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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: August 23, 1984

Forwarded to:

Mr. Phillip Lathrop, Chairman
American Society of Mechanical Engineers
Gas Piping Standards Committee
c/o Pacific Gas and Electric Company
77 Beale Street
San Francisco, California 94106

SAFETY RECOMMENDATION(S)

P-84-36

On October 13, 1983, seven employees of the Washington Gas Light Company were assigned to perform required annual operating and maintenance inspections on a flow control valve and a pressure control valve at its Herndon Gate Station in Fairfax County, Virginia. As part of the work to be done, the employees disconnected the gas control signal line and removed the bolts of the flow control valve bonnet before inspecting the pipe segment containing the control valves to insure that it had been isolated and vented properly. At 10:13 a.m., while trying to remove the valve bonnet, natural gas at about 150 psig blew the bonnet upward, and gas filled the enclosed portion of the building in which the employees were working. The employees within the station fled outside to safety; however, the foreman reentered the building. Moments later, at 10:18 a.m., gas was ignited and an explosion and fire followed, demolishing the building. The foreman was killed and two employees received minor injuries. 1/

Many pipeline accidents investigated by the Safety Board could have been prevented had a qualified supervisor effectively directed specific activities critical to the safety of employees and the public. On October 1, 1982, at Pine Bluff, Arkansas, seven persons were burned and hospitalized while working to replace a section of pipe beneath a roadway. The gas company superintendent failed to monitor the pressure within a section of pipeline isolated from high pressure gas only by a closed valve. Gas leaking through the closed valve increased the internal pressure within the isolated segment which resulted in the failure of an end cap which had been welded temporarily on the end of the pipe segment to keep water and debris from entering the pipe. Gas escaping into the work area after the end cap failed was ignited and fire flashed through the work area.

1/ For more detailed information, read Pipeline Accident Report--"Washington Gas Light Company, Natural Gas Explosion and Fire, Herndon Gate Station, Fairfax County, Virginia, October 13, 1983" (NTSB/PAR-84/03).

The Safety Board believes that gas company managers should review and revise, if necessary, their maintenance and operation procedures to determine those activities where error on the part of its crews could result in unreasonable threats to the safety of its employees and the public. Where such conditions are found to exist, procedures should be developed to identify the potentially hazardous condition, and to emphasize the specific actions which should be taken to reduce the hazards to a minimum, and should require the presence of a qualified supervisor to assure that the required actions are explicitly followed.

The Materials Transportation Bureau (MTB) of the U. S. Department of Transportation establishes the minimum safety standards governing the operations of gas operators and the ASME Gas Piping Standards Committee provides guidance to gas operators for complying with the standards established by the MTB. Since neither the MTB standards nor the ASME guidance expressly identified the need for gas operators to develop explicit procedures for bypassing and isolation operations, it is not surprising that WGL's procedures also did not address these operations. Because many gas operators nationwide rely upon these two organizations for direction or guidance on actions which should be taken for safely operating their gas systems, there exists an immediate need for both the MTB and the ASME to act expeditiously for establishing specific direction concerning actions gas operators should incorporate within their written procedures.

Therefore, as a result of its investigation, the National Transportation Safety Board recommends that the ASME Gas Piping Standards Committee:

> Develop and issue guidelines for safely bypassing and isolating segments of pipelines or control equipment from gas under pressure. (Class II, Priority Action) (P-84-36)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY and GROSE, Members, concurred in this recommendation.

By: Jim Burnett
Chairman