

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: June 8, 1977

Forwarded to:
Mr. Lowell Elder
Chairman
American Society of Mechanical
Engineers
Gas Piping Standards Committee
United Engineering Center
345 East 47th Street
New York, New York 10017

SAFETY RECOMMENDATION(S)
P-77-5

At 2 p.m., on August 8, 1976, a gas explosion destroyed a house at 1127 Oak Street, Allentown, Pennsylvania. The gas migrated from a break in a 4-inch cast-iron main under the street, through loose soil under a concrete sidewalk, and into the building through cracks and openings in its foundation. 1/

At 2:26 p.m., another house exploded across the street from the site of the first explosion. The front brick wall collapsed into the street and trapped two firemen. The street then caved in directly in front of the trapped firemen. The cast-iron gas main within the sinkhole broke into several pieces; flames from the broken main were more than 10 feet high and hampered rescue of the trapped firemen. Two firemen were killed, 14 persons were injured, 4 buildings were destroyed, and several buildings were damaged.

The first break in the 4-inch cast-iron low-pressure gas main occurred approximately one-half hour before the first explosion. The break was 3/4-inch wide because part of the broken main was sagging over a sinkhole in the street. The opening in the main was equivalent to the discharge of a 3-inch pipe at approximately 8 inches w.c. pressure. The gas migrated through loose soil under solid pavement to the basement of the two houses that exploded 26 minutes apart from separate sources of ignition.

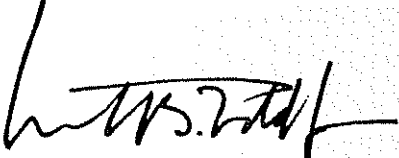
1/ For more detailed information on this accident read Pipeline Accident Report, UGI Corporation, Natural Gas Explosions and Fires, Allentown, Pennsylvania, August 8, 1976, NTSB-PAR-77-2.

Although the rapid isolation of this leaking gas main after the first explosion would probably not have prevented the second explosion, it is desirable to rapidly shut off the flow of gas in emergency situations.

Therefore, the National Transportation Safety Board recommends that the Gas Piping Standards Committee of the American Society of Mechanical Engineers:

Develop guidelines to assist operators during emergencies to promptly isolate leaking segments of pipe in a low-pressure system. (Class III, Longer Term Followup)(P-77-5)

TODD, Chairman, BAILEY, Vice Chairman, McADAMS, HOGUE, and HALEY, Members, concurred in the above recommendation.


By: Webster B. Todd, Jr.
Chairman