

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

FOR RELEASE: 6:30 A.M., E.S.T., APRIL 19, 1976

(202) 426-8787

ISSUED: April 19, 1976

Forwarded to:

Honorable William T. Coleman, Jr.
Secretary
Department of Transportation
Washington, D. C. 20590

SAFETY RECOMMENDATION(S)

P-76-9 through P-76-11

At 6:57 a.m. on April 22, 1974, a massive, low-order explosion demolished the west wall of a 25-story commercial building at 305 East 45th Street in New York, New York. The structure of the adjacent building was damaged and glass was broken in other buildings in the area. Glass fragments and slivers were blown into 46th Street, where they lay 1 inch deep in places. No persons were killed, but more than 70 persons were injured.

The National Transportation Safety Board's investigation showed that a 6-inch service line located in the basement of the building had been struck from below and severed by a ruptured hydropneumatic pressure tank installed directly underneath. Gas at 7 inches of water column flowed at 54,000 cubic feet per hour from the open end of the separated service line. Gas leakage continued for about 1/2 hour. Gas odors finally were noticed by a building occupant, but the building exploded before any mitigative efforts took place.

Excess flow valves which can be installed in a service line and which will close automatically when an excessive amount of gas (a predetermined increased rate of flow) begins to move through the pipe are manufactured currently. This type of valve remains open under normal gas flow conditions, but if the line should be severed and a large volume of gas begins to flow through the rupture, the excess flow valve would close automatically. Most valves of this type are for use in high-pressure gas distribution systems of 3 psig or more, but research is being done on similar valves capable of operating at only a few inches of water column.

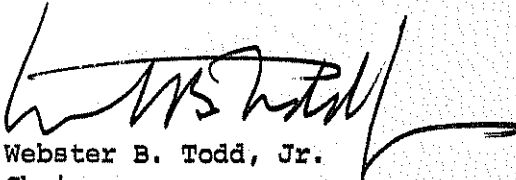
PAR-76-2

The 6-inch gas service line in the basement was considered by the Office of Pipeline Safety to be a gas distribution main and therefore under the Federal regulation 49 CFR 192.3. The New York State Public Service Commission's regulation, 16 NYCRR 255.1855, maintains that the pipeline operator's jurisdiction ends at the first fitting inside the wall of a customer's structure. This is based on the impracticability of a pipeline operator's trying to operate and maintain thousands of feet of gas piping inside the walls and ceilings of thousands of buildings within the state.

Therefore, the National Transportation Safety Board recommends that the Office of Pipeline Safety Operations of the Department of Transportation:

- (1) Determine the availability, the practicability, and the state-of-the-art in the manufacture of excess flow valves for use on low-pressure gas distribution systems. Based upon the results of these findings, amend 49 CFR 192 to incorporate the use of these valves in commercial buildings. (Recommendation P-76-9) (Class II, Priority Followup)
- (2) Amend 49 CFR 192 to define more realistically an operator's responsibility for gas piping inside buildings. (Recommendation P-76-10) (Class II, Priority Followup)
- (3) Expedite its review of the study of "Rapid Shutdown of Failed Pipeline Systems and Limiting of Pressure to Prevent Pipeline Failure Due to Overpressure" and determine what regulatory action is necessary concerning the use of excess flow valves. (Recommendation P-76-11) (Class II, Priority Followup)

TODD, Chairman, McADAMS, THAYER, BURGESS, and HALEY, Members, concurred in the above recommendations.

By:  Webster B. Todd, Jr.
Chairman

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