

**NATIONAL TRANSPORTATION SAFETY BOARD**  
WASHINGTON, D.C.

ISSUED: April 27, 1971

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD  
at its office in Washington, D. C.  
on the 19th day of April, 1971.  
(second revision)

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FORWARDED TO: )  
Mr. Dean B. Taylor )  
Executive Vice President )  
Phillips Pipe Line Company )  
Bartlesville, Oklahoma 74003 )  
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SAFETY RECOMMENDATION P-71-6

This safety recommendation results from the investigation of a products pipeline accident in Franklin County, Missouri, on December 9, 1970, involving a pipeline owned and operated by the Phillips Pipe Line Company.

The National Transportation Safety Board has noted Phillips Pipe Line Company's decision to reduce the pressures on the "A" line between Paola, Kansas, and East St. Louis, Illinois, so that the maximum pressure which can be imposed at the point of the accident will be 777 p.s.i.g., instead of the 942 p.s.i.g. present at the time of failure on December 9, 1970. The Board concurs that the lower pressure should reduce the risk of seam splits in this part of the line, and tend to prevent repetition of the losses resulting from several fires and explosions that have occurred in this section between 1965 and 1970.

It is noted, however, that while the operating pressures on the Borger, Texas, to Paola, Kansas, section of the line have been lowered somewhat, necessitated by the reduced throughput in the Paola to East St. Louis section, the pressures are still above those in the latter section. This is so even though the pipe in both sections is the same age and most of it is of the same manufacture. We recognize that there were fewer split-seam failures per mile in the line between Borger and Paola than in the line between Paola and East St. Louis, both during the initial hydrostatic testing performed in 1931, and in the period between 1965 and 1970. However, the Board notes that the seam failure rate of the line between Borger and Paola for 1965 to 1970 is one failure per year for each 499 miles of line. This compares with an industrywide pipe seam failure rate for 1968 and 1969 of one failure per year for each 5,486 miles of pipe. These failure rates for this line and the industry have been determined by using the maximum number of years for which records of failure are available for each.

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The seam failure rate of the Borger-Paola section is, therefore, much higher than that of the industry in general. Thus, even though the pressure has been reduced on the Paola-East St. Louis section where a still higher failure rate existed, the pressure remains at the higher level in the Borger-Paola section. Attached are data used in this comparison.


The Board therefore recommends, because of the risks involved, that:

The Phillips Pipe Line Company also place a restriction on the operating pressures of the remainder of the pipeline extending from Borger, Texas, to East St. Louis, Illinois. This restriction should have the effect of providing for a maximum discharge pressure of 900 p.s.i.g. at each of the pump stations on the line between Borger and East St. Louis. This restriction need not apply to the Borger pump station due to the fact that the pipe between Borger and the next pump station is of a newer and different type.

The Safety Board considers this to be an interim recommendation pending completion of the Board's current investigation and until more permanent measures adequate to insure safe operations have been determined.

This recommendation will be released to the public on the issue date shown above. No public dissemination of the contents of this document should be made prior to that date. We are sending a copy of this letter to the Federal Railroad Administration and the Office of Pipeline Safety, Department of Transportation.

Reed, Chairman; Laurel, McAdams, Thayer and Burgess, Members, concurred in the above recommendation.

  
By: John H. Reed  
Chairman

Attachment

ATTACHMENT

1968 Statistics

Accidents resulting from defective pipe seams <u>1/</u>	31
Number of miles of liquid petroleum pipelines <u>2/</u>	169307
Resultant number of miles per defective pipe seam accident	5461

1969 Statistics

Accidents resulting from defective pipe seams <u>3/</u>	31
Number of miles of liquid petroleum pipelines <u>2/</u>	170824
Resultant number of miles per defective pipe seam accident	5510

Average annual industry-wide number of miles per defective pipe seam accident based on the calendar years of 1968 and 1969 5486

Accidents resulting from defective pipe seams in the Phillips Pipe Line Company's "A" line from Borger, Texas, to Paola, Kansas, from 1965 through 1970 inclusive 4/ 5

Borger to Paola = 416 miles ÷ 5 defective pipe seam accidents x 6 years = 499 miles/defective pipe seam accident/year

Average annual number of miles/defective pipe seam accident in the Borger to Paola section of Phillips Pipe Line Company's "A" line 499

The annual defective pipe seam accident rate in the Borger to Paola "A" line is 11 times that of the comparable industry-wide rate

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1/ Information obtained from exhibit IG "Summary of Liquid Pipeline Accidents Reported On DOT Form 7000-1 From January 1, 1968, Through December 31, 1968.

2/ Information obtained from "Transportation Statistics, Part 6, Oil Pipe Lines", prepared by the Bureau of Accounts, Interstate Commerce Commission.

- 3/ Information obtained from exhibit 1G-1 "Summary of Liquid Pipeline Accidents Reported on DOT Form 7000-1 From January 1, 1969, Through December 31, 1969.
- 4/ Information obtained from exhibit 3E-2 "A Line Maintenance and Leak Reports Linalog" prepared by Phillips Pipe Line Company as part of the record "In the matter of the investigation of a Products Pipeline Accident in Franklin County, Missouri, on December 9, 1970."