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AI-4

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: August 26, 1981

Forwarded to:

Mr. George E. Trimble
Chairman and Chief Executive Officer
Aminoil USA Inc.
P. O. Box 94193
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SAFETY RECOMMENDATION(S)

P-81-29 and -30

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 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. Two dispatchers were on duty at the Four Corners control center; one dispatcher was responsible for directing the displacement from Marlex to Watson, and the other dispatcher was responsible for the operation of the other lines.

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

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).

Oil to the Four Corners control center. As you are aware, shipments at the receiving points (Watson and Marlex) are monitored by gauging the receiving tanks every 2 hours.

There were no provisions for remote operation of valves or shipping pumps by the Four Corners control center dispatchers, but the shipping pumps at both locations were equipped with automatic high pressure shutdown devices. The valves on line No. 8 were all manually operated.

The pressure gauges, which are located on the discharge side of the shipping pumps, were the only devices which recorded the discharge pressure on line No. 8 on the day of the accident. The LACT shipping pumps were protected by pressure relief valves set at 800 psi in addition to high-pressure shutdown switches set at 625 psig for Battery No. 1, and 640 psig for Battery No. 2, which are designed to automatically shut down the LACT shipping pumps and sound an alarm at the nearby operator's building when the operating pressure exceeds the valve setting. However, the high-pressure shutdown switch at Battery No. 1, LACT unit No. 2 which was the only LACT unit operating between 6 and 7 p.m., on December 1, 1980, was broken.

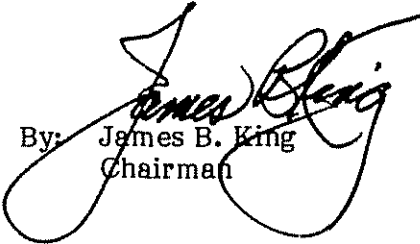
On December 3, 1980, an employee of Four Corners conducted an inspection of line No. 8 and the connecting facilities at Aminoil. The LACT unit No. 6 (closest to the operator's building) pressure gauge on the discharge side of the shipping pump was reading about 800 psi. He said he saw that the LACT No. 6 shipping pump was open to what was designated as the "ARCO" or Four Corners line and that the gauge was registering pressure generated from some source other than the shipping pumps at Battery No. 2. None of the pumping units at Battery No. 2 were operating at the time. He asked the Battery No. 2 operator about the 800 psi reading on the gauge and the operator stated "that Aminoil's Battery One or Union Oil Company must be pumping on the line since the reading was approximate 800 psi. He added that, during the approximately 10 to 15 minutes he spent at Battery No. 2, the pressure reading remained about 800 psi. He heard no alarm sound, nor saw any warning lights which would indicate that any high pressure shutdown switch or relief valve at Battery No. 2 had operated or responded to the overpressure.

As a result of its investigation, the National Transportation Safety Board recommends that the Aminoil USA, Inc.:

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-81-29)

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-81-30)

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

By: 
James B. King
Chairman