

Log P-81

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 15, 1977

Forwarded to:

Mr. Edward L. Patton
Chairman
Alyeska Pipeline Service Company
1835 S. Bragaw
Anchorage, Alaska

SAFETY RECOMMENDATION(S)

P-77-16 and 17

About 3:45 p.m. Anchorage Time, July 8, 1977, an explosion and fire occurred at Alyeska Pipeline Service Company's Pump Station No. 8 on the Trans-Alaska pipeline. As a result of the accident one person died and a number of persons were injured.

The National Transportation Safety Board's ongoing investigation indicates that the explosion at Pump Station No. 8 occurred when crude oil was turned into Pump No. 1 while the workers were servicing the pump's strainer. The oil under a pressure of about 400 p.s.i. sprayed out of the open cover and rapidly filled the building with vaporized crude oil. The vapor was ignited by one of several possible sources and exploded. The force of the explosion heavily damaged the building and the gushing crude oil was ignited. Control personnel at Valdez, Alaska, immediately shut down the system. The damage to the environment was minimal, but the pump station was practically destroyed.

We do not know yet why the employees opened the strainer cover without complying with Alyeska's printed procedures. The procedures, among other things, required that the controller at Pump Station No. 8 request from, and be granted permission by, the central controller at Valdez before working on the pump. In addition, the procedures required, after permission was granted, that those persons at Pump Station No. 8 who were going to do the work isolate the pump electrically by locking out the circuit, tagging the switch with a distinctive prescribed warning tag, and applying tags to the valves on both sides of the pump before beginning the work. None of the foregoing was done.

It appears that communications between the Pump Station No. 8 controller and the startup team broke down. Although not verified at this point, it appears that the technicians, intent on expediting the oil flow through Pump Station No. 8, may have inadvertently disregarded the procedures in their desire to change the filter while the No. 1 pump was shut

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down but not isolated. Once the suction valve began to operate, flow of oil was not reversible immediately, and the ensuing release of a high volume of oil under high pressure and the resultant vaporization and explosion was almost inevitable.

The Safety Board's preliminary study of the startup and operating plans indicates that Alyeska recognized the need for coordination among the large number of Alyeska technicians and supervisors, employees on loan from Alyeska's parent companies, and contract engineers and technicians who were required in the startup of the pipeline operation. Alyeska also foresaw the need for assigning specific responsibilities to certain personnel in addition to their routine duties.

However, at Pump Station No. 8, there apparently was a failure to completely coordinate the written startup and operating plans. Coordination between established startup procedures and the ensuing operating procedures is critical in assuring that both startup and operating employees understand their responsibilities and the importance of complying with procedures. It is within that area of coordination that the opportunity for error and deviation from procedures may be greatest. On the day of the accident if the procedures in either the startup or in the operating plan had been complied with precisely, the accident would not have happened.

Because of the loss of Pump Station No. 8, Pump Station No. 9 must be activated ahead of its original schedule. Inherent in this need to start up Pump Station No. 9 earlier than planned is the increased opportunity for error and the inclination to deviate from procedures. Increased emphasis upon proper management and supervision of the startup operations and insistence upon precise compliance with procedures is necessary to insure the safe startup and operation of Pump Station No. 9 and of other facilities whose schedules must be advanced.

Therefore, to minimize the possibility of another accident when the pumping resumes, the National Transportation Safety Board recommends that the Alyeska Pipeline Service Company:

Designate a manager or management team at each pump station with the responsibility and authority to supervise and require all personnel involved in the operation of the pump station to comply completely and consistently with all written procedures during the startup period and the continuing operations of such stations. (Class I, Urgent Followup) (P-77-16)

Review all procedures and practices which apply to pipeline startup and the ensuing operation to insure that all critical actions will be done in a safe manner. Particular

attention should be given to the interrelationships between those procedures which apply to startup and those which apply to the ensuing operations to insure complete coordination of functions. (Class I, Urgent Followup) (P-77-17)

TODD, Chairman, BAILEY, Vice Chairman, McADAMS, HOGUE and HALEY, Members, concurred in the above recommendations.

A handwritten signature in cursive script that reads "Kay Bailey".

for By: Webster B. Todd, Jr.
Chairman