

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C.

LAX 96 FR 007
DERAILMENT AND HAZARDOUS MATERIALS RELEASE
SOUTHERN PACIFIC LINES
TENNESSEE PASS, COLORADO
FEBRUARY 21, 1996

On February 21, 1996 at about 5:55 a.m., mountain standard time, Southern Pacific Lines freight train 1ASRVM-18 derailed 39 cars and 2 locomotives while descending the Tennessee Pass, a 3.0 percent grade in the Rocky Mountains of Colorado. The train's three-member traincrew consisted of a locomotive engineer, a student locomotive engineer, and a conductor. According to the conductor, the train was being operated by the student engineer. As the train started the mountainous descent it began gaining speed and eventually ran away. The runaway train broke apart three different times, resulting in three separate derailments.

The derailment resulted in the death of both engineers. The conductor, who was in the second locomotive unit during the runaway, survived with serious injuries. As a result of the derailment 51,606 gallons of sulfuric acid and 19,733 gallons of triethylene glycol, both regulated hazardous materials, were released. Four family members living on a nearby farm were evacuated from the area. Monetary damage was estimated to be \$6.8 million.

Postaccident brake tests and inspections at the accident site and subsequent bench and laboratory tests revealed no equipment failures. The locomotive event recorder had documented brake pipe pressures at both the front and rear of the train. Investigators concluded that the brake pipe was operative throughout the train, without restriction, both prior to and during the runaway. There were no compromises of the integrity of the train brake system.

Event recorder data showed that as the train descended the steep mountain grade, small (1 to 2 psi) incremental brake pipe reductions were progressively made in an apparent attempt to control the rapid increase in the train's speed. Train speed continued to increase despite continued incremental brake pipe reductions and brake application. Train speed increased to the point where the brake system no longer had the ability to stop the train. Such action would be expected of an inexperienced engineer. By the time the brakes were applied in emergency, the train was going too fast for the brakes to be effective.

RAB/98-08

The conductor stated that the student engineer had been at the controls of the locomotive since they departed Pueblo, Colorado, and was operating the train during the initial descent of the Tennessee Pass hill. After the accident, the locomotive engineer was found at the controls. The qualified engineer probably took over the controls of the locomotive sometime before the derailment.

The locomotive engineer has primary responsibility for train control. Other train crewmembers share some responsibility, but generally only after some action or inaction on the engineer's part. An engineer can and should provide the opportunity to run the train to a student engineer, but the engineer remains responsible for ensuring the train is handled in a safe and acceptable manner.

PROBABLE CAUSE

The National Transportation Safety Board determines that the probable cause of this accident was the mismanagement of the air brake system by the student engineer, allowing the speed of the train to increase to the point where the brake system no longer had the ability to stop the train, and the failure of the locomotive engineer to ensure proper train control.

Adopted: August 18, 1998