

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 6, 1978

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-78-23

At 1 p.m., e.s.t., on December 1, 1977, a 12-inch, cast-iron high-pressure gas main owned by the Atlanta Gas Light Company was ruptured by an 8-inch steel I-beam pile, which was driven through the pipe at a construction site in downtown Atlanta, Georgia. 1/

Within minutes, natural gas at 10-psig pressure migrated through the ground, entered sewer lines and electric conduit systems, and spread into nearby buildings. The gas did not ignite, but thousands of people were evacuated from nearby office buildings. A valve was closed at 2:45 p.m. to shut off the flow of gas to the ruptured main, and the area was declared safe at 4 p.m.

The 12-inch gate valve that was used to shut off the flow of gas was located 1,000 feet from the rupture. The gas was fed from one direction and because the main was dead-ended, only one valve was required to shut the system. Because this valve was not designated an emergency valve, the gas company did not have to check and service the valve annually as required by Federal regulations for emergency valves. The gas company was unaware that the valve cover had been paved over with 8 inches of asphalt; if the valve could not have been located or if the valve had failed to stop the flow of gas to the main, 22 emergency valves would have to have been closed to isolate the rupture area.

1/ For more detailed information read "Pipeline Accident Report -- Atlanta Gas Light Company, High-Pressure Gas Main Rupture, Atlanta, Georgia, December 1, 1977" (NTSB-PAR-78-3).

If AGL had had to close the 22 valves, the company would have to have relighted customer services to the entire downtown business section. Additional emergency valves would make a rapid shutdown more feasible by sectionalizing this area with more emergency valves. Since emergency valves are required to be inspected annually, the cost of maintenance influences the number of valves selected and, in some existing systems, only a certain percentage of existing valves have been designated emergency valves. The Safety Board believes that this is not in the best interest of public safety.

Because this 12-inch valve had not been designated as an emergency valve by AGL and it had not been checked or serviced within the past year, the Safety Board concludes that Federal regulations should provide specific regulations regarding the location of emergency valves. In its report of a Northern States Power Company accident in Lake City, Minnesota on October 30, 1972, the Safety Board recommended that the Office of Pipeline Safety (Operations) of the U. S. Department of Transportation:

Amend 49 CFR 192.181(a) to include requirements which express clearly the intent of OPS concerning the number and the location of emergency valves in high-pressure gas distribution systems and which treat the need for keys in the hands of local authorities.
(Recommendation P-73-4)

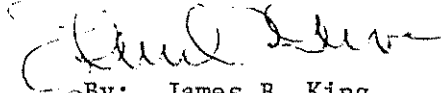
On April 3, 1978, a letter from OPSO to the Safety Board stated that because of "... the variety of operating conditions and types of systems in operation throughout the nation, we do not feel that specific requirements in this area could be developed to adequately apply to all operations."

The Safety Board, however, still believes that a problem exists in the lack of regulations or guidelines for the location and number of emergency valves in high-pressure distribution systems. In the interest of public safety, the Safety Board is redirecting its recommendation to the American Society of Mechanical Engineers Gas Piping Standards Committee to provide guidelines for emergency valves so that operators who share the Board's concern with this problem will have some professional advice.

As a result of its investigation of this accident, the National Transportation Safety Board recommends that the American Society of Mechanical Engineers Gas Piping Standards Committee:

Develop and issue guidelines to pipeline operators concerning the number and location of emergency valves in high-pressure gas distribution systems. (Class II, Priority Action)(P-78-23)

KING, Chairman, McADAMS, HOGUE, and DRIVER, Members, concurred in the above recommendation.


By: James B. King
Chairman