installation handbook, the manufacturer of the plastic pipe states: "Since inserted pipe is not restricted in linear movement as in direct burial, the effect of expansion and contraction (1 inch per 100 feet for 10°F change) must be considered when using compression-type fittings." The manufacturer further states: "In relatively short service runs (100 feet), properly tightened fittings will hold over a normal temperature range, however, in longer runs positive transition fittings may be required to prevent pull-out."

PAR-76-6 1741

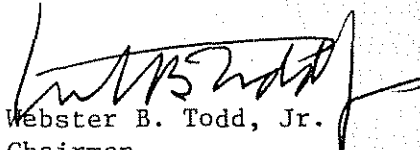
The Safety Board learned that at 5 p.m., on the evening before the accident, Nebraska Natural Gas Company responded to a gas odor complaint near the hotel and discovered a 2-inch plastic main that had pulled out of its compression coupling.

Two days after the accident, when gas company employees excavated at Sixth and Park Streets to shut off the gas at the accident site, they observed that the 2-inch plastic pipe had pulled out partially from its coupling.

Therefore, the National Transportation Safety Board recommends that the Nebraska Natural Gas Company:

1. Review its entire system to see if pipe has pulled out of its coupling elsewhere and to rectify any potentially hazardous conditions found. (P-76-3) (Class I, Urgent Followup)
2. Conduct tests below the frost level during this review of the system to monitor all plastic pipe joints made with short compression couplings where pullout and resultant gas leaks could occur. (P-76-4) (Class I, Urgent Followup)

REED, Acting Chairman, McADAMS, THAYER, BURGESS, AND HALEY, Members, concurred in the above recommendations.

By:   
Webster B. Todd, Jr.  
Chairman

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C. 20594  
OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
NATIONAL TRANSPORTATION  
SAFETY BOARD

