

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: June 9, 1982

 Forwarded to:

Mr. Raymond J. Hunt
 President and Treasurer
 Santa Fe Pipeline Company
 1200 Thompson Building
 Tulsa, Oklahoma 74103

SAFETY RECOMMENDATION(S)

P-82-17

At 1:38 p.m., c.d.t., on September 27, 1981, near Ackerly, Texas, the Chaparral Pipeline, a refined petroleum products 12-inch steel pipeline owned by the Santa Fe Pipeline Company, was damaged by a rathole drill bit; the wall of the pipe was weakened, and it ruptured under the 1,100 psig operating pressure. The ethane-propane mixture in the pipeline began to escape and was ignited by the drilling rig engine. The ensuing explosion and fire killed three persons; critically burned one person, who died 4 days later; destroyed the rathole drilling rig, a pickup truck, a road grader, a compactor, and 60 acres of cotton; and burned 12,749 barrels (535,458 gallons) of ethane-propane mixture. ^{1/}

The Chaparral pipeline's supervisory information and control system provided a nearly instantaneous alarm to the dispatcher in Tulsa, Oklahoma, from the Ackerly Station located 4 miles downstream from the accident site, and then information confirming a line break from the San Andres Station located 46 miles upstream of the accident site. This allowed shutdown of the mainline at the downstream station within 4 minutes of the accident and shutdown of the upstream station within 10 minutes of the break. This isolated a 50-mile segment of pipeline in a timely manner; however, to further segment the pipeline and confine the rupture to a 5-mile interval, it was necessary to utilize a manually operated mainline valve which was closed 1 hour 7 minutes after the accident.

This is not an isolated incident; there have been other similar pipeline accidents involving drilling activities:

On September 4, 1981, a drilling rig, operated by a crew core-drilling for coal near Belle, West Virginia, punctured a 12-inch gas transmission line. The transmission line was operated by Columbia Gas Transmission Corporation and, at the time of the accident, was operating at a pressure of 600 psig. The rig operator was injured, the rig and a truck were destroyed, and an estimated volume of 3,433,000 cubic feet of gas was lost.

^{1/} For more detailed information, read Pipeline Accident Report—"The Chaparral Pipeline, Explosion and Fire, Ackerly, Texas, September 27, 1981" (NTSB-PAR-82-2).

On October 2, 1981, a rathole rig drilling near Andrews, Texas, ruptured a crude oil gathering line. Sour crude oil escaped from the line. No one was injured.

On May 27, 1980, near Cartwright, Louisiana, an anhydrous ammonia pipeline operated by Santa Fe's Gulf Central Pipeline Company was struck by a bulldozer which was being used to prepare a wellsite, and the pipeline ruptured. Over 100 people were evacuated from the area. 2/

Over 500 rotary drilling rigs are currently operating in the Permian Basin of West Texas and New Mexico, where 12 percent of the drilling activity in the United States takes place. A majority of the drilling is for development wells that are located in areas densely underlain by pipelines, many of which are unmarked. The surveyor, who staked the jet well location, stated that he had staked and moved another location for the third time because of pipeline conflicts. The pipeline surveillance reports for the Chaparral right-of-way were also indicative of the extent of drilling activity. The preaccident patrol report noted, "MP 171 Drilling rig with slush pits 50 yards south of ROW," and the postaccident patrol report stated: "MP 4 1/2 Drill pads on north edge of ROW."

The Safety Board is concerned about the damage to pipelines caused by drilling activities and the use of outside excavation equipment since the location of a pipeline can be ascertained in several ways: on a title as a right-of-way encumbrance; on various maps used by the petroleum industry; from the property owner or others; as a trace on the ground; by use of a pipe locator or metal detector; by the pipeline company in response to notification through use of a "one-call" system where one exists; or by markings at its intersections with roads, in accordance with the requirements of 49 CFR 195.410.

The effectiveness of the "one-call" notification system has been proven; however, no statewide, "one-call" system exists in Texas. Current efforts by the pipeline industry to formulate and implement a "one-call" system in the State of Texas merit the support of the entire petroleum industry.

As a result of its investigation, the National Transportation Safety Board recommends that the Santa Fe Pipeline Company:

Support the pipeline industry's efforts to formulate and implement a "one-call" notification system in the State of Texas. (Class II, Priority Action) (P-82-17)

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


By: Jim Burnett
Chairman

2/ "Pipeline Accident Report--Summary Format, Issue Number 1--1982" (NTSB-PAR-82-1).