P-161A AI-4

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: August 26, 1981

Forwarded to:
Mr. Fred L. Hartley
President and Chairman of the Board
Union Oil Company of California
Union Oil Center
P. O. Box 7600
Los Angeles, California 90017

SAFETY RECOMMENDATION(S)

P-81-31 and -32

About 6:25 p.m., on December 1, 1980, a pipeline transporting naphtha ruptured under the road at the intersection of 28th Street and Gale Avenue in Long Beach, California. Escaping product under high pressure blew a hole through the pavement and sprayed into the air up to 20 feet and then flowed into the gutters. Moments later, the product ignited by an undetermined source. The ensuing flames reached a height of approximately 70 feet. As a result of the fire, 5 persons were injured, 1 house was destroyed, 11 houses sustained moderate to severe damage, and 11 motor vehicles were destroyed. 1/

On November 27, 1980, the Four Corners Pipe Line Company transported naphtha through line No. 8 between the Marlex Refinery (Marlex) on Signal Hill and the Atlantic Richfield Watson Refinery (Watson). Upon completing the movement, line No. 8 was shut down with naphtha in the line between Marlex and Watson and crude oil in the line between Huntington Beach and Marlex.

On December 1, 1980, the naphtha in the line between Marlex and Watson was scheduled to be displaced into tank R-15 at Watson by crude oil pumped from the Aminoil and Union Oil facilities. The line was to be shut down after all the naphtha had been displaced from it.

The line between Aminoil and Marlex operates on an "as needed" basis. The Four Corners control center does not continuously monitor operations of the Lease Automatic Custody Transfer (LACT) units located at Aminoil and Union Oil where pumps start automatically when the crude oil in the gathering storage tanks reaches a prescribed height. At the time of the accident, no pressure or flow data equipment was installed to transmit such information from the LACT units at Aminoil or Union Oil to the Four Corners control center. Shipments at the receiving points (Watson and Marlex) are monitored by gauging the receiving tanks every 2 hours.

1/ For more detailed information, read Pipeline Accident Report—"Four Corners Pipe Line Company Pipeline Rupture and Fire, Long Beach, California, December 1, 1980" (NTSB-PAR-81-4).

Pressure relief at Union Oil is accomplished by a spring-operated pressure relief valve set to open at 700 psi. Overpressure protection is also provided by a high pressure shutdown switch, which is connected to the discharge side of the shipping pump and shuts down the LACT units as well as activates an alarm at the manned Platform Eva. The setting on the high pressure shutdown switch on December 1, 1980, is not known, but was estimated to be higher than 990 psig which was indicated on the recording pressure gauge at Fort Apache. After the accident, the pressure relief valve on the shipping pump connected to line No. 8 was removed and bench tested; it was found to have operated at 720 psi.

A 24-hour pressure recording device, installed and maintained by the pipeline company, was located at the Union Oil facility. The chart was installed on November 14, 1980, and was not removed until December 2, 1980. The chart showed a pressure spike of approximately 990 psi, indicating that line No. 8 had been subjected to a pressure of 990 psig at an unknown time between November 14 and December 2, 1980. The chart had not rotated since it was installed; therefore, the day or time of the pressure spike is not determinable.

The volumes of crude oil being shipped at any given moment are not relayed to Union Oil Platform Eva, and consequently, there are no records kept at the platform of the hours during which the pumps are in operation.

As a result of its investigation, the National Transportation Safety Board recommends that the Union Oil Company of California:

> Instruct its employees regarding the equipment maintenance and repair program for pressure relief valves and shutdown equipment at its Lease Automatic Custody Transfer (LACT) units and make periodic checks to see that the program is carried out. (Class II, Priority Action) (P-81-31)
>
> Install and maintain pressure recording devices on its Lease Automatic Custody Transfer (LACT) units to provide a record of its pumps discharge pressures and the dates and times of operation. (Class II, Priority Action) (P-81-32)

McADAMS, GOLDMAN, and BURSLEY, Members, concurred in these recommendations. KING, Chairman, and DRIVER, Vice Chairman, did not participate.

By: James B. King
Chairman