

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

Log 7-228

ISSUED: July 8, 1983

Forwarded to:

Mr. W. P. Schmechel
President
Montana Power Company
40 East Broadway
Butte, Montana 59701

SAFETY RECOMMENDATION(S)

P-83-16

On November 15, 1982, a natural gas explosion in Conrad, Montana, demolished one house, heavily damaged an adjacent house, extensively damaged nearby houses, and injured one person. Natural gas escaping from a disconnected gas pipe located beneath the house filled the enclosed crawl space and ignited when the owner, who was at an inside entrance to the crawl space, lit a propane torch which he had planned to use to thaw frozen water pipes located beneath the house.

The gas company-owned buried service line, a coated steel pipe, emerged from the ground in the crawl space and passed to the outside of the foundation aboveground where it connected to the shutoff valve, the pressure regulator, and the meter. The pressure regulator reduced the gas pressure from 20 psig to 1/7 psig. From the meter, the customer-owned gas piping entered the crawl space beneath the house where it branched to the various gas appliances. It is atypical for a high pressure company-owned gas service line to be installed within or beneath a customer's house. Officials of the gas company said that they were not aware that such an installation existed in the system.

Gas company records show that the service line was installed on December 15, 1949, by the Montana-Dakota Utilities which had owned the Conrad gas distribution system until 1953. The records also indicate that until 1952 there were two inside gas meters connected to the service line. Apparently, the inside gas meters were removed at that time and a single meter was installed outside the house; however, there were no records to confirm when the change was made.

Federal regulations (49 CFR 192.723) require all gas distribution system piping to be surveyed for gas leakage at least once every 5 years. In response to this requirement, the gas company performs a leakage survey once every 5 years, using flame ionization detection equipment. To identify the individual services and to determine the area over which the surveys should be performed, the gas company used the records which were prepared by the previous owner of the gas system. However, the records did not identify the unusual routing of the gas piping as found at this location. Consequently, all company-owned piping at the accident site location (and any other locations where there maybe similar piping) had not been included in the leakage surveys. Since the accident, the gas company has identified two similar service line installations within another city in which it has a gas distribution system and has relocated the piping. The Safety Board

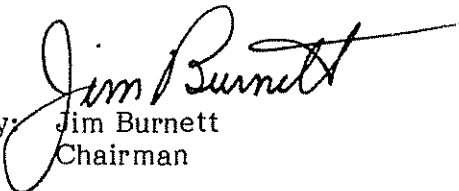
believes that it is realistic to expect that additional similar installations exist at houses where the inside meters have been relocated to the outside. While the cause of the accident was not a malfunction or deterioration of the distribution piping, the Safety Board believes also that the presence of high pressure gas service lines beneath residential building creates extra hazards. Further, it is apparent that existing company records are insufficient for determining where such installations may exist.

Therefore, as a result of its investigation, the National Transportation Safety Board recommends that the Montana Power Company:

Inspect each customer meter installation to determine if a high pressure gas service line is installed beneath a building and, where the condition exists, reroute all high pressure piping to an outside location. (Class II, Priority Action) (P-83-16)

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "...to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations." (P.L. 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations. Therefore, we would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter.

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

By: 
Jim Burnett
Chairman