

In re investigation of an accident which occurred
on the Southern Pacific Company near Teha-
chapi, Calif., on July 3, 1918.

July 31, 1918.

On July 3, 1918, there was a derailment of a light engine on the lines of the Southern Pacific Company near Tehachapi, Calif., which resulted in the death of two employees. After investigation the Chief of the Bureau of Safety reports as follows:

That part of the Bakersfield and Mojave Subdivision of the San Joaquin Division of the Southern Pacific Company, on which this accident occurred, is a single-track line over which trains are operated by time-table, train orders and an automatic block system.

Locomotive 2309, which was in charge of Engineman Green and Fireman Logsdon, left Bakersfield at 12.15 p.m. as a helper on passenger train No. 106, and arrived at Tehachapi, 47.7 miles east of Bakersfield, at 2.31 p.m. It was then cut off and taken to Summit, 1.8 miles east of Tehachapi, turned on the fly and returned to Tehachapi at about 2.44, where the crew received train order No. 262, reading as follows:

Eng. 2309 run extra Tehachapi to Kern Jet. Meet No. 342 at Goodford.

Locomotive 2309 left Tehachapi at about 2.48 p.m. and was derailed at a point about $2\frac{1}{2}$ miles west of Tehachapi at about 2.57 p.m. while running at a speed estimated to have been

The accident occurred on a 10-degree curve to the left, having a superelevation of four inches, and on a descending grade of about 2 per cent.

The first indication of derailment was a wheel mark on top of the rail on the outside of the curve at a point about 150 feet west of mile post 358, this mark extending from the outside to the inside of the rail for a distance of 12 feet, and undoubtedly was made by the outside edge of the tread of the front wheel on the forward tender truck. Then there was a mark on the same rail extending about 5 feet, probably caused by a bolt in the truck frame coming in contact with the rail when the wheels dropped inside. Beginning at a point about 15 feet west of the first mark on the rail, there were marks on the ties on the inside of the outside rail for a distance of 55 feet, and the ends of the ties on that side of the track were badly broken, indicating that the tender had become derailed and was dragged over the ends of the ties. At a point 85 feet west of the first marks on the ties, the tank left the roadbed and struck the embankment on the right hand side of the track, making a hole 5 feet deep and 18 feet long in the embankment; the tank came to a stop about 25 feet from the center of the track. The tender frame was turned upside down, but remained attached to the locomotive, the locomotive coming to rest on its side on the right hand side of the track with its head end about 230 feet west of the first marks on the ties. Both the engine and tender were considerably damaged. The engineer and a tunnel watchman,

fireman injured.

The track consisted of 90-pound steel rails, 53 feet in length, with 18 ties under each rail, continuous rail joints, fully bolted and tie plated with 4 spikes to each plate, and ballasted with eight inches of crushed rock, and was in proper gauge and alignment. The weather at the time was clear.

Fireman Logsdon stated that when locomotive 2509 arrived at Tehachapi with train No. 108, it was cut off and taken to Summit, turned around and returned to Tehachapi at about 2.45 p.m. He filled the tank at Tehachapi while the engineman secured the orders and after he had read the orders which the engineman gave him, they started toward Bakersfield, the tunnel watchman having gotten on the engine at Tehachapi. He said the engineman worked steam until they reached the home signal west of Tehachapi, and then coasted down the hill, using only the independent brake to control the speed, and were proceeding at a speed of about 25 miles an hour when the tender began to lurch, at which time the engineman applied the automatic air brakes in emergency. He looked back and saw the tender rise up on the left hand side and tip over toward the right, and he then got off the engine. He stated that the locomotive was running smoothly prior to this time, and in his opinion the rear truck on the left hand side of the tender was the first to be derailed, and when the tender left the track it derailed the locomotive. He could not say how many applications of the air brakes were

occurred, but said several were made, but the automatic air brakes were not applied until the tender began to jump, and thought the locomotive ran for a distance of 30 or 40 feet before being derailed. Fireman Legsdon was positive that the speed of locomotive 2309 was not in excess of 25 miles an hour at any time after leaving Tehachapi.

Headmaster Lutton stated that he examined the track at point of derailment and found it to be in good condition. He found one of the tender trucks lying about 30 feet from the center of the track. He thought that the accident was caused by too great speed on the curve, which probably caused the tender wheels on the inside of the curve to rise off the rail. He did not think the tank was too heavy because they had experienced no trouble with it in that respect.

Operator Manning, on duty at Tehachapi, stated he delivered the train orders to Engineer Green who asked him to register him as arriving at 2.44 p.m. and as departing at 2.45 p.m. Operator Manning stated that locomotive 2309 left Tehachapi at about 2.48 p.m.

While the cause of this accident could not be definitely ascertained, it is believed to have been due to speed too high for the superelevation on a 10-degree curve.

By the time-card rule the speed of passenger trains at point of accident is restricted to 30 miles an hour, and while the fireman was positive in stating that the speed was not in excess of 25 miles an hour, the force with which the tank

fore coming to a stop seems to indicate that it was running at a speed in excess of 25 miles an hour at the time of the accident.

In this connection, it is to be noted that the superelevation of the 10-degree curve upon which this accident occurred is 4 inches. To provide proper safety for trains running at a speed of 30 miles an hour, the superelevation on this curve should be increased.

Engineman Green was employed as a fireman in 1900 and promoted to engineman in 1907. Fireman Legeson was employed as such in 1915.