

Log P258

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: **AUG 24 1984**

Forwarded to:

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SAFETY RECOMMENDATION(S)

P-84-35

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/

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).

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The Safety Board recognizes that every aspect of a crew's work cannot reasonably be checked by a supervisor and it recognizes also that a supervisor need not be onsite for all work performed. However, those operations critical to the continued safe operation of a gas system and which pose substantial threats to employees and public safety should be performed only under the direct supervision of a qualified supervisor. WGL's Pressure Division recognizes the potential hazard associated with performing bypassing and isolation activities and requires that these operations be performed only upon specific instructions from the supervisor. Additionally, the Pressure Department's requirements recognize the value of a pre-work meeting to review the work to be performed with the workcrews before any work proceeds. Moreover, WGL's policy, although not specifically stated in any guideline, apparently was that the foreman should have been present during the time the bypassing and isolation activities were being conducted.

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.

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.

Written procedures serve several useful purposes. First, they document a company's practice for performing specific tasks of a periodic nature and serve to preserve lessons learned either by experience or from analyses. Second, they form the basis for evaluating future accidents and changes in operations to determine what alterations are needed for maintaining the safety of the system. Moreover, written procedures can reinforce employee training activities by translating company policy and safety practices in to a useable, consistent format. Third, such procedures also can serve as a ready reference for employees should they be unsure of an action to take and as a refresher for tasks performed infrequently.

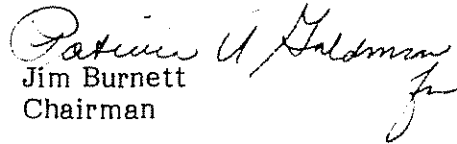
Written procedures also can be abbreviated for field use through the development of step-by-step checklists to guide employees when performing work where an out-of-phase action or employee error reasonably could be expected to result in reduced safety of employees or the public. While the Board is not advocating such checklists as a substitute for a supervisor, it is likely that if the senior instrument technician had had a properly designed checklist to guide him in the task assigned him by his foreman on the morning of October 13, 1983, the accident would not have occurred. He would have been warned to test, by opening the vent valves, the effectiveness of the actions taken to isolate the line segment before disassembling any equipment or control lines.

Therefore, as a result of its investigation, the National Transportation Safety Board recommends that the American Gas Association, the American Public Gas Association, and the Interstate Natural Gas Association of America:

Advise its member companies of the circumstances of the pipeline accident on October 13, 1983, and urge them to include within their written procedures the sequence of steps to be taken for safely isolating segments of gas facilities from gas under pressure and for testing the adequacy of the isolation action before other work is performed on the isolated segment. (Class II, Priority Action) (P-84-35)

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

By: Jim Burnett  
Chairman

A handwritten signature in cursive script, appearing to read "Patricia A. Goldman". The signature is written in dark ink and is positioned to the right of the typed name "Patricia A. Goldman".